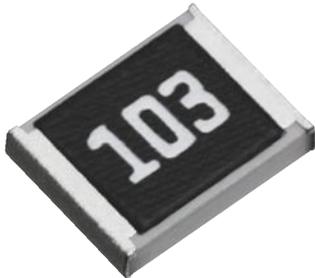


# Resistors, Thermistors & Potentiometers

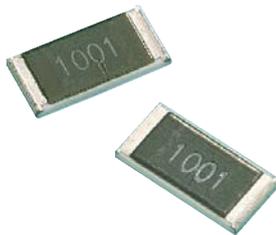
## Latest Products from...

### Anti-Pulse Resistors



See page 1352

### Current Sense Resistors



See page 1342

### Premium Guitar Potentiometers



See page 1405

### Precision Metal Film Resistors



See page 1373

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\*minimum order quantity of 150 pieces

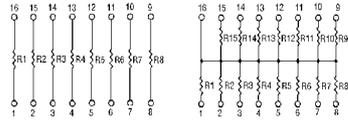
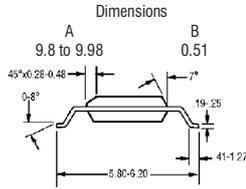
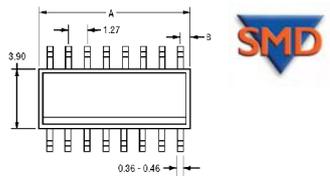
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### Thin Film Networks

#### VSOR Series - DIL Surface Mount

1.27mm (0.05") Pitch



- Bussed or isolated circuits
- 16 pin small outline package

- Tantalum nitride on silicone technology
- Compatible with automatic insertion equipment

Power rating per element	100mW	TCR tracking	±10ppm/°C
Resistance tolerance	±5%	TCR absolute	±100ppm/°C
Maximum voltage	50V d.c.		

Stocked in the following OHMIC Values:

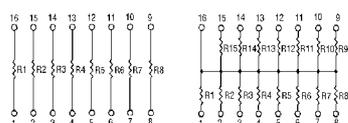
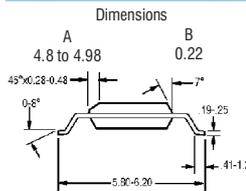
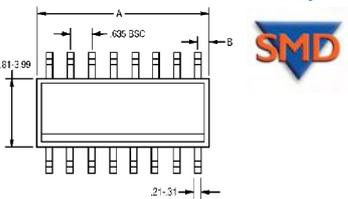
<b>VSOR 1601 Bussed Resistors</b>	470R = 120-3464	1K = 120-3465	4K7 = 120-3467	10K = 120-3468
<b>VSOR 1603 Isolated Resistors</b>	22R = 120-3449	100R = 120-3452	470R = 120-3456	4K7 = 120-3461
	33R = 120-3450	220R = 120-3453	1K = 120-3457	10K = 120-3462
	47R = 120-3451	330R = 120-3455	2K2 = 120-3458	

207307

Style	Order Code	1+	25+	50+	100+	500+
VSOR 1601	All Values ●	2.10	1.96	1.87	1.44	1.35
VSOR 1603	All Values ●	2.16	2.01	1.93	1.48	1.39

#### VSSR Series - DIL Surface Mount

0.635mm (0.025") Pitch



- Bussed or isolated circuits
- 16 pin small outline package

- Tantalum nitride on silicone technology
- Compatible with automatic insertion equipment

Power rating per element	100mW	TCR tracking	±10ppm/°C
Resistance tolerance	±5%	TCR absolute	±100ppm/°C
Maximum voltage	50V d.c.		

Stocked in the following OHMIC Values:

<b>VSSR 1601 Bussed Resistors</b>	330R = 120-3482	1K = 120-3483	4K7 = 120-3486	10K = 120-3487
<b>VSSR 1603 Isolated Resistors</b>	33R = 120-3469	220R = 120-3473	510R = 120-3475	1K = 120-3478
	51R = 120-3470	330R = 120-3474	680R = 120-3477	2K2 = 120-3479
	68R = 120-3471		20K = 120-3481	

207306

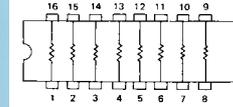
Style	Order Code	1+	25+	50+	100+	500+
VSSR 1601	All Values ●	2.10	1.96	1.87	1.44	1.35
VSSR 1603	All Values ●	2.10	1.95	1.87	1.44	1.35

### Thin Film Precision Networks

#### RMKMS816 Series - DIL Surface Mount



- High stability nichrome film technology
- Close tolerance
- Low TCR



L = 10, W = 4.0  
Lead spacing = 6.3 to 6.6, Lead pitch = 2.54 (8 resistors, 16 pins)

Power rating @ 70°C	50mW/element	TCR tracking	±5ppm/°C max
Absolute tolerance	±0.1%	TCR absolute	±15ppm/°C (-55 to 125°C)
Ratio tolerance	±0.05%		±10ppm/°C (0 to 70°C)
Operating temperature	-55°C to +125°C		

Stocked in the following OHMIC Values:

1K = 116-5213	10K = 116-5212	100K = 116-5211
---------------	----------------	-----------------

207308

Order Code	1+	5+	Price Each	25+	50+
Values 1K to 10K ●	10.29	9.58	9.22	7.08	6.69
Values 100K ●	10.38	9.67	9.29	7.91	7.49

### Thick Film Networks

#### RNA310 Series - Surface Mount

1206 Case Size



- Eight bussed thick film chip resistors on one 1206 package

Supplied on 8mm embossed tape (reel=5k pcs)



L=3.3±0.2, W=1.6±0.15, H=0.55±0.1

Power rating @ 70°C	310mW	Temperature coefficient	≤200x 10 <sup>-6</sup> /K
Resistance tolerance	±5%	Operating temperature	-55°C to +125°C
Maximum Voltage	25V d.c or a.c rms		

Stocked in the following OHMIC Values:

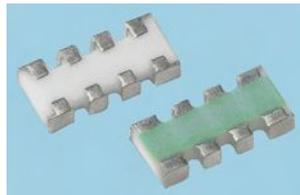
47R = 923-6112	150R = 923-6147	1K = 923-6180	10K = 923-6236	47K = 923-6279
68R = 923-6120	330R = 923-6155	3K3 = 923-6201	22K = 923-6252	100K = 923-6287
100R = 923-6139	470R = 923-6163	4K7 = 923-6210	33K = 923-6260	

227147

Order Multiple=5	Style	Order Code	5+	25+	100+	500+	1K+
RNA310	All Values ● RL		0.129	0.095	0.084	0.061	0.054

#### Precision Thin Film Chip Resistor Arrays

ACAS Series



ACAS 0612 (convex terminations) thin chip resistor arrays combine the proven reliability of precision thin film chip resistor products with the advantages of chip resistor arrays. Defined tolerances and TCR tracking makes this product perfectly suited for applications with outstanding requirements towards stable fixed resistor ratios. A small package enables the design of high density circuits in combination with reduction of assembly costs. Four equal resistor values or two pairs are available.

Applications with outstanding requirements towards stable fixed resistor ratios. A small package enables the design of high density circuits in combination with reduction of assembly costs. Four equal resistor values or two pairs are available.

- Advanced thin film technology
- Two pairs or four equal resistor values
- Automotive version available qualified to AECQ200
- TCR tracking down to 10 ppm/K (± 5 ppm/K)
- Tolerance matching down to 0.1% (± 0.05%)

Case style	0612	Temperature coefficient	±25ppm/K
Power rating @ 70°C	300mW	Operating voltage	75V
Operating temperature	-55°C to +155°C		

Four Equal Resistance Values

100R = 154-9047	1K = 154-9046	4K7 = 154-9044	10K = 154-9045	47K = 154-9048
-----------------	---------------	----------------	----------------	----------------

Order Code	1+	25+	Price Each	100+	250+
All Values ●	1.23	1.06	0.98	0.84	0.76

Two Pairs of Resistance Values

100R/200R = 154-9049	1K/2K = 154-9051	10K/15K = 154-9053	10K/30K = 154-9056
100R/300R = 154-9050	1K/3K = 154-9052	10K/20K = 154-9055	

Order Code	1+	25+	Price Each	100+	250+
All Values ●	1.56	1.35	1.25	1.06	0.95

Automotive Version - Four Equal Resistance Values

100R = 156-0922	1K = 156-0923	4K7 = 156-0924	10K = 156-0925	47K = 156-0926
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£ € 40,000 PRICES REDUCED

Thick Film Networks - continued

Precision Thin Film Chip Resistor Arrays - continued

Two Pairs of Resistance Values - continued

Order Code	1+	25+	50+	100+	250+
All Values ●	1.37	1.19	1.11	0.95	0.86

Automotive Version - Two Pairs of Resistance Values

100R/200R = 156-0927 1K/2K = 156-0929 10K/15K = 156-0932 10K/30K = 156-0934  
 100R/300R = 156-0928 1K/3K = 156-0930 10K/20K = 156-0933

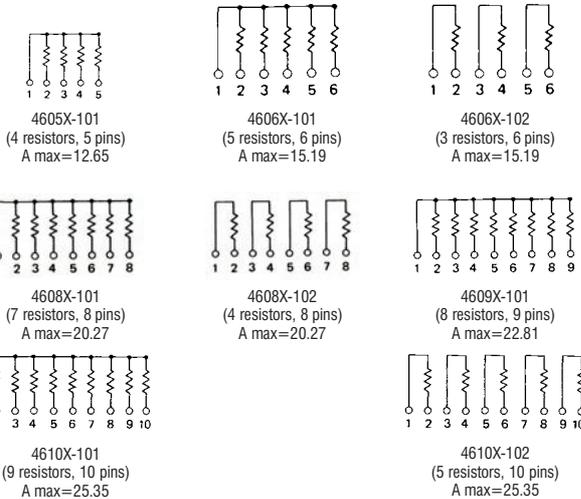
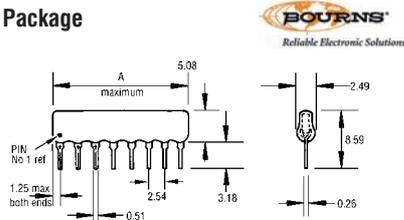
527077

Order Code	1+	25+	50+	100+	250+
All Values ●	1.77	1.54	1.44	1.24	1.13

Conformal Single In-Line Package



Schematic Diagrams



Thick film, resistor networks in 5, 6, 8, 9 or 10 pin, the 8 pin being available in either bussed or isolated configuration. Laser marked on a gold epoxy coating for permanent identification.

Power rating @ 70°C	200mW/element (bussed) 300mW/element (isolated)	Resistance T.C. tracking	±50ppm/°C
Resistance tolerance	±100ppm/°C for 10R to 50R	Voltage rating	100V dc
Resistance T.C.	±2% (±250ppm/°C for 10R to 50R)	Insulation resistance	10MΩ min
		Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

**4605X-101**  
 1K = 935-6053 4K7 = 935-6100 22K = 935-6096 100K = 935-6070  
 2K2 = 935-6088 10K = 935-6061 47K = 935-6118

**4606X-101**  
 100R = 935-6126 1K = 935-6134 3K3 = 935-6223 22K = 935-6207 220K = 935-6215  
 22R = 935-6185 1K5 = 935-6177 4K7 = 935-6240 47K = 935-6258 470K = 935-6266  
 470R = 935-6231 2K2 = 935-6193 10K = 935-6142 100K = 935-6150 1M = 935-6169  
 680R = 935-6274

**4606X-102**  
 100R = 935-6282 2K2 = 935-6339 10K = 935-6304 1M = 935-6320  
 1K = 935-6290 4K7 = 935-6347 100K = 935-6312

**4608X-101**  
 100R = 935-6355 1K = 935-6363 10K = 935-6371 100K = 935-6380 470K = 935-6487  
 220R = 935-6401 2K2 = 935-6410 22K = 935-6428 220K = 935-6436 1M = 935-6398  
 470R = 935-6452 4K7 = 935-6460 47K = 935-6479

**4608X-102**  
 10R = 935-6495 100R = 935-6509 680R = 935-6754 2K7 = 935-6630 100K = 935-6533  
 22R = 935-6576 150R = 935-6550 1K = 935-6517 3K3 = 935-6673 220K = 935-6614  
 33R = 935-6649 270R = 935-6622 1K5 = 935-6568 10K = 935-6525 470K = 935-6720  
 47R = 935-6681 330R = 935-6665 2K2 = 935-6592 22K = 935-6606 1M = 935-6541  
 56R = 935-6738 470R = 935-6690

**4609X-101**  
 10R = 935-6789 150R = 935-6843 1K = 935-6800 4K7 = 935-7025 47K = 935-7033  
 22R = 935-6894 180R = 935-6878 1K5 = 935-6851 15K = 935-6860 100K = 935-6827  
 33R = 935-6967 270R = 935-6940 2K2 = 935-6916 18K = 935-6886 220K = 935-6932  
 47R = 935-7009 470R = 935-7017 2K7 = 935-6959 22K = 935-6924 470K = 935-7041  
 100R = 935-6797 680R = 935-7050 3K3 = 935-6983 33K = 935-6991 1M = 935-6835

**4610X-101**  
 220R = 935-7165 1K = 935-7114 4K7 = 935-7238 47K = 935-7246 220K = 935-7190  
 330R = 935-7203 2K2 = 935-7173 10K = 935-7122 100K = 935-7130 1M = 935-7149  
 470R = 935-7220 3K3 = 935-7211 22K = 935-7181

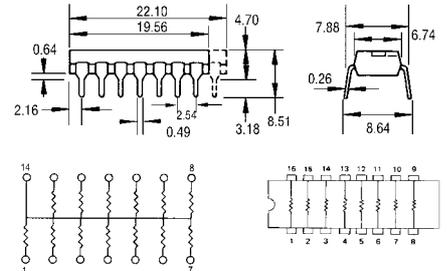
4610X-102

22R = 935-7289 47R = 935-7327 220R = 935-7297 1K = 935-7262 4K7 = 935-7343  
 33R = 935-7319 100R = 935-7254 470R = 935-7335 2K2 = 935-7300 10K = 935-7270

207423

Order Multiple=5	Order Code	5+	100+	500+	1K+
Style	All Values ●	0.175	0.154	0.141	0.114
4605X-101	All Values ●	0.168	0.149	0.136	0.110
4606X-101	All Values ●	0.173	0.153	0.140	0.113
4608X-101	All Values ●	0.185	0.154	0.143	0.108
4608X-102	All Values ●	0.196	0.163	0.151	0.114
4609X-101	All Values ●	0.190	0.159	0.147	0.111
4610X-101	All Values ●	0.240	0.190	0.168	0.132
4610X-102	All Values ●	0.240	0.190	0.168	0.132

Moulded Dual In-Line Package



4114R-001 (7 resistors, 14 pins) 4114R-002 (13 resistors, 14 pins) 4116R-001 (8 resistors, 16 pins)

Thick film resistor networks having 7 and 8 isolated resistors or 13 bussed resistors of equal value. Laser marked on a gold epoxy coating for permanent identification.

Power rating @ 70°C	2W	Resistance T.C. tracking	±50ppm/°C
4114R Series	2.25W	Voltage rating	100V dc
4116R Series	±2%	Insulation resistance	10MΩ min
Resistance tolerance	±100ppm/°C	Operating temperature	-55°C to +125°C
Resistance T.C.			

Stocked in the following OHMIC Values:

**4114R-001**  
 47R = 935-5715 150R = 935-5669 470R = 935-5723 4K7 = 935-5731 47K = 935-5740  
 68R = 935-5758 220R = 935-5677 1K = 935-5634 10K = 935-5642 100K = 935-5650  
 100R = 935-5626 270R = 935-5707 2K2 = 935-5685 22K = 935-5693

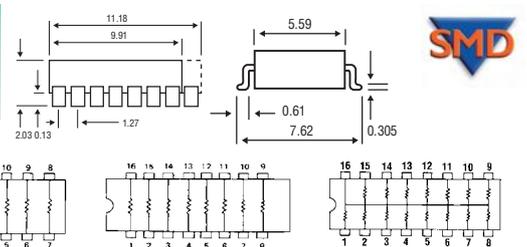
**4114R-002**  
 2K2 = 935-5782 4K7 = 935-5790 10K = 935-5774

**4116R-001**  
 10R = 935-5804 100R = 935-5812 330R = 935-5936 1K5 = 935-5863 10K = 935-5839  
 22R = 935-5871 150R = 935-5855 470R = 935-5960 2K2 = 935-5898 22K = 935-5901  
 33R = 935-5928 220R = 935-5880 680R = 935-6002 3K3 = 935-5944 47K = 935-5987  
 47R = 935-5952 270R = 935-5910 1K = 935-5820 4K7 = 935-5979 100K = 935-5847  
 68R = 935-5995

207424

Order Multiple=5	Order Code	5+	100+	500+	1K+
Style	All Values ●	0.35	0.30	0.29	0.26
4114R-001	All Values ●	0.34	0.29	0.28	0.25
4116R-001	All Values ●	0.35	0.30	0.29	0.26

Surface Mount - Moulded Dual In-Line



4814P-T01 (7 resistors, 14 pins) 4816P-T01 (8 resistors, 16 pins) 4816P-T02 (15 resistors, 16 pins)

Surface mount thick film resistor networks having 7 and 8 isolated resistors or 15 bussed resistors of equal value. Laser marked on a gold epoxy coating for permanent identification. Compatible with automatic placement equipment and all popular soldering techniques.

Power rating @ 70°C	1.12W	Voltage rating	50V dc
4814P Series	1.28W	Resistance T.C.	±100ppm/°C
4816P Series	±2%	Insulation resistance	10MΩ min
Resistance tolerance	±50ppm/°C	Operating temperature	-55°C to +125°C
Resistance T.C. tracking			

Stocked in the following OHMIC Values:

**4814P-T01**  
 33R = 935-7416 470R = 935-7424 2K2 = 935-7408 4K7 = 935-7432 10K = 935-7386  
 100R = 935-7360 1K = 935-7378

4816P-T01

10R = 935-7440	220R = 935-7505	2K2 = 935-7513	10K = 935-7475	100K = 935-7483
33R = 935-7521	470R = 935-7530	4K7 = 935-7548	47K = 935-7556	1M = 935-7491
100R = 935-7459	1K = 935-7467			

4816P-T02

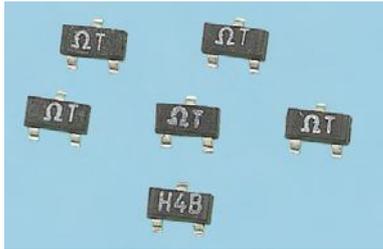
100R = 935-7564	470R = 935-7637	2K2 = 935-7629	10K = 935-7580	100K = 935-7599
220R = 935-7610	1K = 935-7572	4K7 = 935-7645	47K = 935-7653	1M = 935-7602

207198

Order Multiple=5	Style	Order Code	5+	50+	100+	500+	1K+
	4814P-T01	All Values	0.98	0.90	0.81	0.63	0.46
	4816P-T01	All Values	1.12	1.02	0.93	0.73	0.53
	4816P-T02	All Values	0.88	0.81	0.73	0.61	0.45

Thin Film Precision Dividers

MPM Series - SOT23 Package Surface Mount



- Precision thin film dividers for gain defining applications
- Low TCR
- Close ratio tolerances

207304

Ratio	Resistance Values	Order Code	1+	5+	10+	25+	50+
100:1	1K/100K	SMD120-3383	5.68	5.29	5.10	3.92	3.68
50:1	1K/50K	SMD120-3384	5.68	5.29	5.10	3.92	3.68
20:1	1K/20K	SMD120-3386	3.76	3.49	3.36	2.56	2.43
10:1	1K/10K	SMD120-3387	3.71	3.45	3.32	2.53	2.40
9:1	1K/9K	NEW157-2809	3.24	3.02	2.89	2.21	2.11
5:1	1K/5K	SMD120-3388	3.76	3.49	3.36	2.56	2.43
4:1	2K/8K	NEW157-2808	3.24	3.02	2.89	2.21	2.11
2:1	1K/2K	SMD120-3389	3.71	3.45	3.32	2.53	2.40
2:1	5K/10K	NEW157-2810	3.24	3.02	2.89	2.21	2.11
1:1	1K/1K	SMD120-3390	3.79	3.52	3.40	2.58	2.45
1:1	500R/500R	SMD120-3391	3.68	3.42	3.30	2.51	2.38
1:1	10K/10K	SMD120-3392	2.90	2.70	2.58	2.00	1.88
1:1	25K/25K	NEW157-2812	3.24	3.02	2.89	2.21	2.11
1:1	50K/50K	NEW157-2813	3.24	3.02	2.89	2.21	2.11
1:1	100K/100K	NEW157-2811	3.24	3.02	2.89	2.21	2.11

MP Series

Surface Mount Network



Vishay Thin Film MP Series Dividers provide  $\pm 2$  ppm/ $^{\circ}$ C tracking and a ratio tolerance as tight as  $\pm 0.05\%$ , ultra small size, 3 or 4 lead package and exceptional stability for all surface mount applications. The standard SC70 package format with common standard resistance values provide easy selection for most applications requiring matched pair resistor elements.



527131

Ratio	Resistance Values	Order Code	1+	5+	10+	25+	50+
1:1	1K/1K	157-2822	1.87	1.75	1.68	1.28	1.21
1:1	10K/10K	157-2823	1.87	1.75	1.68	1.28	1.21

ORN Series

Molded Dual-In-Line Resistor Network



207366

ORN series resistor networks feature four isolated resistors with standard 50 mil pitch lead spacing. The networks feature close TCR tracking and tight ratio tolerance and are ideally suited for unity gain operational amplifier circuitry.

527127

Ratio	Resistance Values	Order Code	1+	5+	10+	25+	50+
2:1	10K/5K	157-2814	4.25	3.42	2.85	2.40	2.18
5:1	10K/2K	157-2815	3.48	3.06	2.54	2.34	2.12
10:1	10K/1K	157-2816	3.48	3.06	2.54	2.34	2.12
20:1	20K/1K	157-2818	3.48	3.06	2.54	2.34	2.12
25:1	25K/1K	157-2819	3.73	3.14	2.92	2.55	2.30
50:1	50K/1K	157-2820	3.73	3.11	2.94	2.63	2.34
100:1	100K/1K	157-2821	3.93	3.63	3.19	2.77	2.55

MPDA Series

Molded Resistor Network



The MPDA Series dividers provide  $\pm 2$  ppm/ $^{\circ}$ C tracking and a ratio tolerance as tight as  $\pm 0.05\%$ , small size, and exceptional stability for all surface mount applications. The standard SOT-143 package format with unity and common standard resistance divider ratios provide easy selection for most applications requiring matched pair resistor elements.

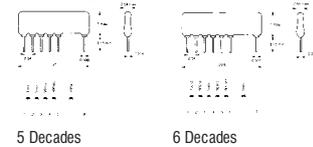
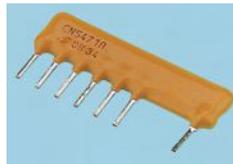


527132

Ratio	Resistance Values	Order Code	1+	5+	10+	25+	50+
1:1:1	10K/10K/10K	157-2824	1.96	1.81	1.74	1.34	1.27

Thin Film Precision Voltage Divider Networks

CNS471 Series - 5 & 6 Decades



- High stability nichrome thin film technology
- Close tolerance, low TCR
- Compact SIL package
- High voltage

Divider values	9M/900K/90K/9K/1K	Absolute tolerance	0.1%
5 decades		Ratio tolerance	0.03% to 0.1%
6 decades	9M/900K/90K/9K/900R/100R	TCR absolute	<25ppm/ $^{\circ}$ C
Voltage rating	1200V	Voltage coefficient	<2.5ppm/ $^{\circ}$ C

207303

Style	Order Code	1+	5+	10+	25+	50+
5 Decades	116-5209	15.17	14.87	14.58	11.85	11.49
6 Decades	116-5210	14.93	12.69	11.94	11.24	10.58

Resistor Arrays

0804 Case Size



- Four surface mount resistors on one 0804 package
- Supplied on tape (reel = 10Kpcs)
- Power rating 0.063W
- Resistance tolerance 5%
- Maximum voltage 50V a.c./d.c.
- Climatic category (IEC68) 55/125/56



L=2 W=1 H=0.5

Stocked in the following OHMIC values

0R = 923-5221	68R = 923-5299	470R = 923-5345	3K3 = 923-5396	47K = 923-5442
10R = 923-5248	100R = 923-5302	680R = 923-5353	4K7 = 923-5400	68K = 923-5450
15R = 923-5256	150R = 923-5310	1K = 923-5361	10K = 923-5418	100K = 923-5469
22R = 923-5264	220R = 923-5329	1K5 = 923-5370	15K = 923-5426	220K = 923-5485
33R = 923-5272	330R = 923-5337	2K2 = 923-5388	22K = 923-5434	1M = 923-5515
47R = 923-5280				

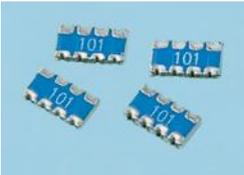
207366

Order Multiple=10	Order Code	10+	50+	100+	1K+	5K+
ARV 341	All Values	0.157	0.152	0.141	0.100	0.075

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Resistor Arrays - continued

1206 Case Size



Four surface mount resistors in one 1206 size package.

L = 3.2, W = 1.6, H = 0.6  
Supplied on tape (reel = 5K pcs)



**ARC 242 ±1%** - (Concave terminations) Stocked in the following OHMIC Values  
 0R = 923-4675 68R = 923-4730 680R = 923-4799 10K = 923-4853 68K = 923-4900  
 10R = 923-4683 100R = 923-4748 1K = 923-4802 15K = 923-4861 100K = 923-4918  
 15R = 923-4691 150R = 923-4756 1K5 = 923-4810 22K = 923-4870 150K = 923-4926  
 22R = 923-4705 220R = 923-4764 2K2 = 923-4829 33K = 923-4888 220K = 923-4934  
 33R = 923-4713 330R = 923-4772 3K3 = 923-4837 47K = 923-4896 470K = 923-4942  
 47R = 923-4721 470R = 923-4780 4K7 = 923-4845

**ARC 241 ±5%** - (Concave terminations) Stocked in the following OHMIC Values  
 10R = 924-1132 100R = 924-1191 820R = 923-5051 6K8 = 924-1302 56K = 923-5175  
 15R = 924-1140 120R = 923-5000 1K = 924-1256 8K2 = 923-5124 68K = 924-1361  
 18R = 923-4950 150R = 924-1205 1K2 = 923-5060 10K = 924-1310 100K = 924-1370  
 22R = 924-1159 180R = 923-5019 1K5 = 924-1264 12K = 923-5132 150K = 924-1388  
 27R = 923-4969 220R = 924-1213 1K8 = 923-5078 15K = 924-1329 180K = 923-5191  
 33R = 924-1167 270R = 923-5027 2K2 = 924-1272 18K = 923-5140 220K = 924-1396  
 39R = 923-4977 330R = 924-1221 2K7 = 923-5086 22K = 924-1337 330K = 924-1400  
 47R = 924-1175 390R = 923-5035 3K3 = 924-1280 27K = 923-5159 470K = 924-1418  
 56R = 923-4985 470R = 924-1230 3K9 = 923-5094 33K = 924-1345 680K = 924-1426  
 68R = 924-1183 560R = 923-5043 4K7 = 924-1299 39K = 923-5167 1M = 923-5213  
 82R = 923-4993 680R = 924-1248 5K6 = 923-5116 47K = 924-1353

**ARV 241 ±5%** - (Convex terminations) Stocked in the following OHMIC values  
 0R = 923-4381 47R = 923-4438 330R = 923-4489 2K2 = 923-4535 33K = 923-4586  
 10R = 923-4390 68R = 923-4446 470R = 923-4497 3K3 = 923-4543 47K = 923-4594  
 15R = 923-4403 100R = 923-4454 680R = 923-4500 4K7 = 923-4551 100K = 923-4616  
 22R = 923-4411 150R = 923-4462 1K = 923-4519 10K = 923-4560 150K = 923-4624  
 33R = 923-4420 220R = 923-4470 1K5 = 923-4527 15K = 923-4578

207245

Order Multiple=10 Order Code	10+	50+	100+	1K+	5K+
ARC 242 ● RL	0.240	0.220	0.200	0.140	0.104
ARC 241 ARV241 ● RL	0.075	0.069	0.067	0.047	0.036

ARV1206 ±1% (convex terminations)

Stocked in the following ohmic values

10R = 108-6513 220R = 108-6548 4K7 = 108-6574 82K = 108-6536  
 12R = 108-6515 270R = 108-6550 5K6 = 108-6575 100K = 108-6538  
 15R = 108-6517 330R = 108-6552 6K8 = 108-6576 120K = 108-6540  
 18R = 108-6519 390R = 108-6555 8K2 = 108-6577 150K = 108-6542  
 22R = 108-6521 470R = 108-6557 10K = 108-6512 180K = 108-6544  
 27R = 108-6524 560R = 108-6561 12K = 108-6514 220K = 108-6547  
 33R = 108-6526 820R = 108-6565 15K = 108-6516 270K = 108-6549  
 39R = 108-6528 1K = 108-6508 18K = 108-6518 330K = 108-6551  
 47R = 108-6530 1K2 = 108-6566 22K = 108-6520 390K = 108-6554  
 56R = 108-6532 1K5 = 108-6567 27K = 108-6523 470K = 108-6556  
 68R = 108-6535 1K8 = 108-6568 33K = 108-6525 560K = 108-6559  
 82R = 108-6537 2K2 = 108-6569 39K = 108-6527 680K = 108-6562  
 100R = 108-6539 2K7 = 108-6570 47K = 108-6529 680R = 108-6563  
 120R = 108-6541 3K3 = 108-6572 56K = 108-6531 820K = 108-6564  
 150R = 108-6543 3K9 = 108-6573 68K = 108-6533 1M = 108-6511  
 180R = 108-6545

423719

Order Multiple = 10 Order Code	10+	50+	100+	1K+	5K+
All Values ● RL	0.171	0.152	0.133	0.112	0.099

Resistor Arrays - Full Reels

● Four surface mount resistors in one 1206 size package supplied on full reels

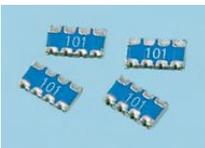


**ARC 241 ±5%** - (Concave terminations) Stocked in the following OHMIC Values  
 0R = 111-7478 68R = 111-7477 1K5 = 111-7450 15K = 111-7451 150K = 111-7453  
 10R = 111-7448 100R = 111-7443 2K2 = 111-7456 22K = 111-7457 220K = 111-7458  
 15R = 111-7454 150R = 111-7449 3K3 = 111-7461 33K = 111-7462 330K = 111-7463  
 22R = 111-7459 220R = 111-7455 4K7 = 111-7467 47K = 111-7468 470K = 111-7470  
 33R = 111-7465 470R = 111-7466 6K8 = 111-7473 68K = 111-7474 680K = 111-7475  
 47R = 111-7471 1K = 111-7444 10K = 111-7445 100K = 111-7446 1M = 111-7447

423709

Order Code	Reel Quantity	Price Per Reel
All Values ●	5000	85.59 77.04

1220 Case Size



● Four 1206 surface mount resistors in one 1220 size package.

L = 5.08mm, W = 3.2mm, H = 0.6mm



Power rating 125mW Resistance tolerance 5% Maximum voltage 200V

Stocked in the following OHMIC values

10R = 137-7075 150R = 137-7082 1K5 = 137-7089 15K = 137-7095 150K = 137-7104  
 15R = 137-7076 220R = 137-7083 2K2 = 137-7090 22K = 137-7096 220K = 137-7105  
 22R = 137-7077 330R = 137-7084 3K3 = 137-7091 33K = 137-7098 330K = 137-7106  
 33R = 137-7078 470R = 137-7086 4K7 = 137-7092 47K = 137-7099 470K = 137-7107  
 47R = 137-7079 680R = 137-7087 6K8 = 137-7093 68K = 137-7101 680K = 137-7108  
 68R = 137-7080 1K = 137-7088 10K = 137-7094 100K = 137-7102 1M = 137-7109  
 100R = 137-7081

477008

Order Multiple=10 Order Code	10+	50+	100+	1K+	4K+
All Values ● RL	0.250	0.240	0.220	0.199	0.167

0616 Case Size



● Eight 0402 surface mount resistors in one 0616 size package.

L = 4.00mm, W = 1.60mm, H = 0.45mm



Power rating 62.5mW Resistance tolerance 5% Maximum voltage 50V

Stocked in the following OHMIC values

0R = 137-7038 100R = 137-7045 1K5 = 137-7054 15K = 137-7060 150K = 137-7068  
 10R = 137-7039 150R = 137-7046 2K2 = 137-7055 22K = 137-7062 220K = 137-7069  
 15R = 137-7040 220R = 137-7047 3K3 = 137-7056 33K = 137-7063 330K = 137-7070  
 22R = 137-7041 330R = 137-7049 4K7 = 137-7057 47K = 137-7064 470K = 137-7071  
 33R = 137-7042 470R = 137-7051 6K8 = 137-7058 68K = 137-7065 680K = 137-7072  
 47R = 137-7043 680R = 137-7052 10K = 137-7059 100K = 137-7067 1M = 137-7074  
 68R = 137-7044 1K = 137-7053

477010

Order Multiple=10 Order Code	10+	50+	100+	1K+	5K+
All Values ● RL	0.200	0.189	0.167	0.146	0.115

Zero Ohm Link

0.25 Watt - MCF 1/4W Series



L = 6.8 max, Dia = 2.5 max  
 Lead length = 28.0, Lead dia = 0.6  
 Supplied bandoliered on tape (box = 5K pcs)

● Low resistance link in a standard resistor size

Power rating @ 70°C 0.25W Insulation resistance Dry 10000MΩ  
 Maximum resistance 0.01Ω Wet 100MΩ  
 Dielectric strength 500V rms Current rating 25A @ 25°C derating  
 OA @ 150°C

207413

Order Code	50+	500+	1K+	5K+	10K+
933-9027 ●	0.017	0.014	0.011	0.008	0.007

Carbon Ceramic

Surface Mount Power Resistors



RC Series



● Carbon composition  
 ● Flammability UL material rating UL94V0

Power rating 0.25W  
 Temperature coefficient ±400ppm/°C  
 Tolerance 5%  
 Voltage rating 250V



L = 10.01mm, W = 4.04mm, D = 4.04mm

Stocked in the following OHMIC values:

68R = 155-0737 15R = 155-0739 68R = 155-0741 470R = 155-0744 1K = 155-0745  
 10R = 155-0738 47R = 155-0740 100R = 155-0742

501307

Order Multiple=1 Order Code	1+	10+	25+	50+	250+
All Values ●	1.96	1.77	1.54	1.31	1.12

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**CBT25 Series – 0.25 Watt ±5%**



- Axial solid carbon composition resistors
- 0.25 Watt power rating
- Excellent pulse withstand capabilities, whilst remaining very stable

L=6.3 max, Dia.=2.4 max,  
Lead length=27.0, Lead dia.=0.6

Power rating @ 70°C	0.25W	Maximum overload voltage	400V
Temperature coefficient	-400 to +700ppm/°C	Operating temperature	-55°C to + 125°C
Voltage rating	250V		

Stocked in the following OHMIC Values:

1R = 126-5053	33R = 126-5062	680R = 126-5071	15K = 126-5080	330K = 126-5089
1R5 = 126-5054	47R = 126-5063	1K = 126-5072	22K = 126-5081	470K = 126-5091
2R2 = 126-5055	68R = 126-5065	1K5 = 126-5073	33K = 126-5082	680K = 126-5092
3R3 = 126-5056	100R = 126-5066	2K2 = 126-5074	47K = 126-5083	1M = 126-5093
4R7 = 126-5057	150R = 126-5067	3K3 = 126-5075	68K = 126-5084	1M5 = 126-5094
6R8 = 126-5058	220R = 126-5068	4K7 = 126-5077	100K = 126-5085	2M2 = 126-5095
10R = 126-5059	330R = 126-5069	6K8 = 126-5078	150K = 126-5086	3M3 = 126-5096
15R = 126-5060	470R = 126-5070	10K = 126-5079	220K = 126-5087	4M7 = 126-5097
22R = 126-5061				

451298

Order Multiple=5	Price Each				
Order Code	5+	25+	50+	100+	500+
All values●	0.175	0.142	0.110	0.091	0.069

**CBT50 Series – 0.5 Watt ±5%**



- Axial solid carbon composition resistors
- 0.5 Watt power rating
- Excellent pulse withstand capabilities, whilst remaining very stable

L=6.3 max, Dia.=2.4 max,  
Lead length=27.0, Lead dia.=0.6

Power rating @ 70°C	0.5W	Maximum overload voltage	700V
Temperature coefficient	-200 to +600ppm/°C	Operating temperature	-55°C to + 125°C
Voltage rating	350V		

Stocked in the following OHMIC Values:

1R = 126-5098	33R = 126-5108	1K = 126-5117	33K = 126-5128	1M = 126-5138
1R5 = 126-5099	47R = 126-5109	1K5 = 126-5119	47K = 126-5129	1M5 = 126-5139
2R2 = 126-5100	68R = 126-5110	2K2 = 126-5121	68K = 126-5130	2M2 = 126-5140
3R3 = 126-5101	100R = 126-5111	3K3 = 126-5122	100K = 126-5132	3M3 = 126-5141
4R7 = 126-5102	150R = 126-5112	4K7 = 126-5123	150K = 126-5133	4M7 = 126-5142
6R8 = 126-5103	220R = 126-5113	6K8 = 126-5124	220K = 126-5134	6M8 = 126-5144
10R = 126-5104	330R = 126-5114	10K = 126-5125	330K = 126-5135	10M = 126-5145
15R = 126-5105	470R = 126-5115	15K = 126-5126	470K = 126-5136	15M = 126-5146
22R = 126-5107	680R = 126-5116	22K = 126-5127	680K = 126-5137	22M = 126-5147

451327

Order Multiple=5	Price Each				
Order Code	5+	25+	50+	100+	500+
All values●	0.270	0.197	0.164	0.131	0.098

**OX / OY Series - Ceramic Composition ±10%**



- Ideal for circuitry associated with surges, high peak power or high energy.
- Enhanced performance in high voltage power supplies, R-C snubber circuits and inrush limiters
- Can often replace carbon composition resistors which can be difficult to source.

Series	Power Rating	Maximum Working Voltage	Maximum Overload Voltage	Temperature Coefficient	Tolerance
OX	1W	300V	600V	±300ppm/°C	±10%
OY	2W	400V	800V	±300ppm/°C	±10%

**1 Watt**

Stocked in the following OHMIC values:

10R = 146-2357	33R = 146-2360	330R = 146-2364	4K7 = 146-2367	47K = 146-2369
15R = 146-2358	47R = 146-2361	470R = 146-2365	10K = 146-2368	100K = 146-2370
22R = 146-2359	100R = 146-2363	1K = 146-2366		

Order Multiple=1	Price Each				
Value Order Code	1+	10+	100+	500+	1K+
10R to 15R	1.55	1.33	1.09	0.93	0.77
22R to 100R	0.97	0.83	0.68	0.58	0.48
330R to 100K	0.92	0.79	0.64	0.55	0.46

**2 Watt**

Stocked in the following OHMIC values:

3R3 = 146-2371	10R = 146-2378	39R = 146-2384	1K = 146-2391	100K = 146-2396
3R9 = 146-2372	15R = 146-2379	47R = 146-2385	4K7 = 146-2392	120K = 146-2397
4R7 = 146-2373	18R = 146-2380	56R = 146-2387	10K = 146-2393	220K = 146-2399
5R6 = 146-2375	22R = 146-2381	100R = 146-2388	15K = 146-2394	470K = 146-2400
6R8 = 146-2376	27R = 146-2382	220R = 146-2389	47K = 146-2395	1M = 146-2401
8R2 = 146-2377	33R = 146-2383	470R = 146-2390		

485555

Order Multiple=1	Price Each				
Value Order Code	1+	10+	100+	500+	1K+
3R3 to 100R	1.27	1.10	0.90	0.77	0.63
220R to 47K	1.18	1.01	0.83	0.70	0.58
100K	1.19	1.03	0.84	0.72	0.59
120K to 1M	1.38	1.19	0.97	0.83	0.68

**Carbon Composition Resistors – 1 Watt**



**CC1 Series**



L=15, Dia=6, Lead length=28,  
Lead dia=0.8

- Hot moulded carbon composition
- High pulse voltage and energy capability
- Non-inductive



Power Rating	Operating Temperature	Temperature Coefficient	Tolerance
1W	-55°C to +125°C	<±1000ppm/°C	±10%

Stocked in the following OHMIC Values:

1K = 160-5116	2K2 = 160-5118	4K7 = 160-5120	6K8 = 160-5121	10K = 160-5122
1K5 = 160-5117	3K3 = 160-5119			

510475

Order Multiple=5	Price Each				
Order Code	5+	50+	250+	500+	1K+
All Values ●		0.65	0.57	0.49	0.39

**Carbon Composition Resistors – 2 Watt**



**CC2 Series**



L=18, Dia=8, Lead length=28,  
Lead dia=1

- Hot moulded carbon composition
- High pulse voltage and energy capability
- Non-inductive



Power Rating	Operating Temperature	Temperature Coefficient	Tolerance
2W	-55°C to +125°C	<±1000ppm/°C	±10%

Stocked in the following OHMIC Values:

1K = 160-5123	2K2 = 160-5126	4K7 = 160-5128	6K8 = 160-5129	10K = 160-5130
1K5 = 160-5125	3K3 = 160-5127			

510476

Order Multiple=5	Price Each				
Order Code	5+	50+	250+	500+	1K+
All Values ●	1.72	1.38	1.20	1.04	0.83

**Carbon Film**

**0.25 Watt ±5% – MCF ¼W Series**



L=6.8 max, Dia=2.5 max, Lead length=28.0, Lead dia=0.6

Supplied bandoliered on tape (box=5K pcs)

Power rating @ 70°C	0.25W	Maximum overload voltage	500V
Temperature coefficient	350 to -350ppm/°C	Operating temperature	-55°C to + 155°C
Voltage rating	250V		

Stocked in the following OHMIC Values:

1R = 933-9094	27R = 933-9345	680R = 933-9655	18K = 933-9256	470K = 933-9566
1R2 = 933-9159	33R = 933-9400	820R = 933-9710	22K = 933-9310	560K = 933-9620
1R5 = 933-9213	39R = 933-9469	1K = 933-9051	27K = 933-9370	680K = 933-9680
1R8 = 933-9272	47R = 933-9523	1K2 = 933-9124	33K = 933-9434	820K = 933-9744
2R2 = 933-9337	56R = 933-9582	1K5 = 933-9183	39K = 933-9493	1M = 933-9086
2R7 = 933-9396	68R = 933-9647	1K8 = 933-9248	47K = 933-9558	1M2 = 118-6236
3R3 = 933-9450	82R = 933-9701	2K2 = 933-9302	56K = 933-9612	1M5 = 118-6237
3R9 = 933-9515	100R = 933-9043	2K7 = 933-9361	68K = 933-9671	1M8 = 118-6238
4R7 = 933-9574	120R = 933-9116	3K3 = 933-9426	82K = 933-9736	2M2 = 118-6239
5R6 = 933-9639	150R = 933-9175	3K9 = 933-9485	100K = 933-9078	2M7 = 118-6240
6R8 = 933-9698	180R = 933-9230	4K7 = 933-9540	120K = 933-9140	3M3 = 118-6241
8R2 = 933-9752	220R = 933-9299	5K6 = 933-9604	150K = 933-9205	3M9 = 118-6242
10R = 933-9035	270R = 933-9353	6K8 = 933-9663	180K = 933-9264	4M7 = 118-6244
12R = 933-9108	330R = 933-9418	8K2 = 933-9728	220K = 933-9329	5M6 = 118-6245
15R = 933-9167	390R = 933-9477	10K = 933-9060	270K = 933-9388	6M8 = 118-6246
18R = 933-9221	470R = 933-9531	12K = 933-9132	330K = 933-9442	8M2 = 118-6247
22R = 933-9280	560R = 933-9590	15K = 933-9191	390K = 933-9507	10M = 118-6248

RL Reeling available





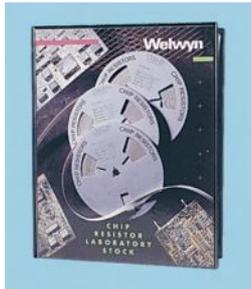






Thick Film - continued

WCR Lab Kits (0805 and 1206 Case Sizes)



- Sturdy plastic binder
50 each of 121 E24 values
0805 and 1206 case sizes in the range 10R to 1M
Includes OC2 jumper
Binder can be restocked when required



Table with columns: Case Size, Order Code, Price Each. Rows for 0805 and 1206.

Surface Mount - Nickel Barrier RC Series

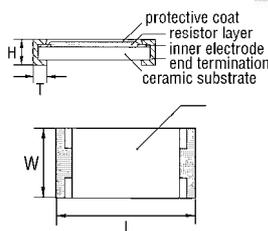


Table with columns: Range, Case Size, Dimensions (L, W, H, T), Voltage Rating, Tolerance, Power rating @ 70°C, Temperature Coefficient. Lists various RC series resistors.

RC41 - 0.05 Watt ±5% (0201 Case Size)

Table listing resistor values and prices for RC41 series.

Table with columns: Order Multiple=50, Order Code, Price Each (MIXED QUANTITY PRICING).

RC31 - 0.063 Watt ±5% (0402 Case Size)

Table listing resistor values and prices for RC31 series.

Table with columns: Order Multiple=50, Order Code, Price Each (MIXED QUANTITY PRICING).

RC32H - 0.063 Watt ±1% (0402 Case Size)

Table listing resistor values and prices for RC32H series.

Large table listing resistor values and prices for various series (8R2 to 120R).

Table with columns: Order Multiple=50, Order Code, Price Each (MIXED QUANTITY PRICING).

RC21 - 0.1 Watt ±5% (0603 Case Size)

Table listing resistor values and prices for RC21 series.

Table with columns: Order Multiple=50, Order Code, Price Each (MIXED QUANTITY PRICING).

RC22H - 0.1 Watt ±1% (0603 Case Size)

Table listing resistor values and prices for RC22H series.

Table with columns: Order Multiple=50, Order Code, Price Each (MIXED QUANTITY PRICING).

RC11 - 0.125 Watt ±5% (0805 Case Size)

Table listing resistor values and prices for RC11 series.

Table with columns: Order Multiple=50, Order Code, Price Each (MIXED QUANTITY PRICING).

RC12H - 0.125 Watt ±1% (0805 Case Size)

9

Re-reeling available







240K = 140-0521 360K = 140-0525 470K = 140-0529 620K = 140-0532 820K = 140-0535  
 270K = 140-0522 390K = 140-0527 510K = 140-0530 680K = 140-0533 910K = 140-0537  
 300K = 140-0523 430K = 140-0528 560K = 140-0531 750K = 140-0534 100K = 140-0539  
 330K = 140-0524

477034

Order Multiple=10		Price Each				
Case Size	Order Code	10+	50+	100+	1K+	5K+
0603	<b>NEW</b> All Values ● <b>RL</b>	0.153	0.133	0.112	0.099	0.090
0805	All Values ● <b>RL</b>	0.142	0.113	0.095	0.085	0.070
1206	All Values ● <b>RL</b>	0.174	0.140	0.116	0.105	0.087

**Surface Mount - Low-Ohmic Value**  
LRC Series



Range	Case Size	Dimensions		Voltage Rating	Tolerance	Power rating @ 70°C	Temperature Coefficient		
		L	W				H	Values	Values
LRC 22	0603	1.6	0.8	0.45	50	1%	0.1W	0.01R 0.1 to 0.22 R 0.33 to 0.47 R	±1500ppm/°C 800ppm/°C± 600ppm/°C±
LRC 12P	0805	2	1.25	0.5	150	1%	0.25W	0.01 to 0.02 R 0.02 to 0.051 R 0.051 to 0.1 R 0.1 to 0.39 R 0.39 to 0.51 R 0.51 to 0.68 R	±1500ppm/°C 1000ppm/°C± 800ppm/°C± 600ppm/°C± 300ppm/°C± 200ppm/°C±
LRC 02P	1206	3.2	1.7	0.65	200	1%	0.5W	0.01 to 0.02 R 0.02 to 0.051 R 0.051 to 0.1 R 0.1 to 0.39 R 0.39 to 0.51 R 0.51 to 0.68 R	±1500ppm/°C 1000ppm/°C± 800ppm/°C± 600ppm/°C± 300ppm/°C± 200ppm/°C±

Operating temperature -55°C to +125°C

**LRC22 - 0.1 Watt ±1% (0603 Case Size)**

5000 per Reel

Stocked in the following OHMIC Values:

OR01 = 806-7767	OR22 = 806-7848	OR33 = 806-7856	OR47 = 806-7864
OR1 = 806-7821			

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	5K+
Values OR01 to OR068	<b>RL</b>	0.210	0.166	0.137	0.117	0.104
Values OR1 to OR68	<b>RL</b>	0.125	0.099	0.081	0.071	0.062

**LRC12P - 0.25 Watt ±1% (0805 Case Size)**

5000 per Reel

Stocked in the following OHMIC Values:

OR01 = 806-7643	OR047 = 806-7686	OR15 = 806-7716	OR47 = 806-7740
OR022 = 806-7660	OR068 = 806-7694	OR22 = 806-7724	OR68 = 806-7759
OR033 = 806-7678	OR1 = 806-7708	OR33 = 806-7732	

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	5K+
Values OR01 to OR068	<b>RL</b>	0.270	0.210	0.174	0.148	0.130
Values OR1 to OR68	<b>RL</b>	0.148	0.119	0.098	0.084	0.074

**LRC02P - 0.5 Watt ±1% (1206 Case Size)**

5000 per Reel

Stocked in the following OHMIC Values:

OR01 = 806-7520	OR033 = 806-7554	OR1 = 806-7589	OR33 = 806-7619
OR015 = 806-7538	OR047 = 806-7562	OR15 = 806-7597	OR47 = 806-7627
OR022 = 806-7546	OR068 = 806-7570	OR22 = 806-7600	OR68 = 806-7635

369994

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	5K+
Values 0.01R to 0.068R	<b>RL</b>	0.260	0.200	0.166	0.142	0.124
Values 0.1R to 0.68R	<b>RL</b>	0.148	0.119	0.098	0.084	0.074

**Latest Product Update to the LRC Series - 0402 Case Size**

OR1 = 128-4586	OR22 = 128-4589	OR47 = 128-4591
OR15 = 128-4588	OR33 = 128-4590	OR68 = 128-4592

452190

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	10K+
All Values ● <b>RL</b>		0.128	0.116	0.092	0.076	0.067



**PRC111 Series - 0.5 Watt 1%**



- Surface mount power chip
- 0.5 Watt heat dissipation
- Compact 2010 case size

L=5 W=2.5 H=0.55  
Supplied on tape (reel = 4K pcs)

Voltage rating	200V a.c./d.c.	Resistance tolerance	±1%
Power rating @ 70°C	0.75W	Climatic category (IEC60068)	55/125/56
Operating temperature	-55°C to +125°C		

Stocked in the following OHMIC values:

OR = 923-5523	6R8 = 923-5582	470R = 923-5647	47K = 923-5701	2M2 = 923-5760
1R = 923-5531	10R = 923-5590	1K = 923-5655	100K = 923-5710	3M3 = 923-5779
1R5 = 923-5540	22R = 923-5604	2K2 = 923-5663	220K = 923-5728	4M7 = 923-5787
2R2 = 923-5558	47R = 923-5612	4K7 = 923-5671	470K = 923-5736	6M8 = 923-5795
3R3 = 923-5566	100R = 923-5620	10K = 923-5680	1M = 923-5744	10M = 923-5809
4R7 = 923-5574	220R = 923-5639	22K = 923-5698	1M5 = 923-5752	

207368

Order Multiple=10		Price Each			
Order Code		10+	100+	1K+	4K+
All Values ● <b>RL</b>		0.260	0.175	0.161	0.116

**3250 Series - 1 Watt 5%**



- Surface mount power resistor
- 1 Watt at 70°C
- Small low profile (2512) size to power ratio

Power rating @ 70°C 1W  
 Temperature Coefficient ±350ppm/°C  
 Resistance tolerance ±5%  
 Voltage rating 200V a.c./d.c.  
 Operating temperature -55°C to +125°C

L=6.4 W=3.1 H=0.55

Stocked in the following OHMIC values:

1R = 126-5178	10R = 126-5166	68R = 126-5224	470R = 126-5207	33K = 126-5197
1R2 = 126-5181	12R = 126-5169	82R = 126-5226	560R = 126-5216	47K = 126-5211
1R5 = 126-5182	15R = 126-5173	100R = 126-5164	680R = 126-5221	68K = 126-5223
1R8 = 126-5183	18R = 126-5175	120R = 126-5168	1K = 126-5176	100K = 126-5163
2R2 = 126-5193	22R = 126-5187	150R = 126-5171	2K2 = 126-5190	150K = 126-5170
2R7 = 126-5194	27R = 126-5189	180R = 126-5174	3K3 = 126-5202	220K = 126-5184
3R3 = 126-5203	33R = 126-5198	220R = 126-5185	4K7 = 126-5213	330K = 126-5195
3R9 = 126-5205	39R = 126-5201	270R = 126-5188	10K = 126-5165	470K = 126-5206
4R7 = 126-5215	47R = 126-5212	330R = 126-5196	15K = 126-5172	680K = 126-5220
5R6 = 126-5219	56R = 126-5217	390R = 126-5200	22K = 126-5186	1M = 126-5177
6R8 = 126-5225				

451275

Order Multiple=10		Price Each			
Order Code		10+	100+	1K+	4K+
All Values ●		0.150	0.110	0.100	0.076

**PRC221 Series - 1 Watt 1%**



- 1% tolerance
- Surface mount power chip
- 1 Watt heat dissipation
- Compact 2512 case size

Power rating @ 70°C 1W  
 Resistance tolerance ±1%  
 Voltage rating 200V a.c./d.c.  
 Operating temperature -55°C to +155°C

L=6.4 W=3.1 H=0.55

Supplied on tape (reel = 4K pcs)

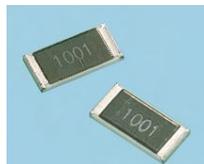
Stocked in the following OHMIC values:

1R = 128-3120	22R = 128-3135	470R = 128-3142	6K8 = 128-3150	100K = 128-3118
1R5 = 128-3127	33R = 128-3141	680R = 128-3149	10K = 128-3117	150K = 128-3126
2R2 = 128-3134	47R = 128-3148	1K = 128-3116	15K = 128-3125	220K = 128-3132
3R3 = 128-3140	68R = 128-3154	1K5 = 128-3124	22K = 128-3131	330K = 128-3139
4R7 = 128-3147	100R = 128-3115	2K2 = 128-3130	33K = 128-3138	470K = 128-3146
6R8 = 128-3153	150R = 128-3123	3K3 = 128-3137	47K = 128-3144	680K = 128-3152
10R = 128-3122	220R = 128-3129	4K7 = 128-3143	68K = 128-3151	1M = 128-3119
15R = 128-3128	330R = 128-3136			

452194

Order Multiple=5		Price Each			
Order Code		5+	100+	1K+	4K+
All Values ● <b>RL</b>		0.200	0.167	0.143	0.103

**PRC221 Series - 1 Watt 5%**



- Surface mount power chip
- 1 Watt heat dissipation
- Compact 2512 case size

Power rating @ 70°C 1W  
 Resistance tolerance ±  
 Climatic category (IEC60068) 55/125/56  
 Voltage rating 200V a.c./d.c.  
 Operating temperature -55°C to +125°C

L=6.4 W=3.1 H=0.55

Supplied on tape (reel = 4K pcs)

Stocked in the following OHMIC values:

OR = 923-5825	1R = 923-5833	1R5 = 923-5841	2R2 = 923-5850	3R3 = 923-5868
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£ € **40,000 PRICES REDUCED**

Thick Film - continued

PRC221 Series - 1 Watt 5% - continued

4R7 = 923-5876	100R = 923-5922	4K7 = 923-5973	100K = 923-6015	1M5 = 923-6058
6R8 = 923-5884	220R = 923-5930	10K = 923-5981	220K = 923-6023	2M2 = 923-6066
10R = 923-5892	470R = 923-5949	22K = 923-5990	470K = 923-6031	4M7 = 923-6074
22R = 923-5906	1K = 923-5957	47K = 923-6007	1M = 923-6040	10M = 923-6082
47R = 923-5914	2K2 = 923-5965			

207367

Order Multiple=10		Price Each			
Order Code	10+	100+	1K+	4K+	
All Values ● RL	0.174	0.123	0.105	0.076	

PRC221 Series - Full Reels

- Surface mount power chip supplied on full reels



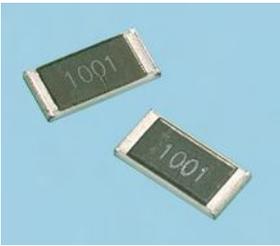
Stocked in the following OHMIC values:

0R = 111-7442	4R7 = 111-7437	100R = 111-7417	4K7 = 111-7434	100K = 111-7420
1R = 111-7422	6R8 = 111-7441	220R = 111-7425	10K = 111-7419	220K = 111-7429
1R5 = 111-7424	10R = 111-7423	470R = 111-7433	22K = 111-7428	470K = 111-7436
2R2 = 111-7430	22R = 111-7431	1K = 111-7418	47K = 111-7435	1M = 111-7421
3R3 = 111-7432	47R = 111-7438	2K2 = 111-7426		

423716

Order Code	Reel Quantity	1+	3+
All Values ●	4000	123.38	111.06

RC2512 Series - 2 Watt 5%



- Thick film chip resistor
  - 2 Watt power rating
  - 2512 case size
- Voltage rating 200V  
 Power rating @ 70°C 2W  
 Operating temperature -55°C to +185°C  
 Resistance tolerance ±55%

L=6.35mm, W=3.1mm, H=0.55mm  
 Supplied on tape (reel = 4K pcs)

Stocked in the following OHMIC values:

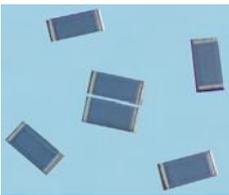
1R = 137-6972	3R3 = 137-6976	10R = 137-6979	33R = 137-6982	100R = 137-6985
1R5 = 137-6973	4R7 = 137-6977	15R = 137-6980	47R = 137-6983	150R = 137-6987
2R2 = 137-6975	6R8 = 137-6978	22R = 137-6981	68R = 137-6984	

475773

Order Code	5+	25+	100+	500+	4K+
All Values ●	0.64	0.50	0.42	0.36	0.27

Double Sided Chip Resistors

DSC Series



Case Size	Power Rating @ 70°C	Tolerance	Temperature Coefficient	Operating temperature	Length	Width	Depth
2010	0.75W	5%	100ppm/°C	-55°C to 155°C	5.1	2.5	0.8
2512	1.5W	5%	100ppm/°C	-55°C to 155°C	6.5	3.2	0.8

Stocked in the following OHMIC Values:

2010 Cases

10R = 111-4673	33R = 111-4676	1K5 = 111-4687	2K2 = 111-4688
15R = 111-4674	100R = 111-4679		

Order Code	10+	100+	500+	1K+	3K+
All Values ● RL	0.91	0.72	0.59	0.42	0.37

2512 Cases

Stocked in the following OHMIC Values:

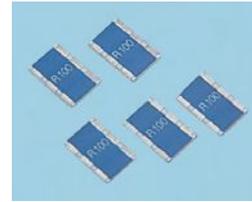
10R = 111-4701	68R = 111-4706	470R = 111-4711	15K = 111-4721
15R = 111-4702	100R = 111-4707	680R = 111-4713	22K = 111-4722
22R = 111-4703	150R = 111-4708	1K = 111-4714	33K = 111-4723
33R = 111-4704	220R = 111-4709	1K5 = 111-4715	68K = 111-4726
47R = 111-4705	330R = 111-4710	3K3 = 111-4717	100K = 111-4727

423788

Order Code	10+	100+	500+	1K+	1K8+
All Values ● RL	1.20	0.95	0.78	0.54	0.47

PRC201 Series — 1 Watt ±5% & 1%

1218 Case Size



L=4.6,W=3.05,H=0.55

Supplied on 8mm tape (reel=5K pcs)

±5% Tolerance

Stocked in the following OHMIC values:

0R = 923-5817	15R = 923-9901	330R = 923-9987	6K8 = 924-0063	100K = 924-0136
1R = 923-6295	22R = 923-9910	470R = 923-9995	10K = 924-0071	150K = 924-0144
1R5 = 923-6309	33R = 923-9928	680R = 924-0004	15K = 924-0080	220K = 924-0152
2R2 = 923-6317	47R = 923-9936	1K = 924-0012	22K = 924-0098	330K = 924-0160
3R3 = 923-6325	68R = 923-9944	1K5 = 924-0020	33K = 924-0101	470K = 924-0179
4R7 = 923-6333	100R = 923-9952	2K2 = 924-0039	47K = 924-0110	680K = 924-0187
6R8 = 923-6341	150R = 923-9960	3K3 = 924-0047	68K = 924-0128	1M = 924-0195
10R = 923-9898	220R = 923-9979	4K7 = 924-0055		

Order Multiple=10	Price Each			
Order Code	10+	100+	1K+	4K+
All Values ● RL	0.310	0.177	0.151	0.108

±1% Tolerance

Stocked in the following OHMIC values:

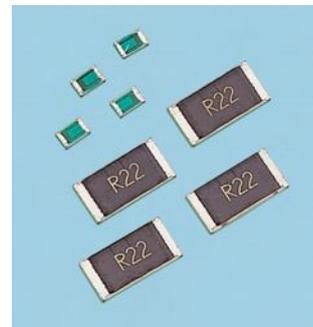
1R = 923-9669	10R = 923-9707	220R = 923-9740	4K7 = 923-9782
1R2 = 923-9677	22R = 923-9715	470R = 923-9758	10K = 923-9790
4R7 = 923-9685	47R = 923-9723	1K = 923-9766	22K = 923-9804
8R2 = 923-9693	100R = 923-9731	2K2 = 923-9774	

207214

Order Multiple=10	Price Each			
Order Code	10+	100+	1K+	3K+
All Values ● RL	0.360	0.200	0.163	0.123

RL73 Series

Current Sense Resistors



- Complete range from 0R1 to 1R
- Supplied on tape - part marked
- Nickel barrier layer
- Restockable 2512 Laboratory Kit

Case Size	Power rating @ 70°C	Resistance Tolerance	Power rating @ 70°C
0402	0.1W	5%	200ppm/°C
0603	0.1W	5%	200ppm/°C
0805	0.125W	5%	200ppm/°C
1206	0.25W	5%	200ppm/°C
2512	1W	5%	200ppm/°C
CRL 1220(0805)	0.1W	5%	200ppm/°C

Stocked in the following OHMIC values:

0402 Case Size

OR15 = 886-7267	OR22 = 886-7283	OR33 = 886-7305	OR47 = 886-7321	OR68 = 886-7348
OR18 = 886-7275	OR27 = 886-7291	OR39 = 886-7313	OR56 = 886-7330	OR82 = 886-7356

0603 Case Size

OR1 = 886-7364	OR18 = 886-7399	OR33 = 886-7429	OR47 = 886-7445	OR68 = 886-7461
OR12 = 886-7372	OR22 = 886-7402	OR39 = 886-7437	OR56 = 886-7453	OR82 = 886-7470
OR15 = 886-7380	OR27 = 886-7410			

0805 Case Size

OR1 = 886-7488	OR22 = 886-7526	OR33 = 886-7542	OR47 = 886-7569	OR68 = 886-7585
OR15 = 886-7500	OR27 = 886-7534	OR39 = 886-7550	OR56 = 886-7577	OR82 = 886-7593
OR18 = 886-7518				

1206 Case Size

OR1 = 886-7607	OR18 = 886-7631	OR33 = 886-7666	OR47 = 886-7682	OR68 = 886-7704
OR12 = 886-7615	OR22 = 886-7640	OR39 = 886-7674	OR56 = 886-7690	OR82 = 886-7712
OR15 = 886-7623	OR27 = 886-7658			

2512 Case Size

OR1 = 117-4007	OR18 = 117-4012	OR33 = 117-4015	OR56 = 117-4018	OR1 = 886-7720
OR12 = 117-4008	OR22 = 117-4013	OR39 = 117-4016	OR68 = 117-4019	10R = 886-7739
OR15 = 117-4011	OR27 = 117-4014	OR47 = 117-4017	OR82 = 117-4020	

CRL1220 Case Size

OR82 = 117-3992	1R2 = 117-3994	3R3 = 117-3999	4R7 = 117-4002	8R2 = 117-4006
1R = 117-3993	1R5 = 117-3995	3R9 = 117-4000		

2512 Laboratory Kit

Strong binder containing 20 pieces each of all 2512 values above. Easily restockable.

207334

Order Code	Price Each				
	25+	100+	500+	1K+	
Order Multiple = 25					
0402 Case Size	All Values ● RL	0.137	0.113	0.063	0.033
0603 Case Size	All Values ● RL	0.290	0.250	0.147	0.077
0805 Case Size	All Values ● RL	0.330	0.280	0.161	0.081
1206 Case Size	All Values ● RL	0.197	0.155	0.117	0.088
CRL1220 Case Size	All Values ● RL	0.250	0.210	0.121	0.061
2512 Case Size	All Values ● RL	0.330	0.280	0.161	0.081
Order Multiple = 1			1+		
2512 Laboratory Kit	117-4021● RL			81.940	

**HRC21/11 Series - High Ohmic Value**

0.063 Watt (0603 Case Size) &amp; 0.125 Watt (0805 Case Size)



- High ohmic value thick film chip resistors
- 0603 and 0805 case sizes
- 0603 and 0.125 Watt power dissipation
- Applications include power supplies, test computers, telecommunication equipment

Phicom YAGEO  
Innovation Drives Ahead the Global



	0603 Case Size (HRC21 Series)	0805 Case Size (HRC21 Series)
Power rating	0.063W	0.125W
Resistance tolerance	±5%	±5%
Temperature coefficient	±300 x 10 <sup>-6</sup> /K	±300 x 10 <sup>-6</sup> /K
Operating voltage	50V max d.c. or a.c. rms	150V max d.c. or a.c. rms
Operating temperature	-55°C to +125°C	-55°C to +125°C

Stocked in the following OHMIC values:

0603 Case Size (HRC21 Series)

12M = 923-6368      15M = 923-6376      22M = 923-6384

0805 Case Size (HRC11 Series)

12M = 923-6406      22M = 923-6430      39M = 923-6465      68M = 923-6490  
15M = 923-6414      27M = 923-6449      47M = 923-6473      82M = 923-6503  
18M = 923-6422      33M = 923-6457      56M = 923-6481      100M = 923-6511

213422

Order Code	Price Each					
	5+	25+	100+	500+	1K+	
Order Multiple = 5						
Case size						
0603 (HRC21 Series)	All Values ● RL	0.112	0.094	0.081	0.071	0.053
0805 (HRC11 Series)	All Values ● RL	0.044	0.036	0.031	0.027	0.021

**RH73 Series - High Ohmic Value**

Tyco Electronics  
SMD



- 0805 case size high ohmic value thick film chip resistors
- Values from 2M2 to 50 Gig ohm
- Galvanic coated three layer terminal to ensure reliability
- Suitable for flow and reflow soldering

Supplied on tape (reel = 1K pcs)

Power rating @ 70°C	0.125W	Temperature range	-55°C to +125°C
Max. working voltage	100V	Case Size	0805

Resistance	Temp. Coefficient	Tolerance	Mfrs. List No.	Order Code
2.2Mohm	±250ppm/°C	±5%	RH73U2A2M2JTD	117-4056
4.7Mohm	±250ppm/°C	±5%	RH73U2A4M7JTD	117-4059
6.8Mohm	±250ppm/°C	±5%	RH73U2A6M8JTD	117-4061
10Mohm	±250ppm/°C	±5%	RH73U2A10MJTD	117-4062
15Mohm	±100ppm/°C	±10%	RH73H2A15MKTN	117-4518
20Mohm	±100ppm/°C	±10%	RH73H2A20MKTN	117-4519
30Mohm	±100ppm/°C	±10%	RH73H2A30MKTN	117-4520
40Mohm	±100ppm/°C	±10%	RH73H2A40MKTN	117-4521
50Mohm	±100ppm/°C	±10%	RH73H2A50MKTN	117-4522
100Mohm	±100ppm/°C	±10%	RH73H2A100MKTN	117-4523
500Mohm	±500ppm/°C	±30%	RH73W2A500MNTN	117-4524
1Gohm	±500ppm/°C	±30%	RH73W2A1GNNTN	117-4525
5Gohm	±500ppm/°C	±30%	RH73W2A5GNNTN	117-4527
10Gohm	±1000ppm/°C	±30%	RH73X2A10GNNTN	117-4528
20Gohm	±1000ppm/°C	±30%	RH73X2A20GNNTN	117-4529
50Gohm	±1000ppm/°C	±30%	RH73X2A50GNNTN	117-4530

207270

Order Code	Price Each					
	25+	50+	100+	500+	1K+	
Order Multiple = 25						
2.2	SMD 117-4056● RL	0.028	0.018	0.013	0.009	0.007
4.7	SMD 117-4059● RL	0.028	0.018	0.013	0.009	0.007
6.8	SMD 117-4061● RL	0.020	0.013	0.009	0.006	0.005
10	SMD 117-4062● RL	0.028	0.018	0.013	0.009	0.007
Order Multiple = 1		1+	25+	100+	500+	1K+
15	SMD 117-4518● RL	0.640	0.540	0.520	0.480	0.430
20	SMD 117-4519● RL	0.630	0.550	0.500	0.420	0.340
30	SMD 117-4520● RL	0.640	0.540	0.520	0.480	0.430
40	SMD 117-4521● RL	0.640	0.540	0.520	0.480	0.430
50	SMD 117-4522● RL	0.740	0.640	0.580	0.420	0.340
100	SMD 117-4523● RL	0.640	0.540	0.520	0.480	0.430
500	SMD 117-4524● RL	1.370	1.160	1.100	1.030	0.910
1	SMD 117-4525● RL	1.370	1.220	1.080	0.900	0.730
5	SMD 117-4527● RL	1.370	1.220	1.080	0.900	0.730
10	SMD 117-4528● RL	1.250	1.110	0.980	0.820	0.660
20	SMD 117-4529● RL	1.250	1.060	1.000	0.940	0.830
50	SMD 117-4530● RL	1.250	1.110	0.980	0.820	0.660

**High Value Resistors ±10%****HR Series**

- Terminations suitable for soldering
- Low voltage coefficient of resistance

electronics  
Welwyn Components

New

SMD

Voltage Rating	Operating Temperature	Temperature Coefficient	Tolerance
100V	-55°C to +125°C	0 to -2000ppm/°C	±10%

Stocked in the following OHMIC Values:

100M = 160-5131    220M = 160-5133    500M = 160-5135    680M = 160-5137    1G = 160-5138  
150M = 160-5132    330M = 160-5134

510477

Order Code	Price Each				
	5+	50+	250+	500+	1K+
Order Multiple = 5					
All Values ●	1.22	0.98	0.86	0.73	0.59

**High Resistance****MOX Series**

- High-voltage resistors developed for precision temperature stability requirements of high-accuracy and high-voltage systems
- Low temperature coefficient, low voltage coefficients, high stability and increased high operating voltages
- Applications include high voltage power supplies, electron microscopes, X-ray systems, high resolution CRT displays and geophysical instruments

OHMITE

New

Operating temperature range	1%	Lead diameter	0.8mm
Tolerance	1%	Lead length	35mm

**3.80 Watt**

Resistance	Voltage Rating	Temperature Coefficient	Dimensions	Mfrs. List No.	Order Code	
			Length	Diameter		
1Mohm	15kV	±50ppm/°C	27mm	8mm	MOX91021004FVE	155-0789
5Mohm	15kV	±50ppm/°C	27mm	8mm	MOX91025004FVE	155-0793
10Mohm	15kV	±50ppm/°C	27mm	8mm	MOX91021005FVE	155-0790
25Mohm	15kV	±100ppm/°C	27mm	8mm	MOX91022505FTE	155-0791

Order Code	Price Each			
	1+	10+	100+	500+
Order Multiple = 1				
All Values ●	6.85	6.13	5.11	4.81

**5.00 Watt**

Resistance	Voltage Rating	Temperature Coefficient	Dimensions	Mfrs. List No.	Order Code	
			Length	Diameter		
10Mohm	21kV	±50ppm/°C	37mm	8mm	MOX92021005FVE	155-0794
50Mohm	21kV	±50ppm/°C	37mm	8mm	MOX92025005FVE	155-0797
100Mohm	21kV	±50ppm/°C	37mm	8mm	MOX92021006FVE	155-0795
1Gohm	21kV	±100ppm/°C	37mm	8mm	MOX92021007FTE	155-0796

Order Code	Price Each			
	1+	10+	100+	500+
Order Multiple = 1				
All Values ●	7.84	6.74	5.54	5.03

**7.50 Watt**

Resistance	Voltage Rating	Temperature Coefficient	Dimensions	Mfrs. List No.	Order Code	
			Length	Diameter		
1Mohm	30kV	±50ppm/°C	52mm	8mm	MOX93021004FVE	155-0798
5Mohm	30kV	±50ppm/°C	52mm	8mm	MOX93025004FVE	155-0800
10Mohm	30kV	±50ppm/°C	52mm	8mm	MOX93021005FVE	155-0799

Order Code	Price Each			
	1+	10+	100+	500+
Order Multiple = 1				
All Values ●	9.07	8.11	6.91	6.61

**10.00 Watt**

Resistance	Voltage Rating	Temperature Coefficient	Dimensions	Mfrs. List No.	Order Code	
			Length	Diameter		
10Mohm	45kV	±50ppm/°C	77mm	8mm	MOX94021005FVE	155-0801
100Mohm	45kV	±50ppm/°C	77mm	8mm	MOX94021006FVE	155-0802
1Gohm	45kV	±100ppm/°C	77mm	8mm	MOX94021007FTE	155-0804

501204

Order Code	Price Each			
	1+	10+	100+	500+
Order Multiple = 1				
All Values ●	11.79	10.57	9.07	8.57

**Precision Thick Film Planar Resistors****Slim-Mox Series**

- High dielectric and low out-gassing epoxy coating
- Planar package saves space over traditional high voltage resistors
- Low resistor noise
- Non inductive
- Applications include HV power supplies, medical instrumentation, current pulse limiters

OHMITE

New

RL Re-reeling available

Farnell



**Thick Film - continued**

**Precision Thick Film Planar Resistors - continued**

**1.5 Watt - continued**

Operating temperature range	-55°C to +110°C	Tolerance	1%
Temperature coefficient	±25ppm/°C	Lead diameter	0.813mm
		Lead length	33mm

**1 Watt**

Resistance	Voltage Rating	Dimensions		Lead Pitch		Mfrs. List No.	Order Code
		L	W	D			
500kohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102035003FE	155-0754
1Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102031004FE	155-0756
2Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102032004FE	155-0757
5Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102035004FE	155-0758
10Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102031005FE	155-0759
20Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102032005FE	155-0760
50Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102035005FE	155-0761
100Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102031006FE	155-0763
500Mohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102035006FE	155-0764
1Gohm	5kV	14.73mm	2.54mm	8.64mm	10.16mm	SM102031007FE	155-0765

Order Multiple=1	Price Each				
Order Code	1+	10+	25+	50+	250+
All Values ●	2.40	2.06	1.77	1.37	1.22

**1.5 Watt**

Resistance	Voltage Rating	Dimensions		Lead Pitch		Mfrs. List No.	Order Code
		L	W	D			
500kohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104035003FE	155-0766
1Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104031004FE	155-0768
2Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104032004FE	155-0769
5Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104035004FE	155-0770
10Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104031005FE	155-0771
20Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104032005FE	155-0772
50Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104035005FE	155-0773
100Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104031006FE	155-0774
500Mohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104035006FE	155-0775
1Gohm	10kV	27.43mm	2.54mm	8.64mm	22.86mm	SM104031007FE	155-0776

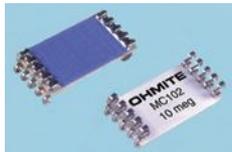
Order Multiple=1	Price Each				
Order Code	1+	10+	25+	50+	250+
All Values ●	2.63	2.26	1.99	1.60	1.45

**2.5 Watt**

Resistance	Voltage Rating	Dimensions		Lead Pitch		Mfrs. List No.	Order Code
		L	W	D			
500kohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108035003FE	155-0777
1Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108031004FE	155-0778
2Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108032004FE	155-0781
5Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108035004FE	155-0782
10Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108031005FE	155-0783
20Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108032005FE	155-0784
50Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108035005FE	155-0785
100Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108031006FE	155-0786
500Mohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108035006FE	155-0787
1Gohm	20kV	52.83mm	2.54mm	8.64mm	48.26mm	SM108031007FE	155-0788

Order Multiple=1	Price Each				
Order Code	1+	10+	25+	50+	250+
All Values ●	3.08	2.72	2.33	2.06	1.91

**Macrochip Series ±5%**



- Non-inductive design.
- Low voltage coefficient.
- Applications include power supplies, avionics, light magnification systems.



Resistance	Power Rating	Temperature Coefficient	Tolerance
1MR to 250MR	1.5W	±50ppm/°C	±5%
1GR	1.5W	±100ppm/°C	±5%

Stocked in the following OHMIC values:

1M = 146-2243	2M5 = 146-2245	15M = 146-2248	100M = 146-2250	250M = 146-2252
1M5 = 146-2244	10M = 146-2247	25M = 146-2249	150M = 146-2251	1G = 146-2253

Order Multiple=1	Price Each				
Order Code	1+	50+	100+	500+	1K+
All Values	4.60	4.14	3.61	3.10	2.55

**CRHV Series – High Voltage Chip Resistors**



- High voltage up to 3000 volts
- Flow solderable
- Top and wraparound terminations



Power rating	300mW
Voltage Rating	1500V
Resistance tolerance	±1%
Temperature Coefficient	±100ppm/°C
Operating Temperature	-55°C to 150°C
Case Size	1206 x 0.063 x 0.125mm

Case Size 1206		Price Each				
Resistance	Order Code	1+	25+	100+	250+	500+
2M	157-2802 ● RL	1.65	1.45	1.21	0.99	0.92
5M	157-2803 ● RL	1.65	1.45	1.21	0.99	0.92
10M	110-9055 ●	1.86	1.64	1.38	1.10	1.02
20M	157-2804 ● RL	1.65	1.45	1.21	0.99	0.92
50M	157-2806 ● RL	1.65	1.45	1.21	0.99	0.92
100M	110-9056 ●	1.86	1.64	1.38	1.10	1.02
1G	157-2807 ● RL	1.65	1.45	1.21	0.99	0.92

**RV Series - 5%**



- High voltage chip resistors
- 0805, 1206 and 2512 case sizes
- 0.125, 0.25 and 1 Watt power ratings



Case Size	Dimensions			Maximum Working Voltage (V)	Temperature Coefficient	Tolerance
	L	W	H			
0805	2	1.25	0.5	400	200ppm/°C	±5%
1206	3.1	1.60	0.55	400	200ppm/°C	±5%
2512	6.35	3.10	0.55	500	200ppm/°C	±5%

**0.125 Watt 5% (0805 case size)**

Stocked in the following OHMIC values:

100K = 137-6988	330K = 137-6991	1M = 137-6994	3M3 = 137-6997	6M8 = 137-7001
150K = 137-6989	470K = 137-6992	1M5 = 137-6995	4M7 = 137-6999	10M = 137-7002
220K = 137-6990	680K = 137-6993	2M2 = 137-6996		

Order Code	5+	50+	100+	500+	5K+
All Values ●	0.50	0.42	0.36	0.27	0.23

**0.25 Watt 5% (1206 case size)**

Stocked in the following OHMIC values:

100K = 137-7003	470K = 137-7007	1M5 = 137-7010	4M7 = 137-7014	15M = 137-7017
150K = 137-7004	680K = 137-7008	2M2 = 137-7011	6M8 = 137-7015	22M = 137-7018
220K = 137-7005	1M = 137-7009	3M3 = 137-7013	10M = 137-7016	27M = 137-7019
330K = 137-7006				

Order Code	5+	50+	100+	500+	5K+
All Values ●	0.50	0.42	0.36	0.27	0.23

**1 Watt 5% (2512 case size)**

Stocked in the following OHMIC values:

4M7 = 137-7020	6M8 = 137-7021	10M = 137-7022	15M = 137-7023
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Order Code	5+	50+	100+	500+	5K+
All Values ●	0.50	0.42	0.36	0.27	0.23

**Low Ohmic / Current Sense**

**LRCS Series – 0.063 Watt, 0.1 Watt, 0.125 Watt and 0.25 Watt ±1%**



- Designed for current sensing in power electronic systems



Case Size	Power Ratings	Temperature Coefficient	Operating Temperature	Tolerance
0402	0.063W	R05 - R10: ±400ppm/°C R101 - R50: ±300ppm/°C R501 - 1R0: ±200ppm/°C	-55°C to +155°C	±1%
0603	0.1W	R02 - R05: ±600ppm/°C R051 - R10: ±400ppm/°C R101 - R50: ±300ppm/°C R501 - 1R0: ±200ppm/°C	-55°C to +155°C	±1%
0805	<R01: 0.125W >R01: 0.25W	R02 - R05: ±600ppm/°C R051 - R10: ±400ppm/°C R101 - R50: ±300ppm/°C R501 - 1R0: ±200ppm/°C	-55°C to +155°C	±1%

**0402 Case Size**

Order Multiple=10	Mfrs. List No.	Order Code	10+	50+	100+	500+	1K+
0.05ohm	LRCS0402-0R05FT5	SMD-150-6118 ●	0.100	0.086	0.074	0.066	0.060
0.07ohm	LRCS0402-0R07FT5	SMD-150-6119 ●	0.100	0.086	0.074	0.066	0.060
0.1ohm	LRCS0402-0R1FT5	SMD-150-6120 ●	0.100	0.086	0.074	0.066	0.060
0.2ohm	LRCS0402-0R2FT5	SMD-150-6121 ●	0.070	0.061	0.053	0.047	0.043
0.33ohm	LRCS0402-0R33FT5	SMD-150-6123 ●	0.070	0.061	0.053	0.047	0.043
0.5ohm	LRCS0402-0R5FT5	SMD-150-6124 ●	0.034	0.029	0.024	0.022	0.020
1ohm	LRCS0402-1RFT5	SMD-150-6125 ●	0.034	0.029	0.024	0.022	0.020

0603 Case Size

Order Multiple=10		Price Each				
Resistance	Mfrs. List No.	Order Code	10+	50+	100+	500+ 1K+
0.025ohm	LRC0603-OR025FT5	SMD 150-6126	0.181	0.156	0.136	0.120 0.109
0.033ohm	LRC0603-OR033FT5	SMD 150-6127	0.181	0.156	0.136	0.120 0.109
0.04ohm	LRC0603-OR04FT5	SMD 150-6128	0.181	0.156	0.136	0.120 0.109
0.05ohm	LRC0603-OR05FT5	SMD 150-6129	0.181	0.156	0.136	0.120 0.109
0.07ohm	LRC0603-OR07FT5	SMD 150-6130	0.145	0.124	0.108	0.097 0.087
0.1ohm	LRC0603-OR1FT5	SMD 150-6131	0.145	0.124	0.108	0.097 0.087
0.2ohm	LRC0603-OR2FT5	SMD 150-6132	0.079	0.067	0.059	0.052 0.047
0.33ohm	LRC0603-OR33FT5	SMD 150-6133	0.079	0.067	0.059	0.052 0.047
0.5ohm	LRC0603-OR5FT5	SMD 150-6135	0.036	0.032	0.028	0.024 0.021
1ohm	LRC0603-1RFT5	SMD 150-6136	0.036	0.032	0.028	0.024 0.021

0805 Case Size

Order Multiple=10		Price Each				
Resistance	Mfrs. List No.	Order Code	10+	50+	100+	500+ 1K+
0.025ohm	LRC0805-OR025FT5	SMD 150-6137	0.187	0.161	0.140	0.124 0.112
0.033ohm	LRC0805-OR033FT5	SMD 150-6138	0.187	0.161	0.140	0.124 0.112
0.04ohm	LRC0805-OR04FT5	SMD 150-6139	0.187	0.161	0.140	0.124 0.112
0.05ohm	LRC0805-OR05FT5	SMD 150-6140	0.187	0.161	0.140	0.124 0.112
0.07ohm	LRC0805-OR07FT5	SMD 150-6141	0.126	0.109	0.095	0.085 0.077
0.1ohm	LRC0805-OR1FT5	SMD 150-6142	0.126	0.109	0.095	0.085 0.077
0.2ohm	LRC0805-OR2FT5	SMD 150-6143	0.085	0.072	0.063	0.056 0.051
0.33ohm	LRC0805-OR33FT5	SMD 150-6144	0.085	0.072	0.063	0.056 0.051
0.5ohm	LRC0805-OR5FT5	SMD 150-6145	0.042	0.037	0.032	0.029 0.026
1ohm	LRC0805-1RFT5	SMD 150-6147	0.042	0.037	0.032	0.029 0.026

Surface Mount - Low-Ohmic Value

LRC Series



Range	Case Size	Dimensions L W H	Voltage Rating	Power rating @ 70°C	Temperature Coefficient Values
LRC 22	0603	1.6 0.8 0.45	50 1%	0.1W	±1500ppm/°C 0.1 to 0.22 R 800ppm/°C± 0.33 to 0.47 R 600ppm/°C±
LRC 12P	0805	2 1.25 0.5	150 1%	0.25W	±1500ppm/°C 0.01 to 0.02 R 1000ppm/°C± 0.02 to 0.051 R 800ppm/°C± 0.051 to 0.1 R 600ppm/°C± 0.1 to 0.39 R 300ppm/°C± 0.39 to 0.51 R 200ppm/°C±
LRC 02P	1206	3.2 1.7 0.65	200 1%	0.5W	±1500ppm/°C 0.01 to 0.02 R 1000ppm/°C± 0.02 to 0.051 R 800ppm/°C± 0.051 to 0.1 R 600ppm/°C± 0.1 to 0.39 R 300ppm/°C± 0.39 to 0.51 R 200ppm/°C±

Operating temperature: -55°C to +125°C

LRC22 - 0.1 Watt ±1% (0603 Case Size)

5000 per Reel

Stocked in the following OHMIC Values:

OR01 = 806-7767	OR22 = 806-7848	OR33 = 806-7856	OR47 = 806-7864
OR1 = 806-7821			

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	5K+
Values OR01 to OR068	RL	0.210	0.166	0.137	0.117	0.104
Values OR1 to OR68	RL	0.125	0.099	0.081	0.071	0.062

LRC12P - 0.25 Watt ±1% (0805 Case Size)

5000 per Reel

Stocked in the following OHMIC Values:

OR01 = 806-7643	OR047 = 806-7686	OR15 = 806-7716	OR47 = 806-7740
OR022 = 806-7660	OR068 = 806-7694	OR22 = 806-7724	OR68 = 806-7759
OR033 = 806-7678	OR1 = 806-7708	OR33 = 806-7732	

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	5K+
Values OR01 to OR068	RL	0.270	0.210	0.174	0.148	0.130
Values OR1 to OR68	RL	0.148	0.119	0.098	0.084	0.074

LRC02P - 0.5 Watt ±1% (1206 Case Size)

5000 per Reel

Stocked in the following OHMIC Values:

OR01 = 806-7520	OR033 = 806-7554	OR1 = 806-7589	OR33 = 806-7619
OR015 = 806-7538	OR047 = 806-7562	OR15 = 806-7597	OR47 = 806-7627
OR022 = 806-7546	OR068 = 806-7570	OR22 = 806-7600	OR68 = 806-7635

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	5K+
Values 0.01R to 0.068R	RL	0.260	0.200	0.166	0.142	0.124
Values 0.1R to 0.68R	RL	0.148	0.119	0.098	0.084	0.074

Latest Product Update to the LRC Series - 0402 Case Size

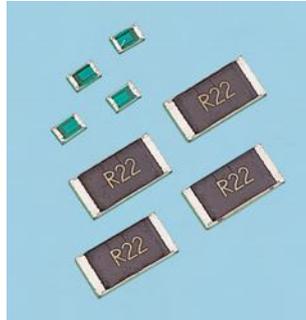
OR1 = 128-4586	OR22 = 128-4589	OR47 = 128-4591
OR15 = 128-4588	OR33 = 128-4590	OR68 = 128-4592

452190

Order Multiple=10		Price Each				
Order Code		10+	50+	100+	1K+	10K+
All Values	RL	0.128	0.116	0.092	0.076	0.067

RL73 Series

Current Sense Resistors



- Complete range from OR1 to 1R
- Supplied on tape - part marked
- Nickel barrier layer
- Restockable 2512 Laboratory Kit



Case Size	Power rating @ 70°C	Resistance Tolerance	Power rating @ 70°C
0402	0.1W	5%	200ppm/°C
0603	0.1W	5%	200ppm/°C
0805	0.125W	5%	200ppm/°C
1206	0.25W	5%	200ppm/°C
2512	1W	5%	200ppm/°C
CRL 1220(0805)	0.1W	5%	200ppm/°C

Stocked in the following OHMIC values:

0402 Case Size

OR15 = 886-7267	OR22 = 886-7283	OR33 = 886-7305	OR47 = 886-7321	OR68 = 886-7348
OR18 = 886-7275	OR27 = 886-7291	OR39 = 886-7313	OR56 = 886-7330	OR82 = 886-7356

0603 Case Size

OR1 = 886-7364	OR18 = 886-7399	OR33 = 886-7429	OR47 = 886-7445	OR68 = 886-7461
OR12 = 886-7372	OR22 = 886-7402	OR39 = 886-7437	OR56 = 886-7453	OR82 = 886-7470
OR15 = 886-7380	OR27 = 886-7410			

0805 Case Size

OR1 = 886-7488	OR22 = 886-7526	OR33 = 886-7542	OR47 = 886-7569	OR68 = 886-7585
OR15 = 886-7500	OR27 = 886-7534	OR39 = 886-7550	OR56 = 886-7577	OR82 = 886-7593
OR18 = 886-7518				

1206 Case Size

OR1 = 886-7607	OR18 = 886-7631	OR33 = 886-7666	OR47 = 886-7682	OR68 = 886-7704
OR12 = 886-7615	OR22 = 886-7640	OR39 = 886-7674	OR56 = 886-7690	OR82 = 886-7712
OR15 = 886-7623	OR27 = 886-7658			

2512 Case Size

OR1 = 117-4007	OR18 = 117-4012	OR33 = 117-4015	OR56 = 117-4018	OR1 = 886-7720
OR12 = 117-4008	OR22 = 117-4013	OR39 = 117-4016	OR68 = 117-4019	10R = 886-7739
OR15 = 117-4011	OR27 = 117-4014	OR47 = 117-4017	OR82 = 117-4020	

CRL1220 Case Size

OR82 = 117-3992	1R2 = 117-3994	3R3 = 117-3999	4R7 = 117-4002	8R2 = 117-4006
1R = 117-3993	1R5 = 117-3995	3R9 = 117-4000		

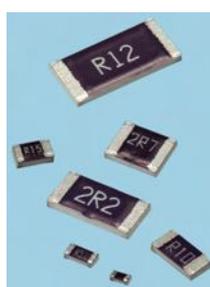
2512 Laboratory Kit

Strong binder containing 20 pieces each of all 2512 values above. Easily restockable.

207334

Order Multiple=25		Price Each			
Order Code		25+	100+	500+	1K+
0402 Case Size	All Values	0.137	0.113	0.063	0.033
0603 Case Size	All Values	0.290	0.250	0.147	0.077
0805 Case Size	All Values	0.330	0.280	0.161	0.081
1206 Case Size	All Values	0.197	0.155	0.117	0.088
CRL1220 Case Size	All Values	0.250	0.210	0.121	0.061
2512 Case Size	All Values	0.330	0.280	0.161	0.081
Order Multiple=1			1+		
2512 Laboratory Kit	117-4021	RL		81.940	

SR73 Series - Current Sense



- RuO<sub>2</sub> thick film resistor
- High reliability and performance with tight TCR and resistance tolerance



0603 L=1.6mm, W=0.8mm, D=0.45mm  
0805 L=2.0mm, W=1.25mm, D=0.5mm  
1206 L=3.2mm, W=1.6mm, D=0.6mm  
1210 L=3.2mm, W=2.6mm, D=0.6mm





0.5 Watt (2010 Case Size)

Stocked in the following OHMIC Values

OR01 = 163-4324 OR022 = 163-4323 OR033 = 163-4326 OR2 = 163-4319 OR33 = 163-4322  
OR015 = 163-4325 OR03 = 163-4321

Resistance	Order Code	Price Each					
		10+	50+	100+	500+	1K+	5K+
OR01	163-4324	0.330	0.280	0.250	0.200	0.149	0.131
OR015	163-4325	0.330	0.280	0.250	0.200	0.149	0.131
OR022	163-4323	0.240	0.200	0.183	0.153	0.109	0.096
OR03	163-4321	0.240	0.200	0.183	0.153	0.109	0.096
OR033	163-4326	0.240	0.200	0.183	0.153	0.109	0.096
OR2	163-4319	0.198	0.166	0.151	0.126	0.091	0.080
OR33	163-4322	0.198	0.166	0.151	0.126	0.091	0.080

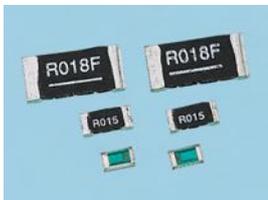
1 Watt (2512 Case Size)

Stocked in the following OHMIC Values

OR01 = 163-4334 OR03 = 163-4329 OR22 = 163-4330 OR3 = 163-4333 OR47 = 163-4332  
OR025 = 163-4328 OR05 = 163-4327

Resistance	Order Code	Price Each					
		10+	50+	100+	500+	1K+	5K+
OR01	163-4334	0.390	0.330	0.300	0.250	0.173	0.143
OR025	163-4328	0.290	0.250	0.210	0.184	0.132	0.115
OR03	163-4329	0.290	0.250	0.210	0.184	0.132	0.115
OR05	163-4327	0.290	0.250	0.210	0.184	0.132	0.115
OR22	163-4330	0.230	0.193	0.174	0.147	0.105	0.092
OR3	163-4333	0.230	0.193	0.174	0.147	0.105	0.092
OR47	163-4332	0.230	0.193	0.174	0.147	0.105	0.092

CRL-TL Series



- Surface mount low ohmic current tors
- For use with battery charging ma IC's, power supplies and shunt re tions
- Three case sizes 0805, 1206 and 2512
- Power ratings from 0.125W to 1W
- Virtually non-inductive low noise

	0805 CRL 1220	1206 TL2B	2512 TL3A
Technology	Thick film	Metal alloy	Metal alloy
Power rating @70°C	0.125W	0.25W	1W
Resistance tolerance	±5%	±1%	±1%
Temperature coefficient	200ppm/°C	75ppm/°C	75ppm/°C
Temperature range	-55°C to +125°C	-65°C to +170°C	-65°C to 170°C

Stocked in the following OHMIC values:

0805 CRL 1220 Series

OR022 = 117-3953 OR068 = 117-3956 OR15 = 117-3961 OR47 = 117-3964  
OR033 = 117-3954 OR075 = 117-3957 OR22 = 117-3962 OR68 = 117-3965  
OR047 = 117-3955 OR1 = 117-3958 OR33 = 117-3963

Order Multiple=5	Order Code	Price Each				
		5+	25+	100+	500+	1K+
All Values	RL	0.39	0.33	0.30	0.26	0.21

1206 TL 2B Series

OR01 = 117-3966 OR018 = 117-3969 OR033 = 117-3971 OR068 = 117-3974  
OR015 = 117-3968 OR022 = 117-3970 OR047 = 117-3973 OR09 = 117-3975

Order Multiple=5	Order Code	Price Each				
		5+	25+	100+	500+	1K+
All Values	RL	0.74	0.62	0.59	0.37	0.30

2512 TL3A Series

OR001 = 117-4190 OR005 = 117-3976 OR022 = 117-3980 OR051 = 117-4188  
OR002 = 117-4191 OR01 = 117-3977 OR033 = 117-3981 OR068 = 117-4189  
OR003 = 117-4192 OR015 = 117-3978 OR047 = 117-3982 OR075 = 117-3983  
OR004 = 117-4193 OR018 = 117-3979

Order Multiple=5	Order Code	Price Each				
		5+	25+	100+	500+	1K+
All Values	RL	1.03	0.80	0.70	0.46	0.44

CRL - TL Series



- Surface Mount ring binder Lab
- Contains Low Ohmic resistors sensing applications
- The kit can be restocked wher

Kit contains:

0805 - CRL 1220 Series 20 each value  
OR022, OR033, OR047, OR068, OR075, OR10, OR15, OR22, OR33, OR47. OR68

1206 - TL 2B Series 20 each value

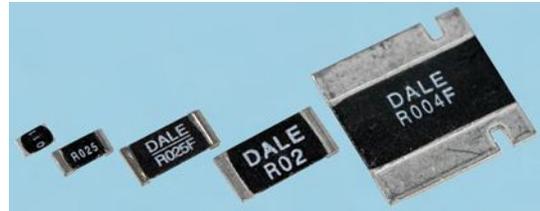
OR010, OR015, OR018, OR022, OR033, OR047, OR068, OR09

2512 - TL 3A Series 10 each value

OR005, OR010, OR015, OR018, OR022, OR033, OR047, OR075

Laboratory kit	Order Code	Price Each	
		1+	5+
	SMD117-3985	147.49	123.52

WSL Series - Power Metal Strip



L=38.1, Dia=8.0 (OR47=8.9), Lead length=15 min, Lead dia=0.8

- Superior surge capability
- Molded encapsulation
- Solderable termination
- Excellent stability at different environmental conditions

Power rating @ 70°C	Case 0805	Case 1206	Case 2010	Case 2512	Case 3637
	0.1W	0.25W	0.5W	1W	2W

Resistance tolerance	Operating temperature	Temperature coefficient max
	±1%	-65°C to +170°C
		±275ppm/°C

Stocked in the following OHMIC Values:

Case 0805  
OR = 110-7329 OR025 = 110-7334 OR06 = 110-7338 OR1 = 110-7342  
OR01 = 110-7330 OR03 = 110-7335 OR07 = 110-7339 OR15 = 110-7344  
OR015 = 110-7332 OR04 = 110-7336 OR08 = 110-7340 OR2 = 110-7345  
OR2 = 110-7333 OR05 = 110-7337

Case 1206  
OR = 110-7346 OR02 = 110-7350 OR06 = 110-7354 OR1 = 110-7359  
OR002 = 110-7347 OR03 = 110-7351 OR07 = 110-7356 OR15 = 110-7360  
OR01 = 110-7348 OR04 = 110-7352 OR08 = 110-7357 OR2 = 110-7361  
OR15 = 110-7349 OR05 = 110-7353 OR09 = 110-7358

Case 2010  
OR = 110-7362 OR04 = 110-7370 OR11 = 110-7377 OR27 = 110-7386  
OR001 = 110-7363 OR05 = 110-7371 OR12 = 110-7378 OR3 = 110-7387  
OR01 = 110-7364 OR06 = 110-7372 OR15 = 110-7381 OR33 = 110-7388  
OR015 = 110-7365 OR07 = 110-7373 OR18 = 110-7382 OR4 = 110-7389  
OR02 = 110-7366 OR08 = 110-7374 OR2 = 110-7383 OR47 = 110-7390  
OR025 = 110-7368 OR09 = 110-7375 OR22 = 110-7384 OR5 = 110-7391  
OR03 = 110-7369 OR1 = 110-7376 OR25 = 110-7385

Case 2512  
OR = 110-7393 OR03 = 110-7399 OR09 = 110-7405 OR3 = 110-7412  
OR001 = 110-7394 OR04 = 110-7400 OR1 = 110-7406 OR33 = 110-7413  
OR01 = 110-7395 OR05 = 110-7401 OR15 = 110-7407 OR4 = 110-7414  
OR015 = 110-7396 OR06 = 110-7402 OR2 = 110-7408 OR47 = 110-7415  
OR02 = 110-7397 OR07 = 110-7403 OR25 = 110-7411 OR5 = 110-7416  
OR025 = 110-7398 OR08 = 110-7404

Case 3637  
OR003 = 110-7417 OR004 = 110-7418 OR005 = 110-7419 OR01 = 110-7425

Case 0805	Order Code	Price Each			
		5+	50+	500+	2K+
Values OR to OR06	RL	0.430	0.340	0.290	0.250
	RL	0.440	0.360	0.300	0.260
Case 1206	Value OR	0.630	0.490	0.420	0.350
	Value OR001	0.770	0.620	0.530	0.440
	Values OR01 to OR06	0.630	0.490	0.420	0.350
	Values OR7 to OR5	0.490	0.400	0.330	0.290
Case 2010	Value OR	0.590	0.480	0.390	0.340
	Value OR7	0.770	0.620	0.530	0.440
	Values OR01 to OR06	0.730	0.600	0.480	0.420
	Values OR7 to OR2	0.610	0.480	0.410	0.340
Case 2512	All Values	0.630	0.490	0.420	0.350
	RL	0.630	0.490	0.420	0.350
Case 3637	All Values	0.710	0.580	0.470	0.410
	RL	0.710	0.580	0.470	0.410

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Low Ohmic / Current Sense - continued

TLR Series – Current Sense



- Ultra-low resistances (mΩ)
- High reliability and performance
- Resistance tolerance ±1%



1206 L=3.2mm, W=1.6mm, D=0.6mm  
 2010 L=5.0mm, W=2.5mm, D=0.6mm  
 2512 L=6.35mm, W=3.18mm, D=0.6mm

	1206 Case Size	2010 Case Size	2512 Case Size
Power rating @ 70°C	0.5W	1W	2W
Temperature coefficient	75ppm/°C	75ppm/°C	75ppm/°C
Operating Temperature	-65°C to 155°C	-65°C to 155°C	-65°C to 170°C (2mR and 3mR) (4mR, 5mR, 6mR, 7mR and 8mR)

Rated Voltage = √(Power rating x resistance value) or max. working voltage, whichever is lower

Stocked in the following OHMIC values:

1206 Case Size

OR002 = 140-0810 OR005 = 140-0814 OR01 = 140-0817 OR013 = 140-0820 OR018 = 140-0823  
 OR003 = 140-0811 OR006 = 140-0815 OR011 = 140-0818 OR015 = 140-0821 OR02 = 140-0825  
 OR004 = 140-0813 OR008 = 140-0816 OR012 = 140-0819 OR016 = 140-0822

2010 Case Size

OR001 = 140-0826 OR003 = 140-0828 OR005 = 140-0830 OR007 = 140-0832 OR009 = 140-0834  
 OR002 = 140-0827 OR004 = 140-0829 OR006 = 140-0831 OR008 = 140-0833 OR01 = 140-0835

2512 Case Size

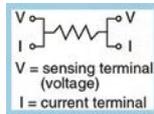
OR002 = 140-0837 OR004 = 140-0839 OR006 = 140-0841 OR007 = 140-0842 OR008 = 140-0843  
 OR003 = 140-0838 OR005 = 140-0840

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Order Multiple=10	Order Code	5+	50+	100+	1K+	5K+
Case Size						
1206	All Values ●	0.73	0.56	0.42	0.36	0.32
2010	All Values ●	0.75	0.57	0.43	0.37	0.33
2512	All Values ●	0.83	0.65	0.50	0.44	0.37

LVK Series

Four Terminal High Precision Current Sense



The LVK chip features four terminals, known as the 'Kelvin' configuration. This configuration enables current to be applied through two opposite terminals and a sensing voltage to be measured across the other two terminals, eliminating the resistance and temperature coefficient of the terminals for a more accurate current measurement.

- Consists of a durable, anti-corrosive metal alloy.
- Combines reliable performance with ability to withstand harsh environments.
- High-precision kelvin connect capability in a small package.

Operating temperature -40°C to +125°C

Case Size	Dimensions L W H	Resistance Range Ω	Temperature Coefficient	Tolerance
1206	3.2mm 1.6mm 0.5mm	0.01ohm - 0.05ohm	±50ppm/°C	±0.5%, ±1%
2010	5.0mm 2.5mm 0.5mm	0.01ohm - 0.05ohm	±50ppm/°C	±0.5%, ±1%
2412	6.4mm 3.2mm 0.5mm	0.01ohm - 0.05ohm	±50ppm/°C	±0.5%, ±1%
1224	3.2mm 6.4mm 0.5mm	0.001ohm	±300ppm/°C	±1%
		0.002ohm - 0.01ohm	±200ppm/°C	±1%
		0.005ohm - 0.01ohm	±100ppm/°C	±1%

LVK12 (case size 1206)

Stocked in the following OHMIC Values

OR01 = 146-2284 OR024 = 146-2287 OR027 = 146-2300 OR039 = 146-2303 OR01 = 146-2305 OR03 = 146-2307  
 OR012 = 146-2285 OR03 = 146-2288 OR05 = 146-2290 OR02 = 146-2292 OR05 = 146-2296  
 OR02 = 146-2286

Order Multiple=1	Order Code	1+	10+	100+	500+	1K+
LVK12						
±0.5%	All Values	0.53	0.45	0.35	0.31	0.25
±1%	All Values	0.47	0.39	0.32	0.27	0.23

LVK20 (case size 2010)

Stocked in the following OHMIC Values

OR01 = 146-2297 OR027 = 146-2300 OR039 = 146-2303 OR01 = 146-2305 OR03 = 146-2307  
 OR015 = 146-2298 OR03 = 146-2302 OR05 = 146-2304 OR02 = 146-2306 OR05 = 146-2308  
 OR02 = 146-2299

Order Multiple=1	Order Code	1+	10+	100+	500+	1K+
LVK20						
±0.5%	All Values	0.86	0.73	0.59	0.51	0.42
±1%	All Values	0.77	0.66	0.54	0.46	0.38

LVK24 (case size 2412)

Stocked in the following OHMIC Values

OR01 = 146-2309 OR02 = 146-2312 OR047 = 146-2316 OR01 = 146-2318 OR02 = 146-2320  
 OR012 = 146-2310 OR03 = 146-2314 OR05 = 146-2317 OR02 = 146-2319 OR05 = 146-2321  
 OR015 = 146-2311 OR039 = 146-2315

Order Multiple=1	Order Code	1+	10+	100+	500+	1K+
LVK24						
±0.5%	All Values	1.27	1.10	0.89	0.77	0.63
±1%	All Values	1.06	0.91	0.74	0.64	0.53

LVK25 (case size 1224)

Stocked in the following OHMIC Values

OR001 = 146-2322 OR002 = 146-2323 OR003 = 146-2324 OR005 = 146-2326 OR01 = 146-2327  
 484378

Order Multiple=1	Order Code	1+	10+	100+	500+	1K+
LVK25						
±1%	All Values	1.52	1.30	1.06	0.91	0.75

Low Ohmic - 1218 1W 1%



Power	Temperature Coefficient	Temperature Range	Tolerance
1W	2000ppm/°C	-55 to 125°C	±1%

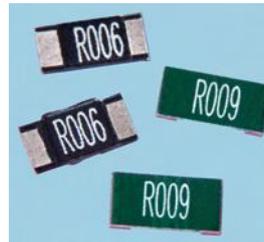
Stocked in the following OHMIC values:

OR01 = 137-7025 OR033 = 137-7028 OR01 = 137-7031 OR22 = 137-7033 OR47 = 137-7035  
 OR015 = 137-7026 OR047 = 137-7029 OR15 = 137-7032 OR33 = 137-7034 OR68 = 137-7037  
 OR022 = 137-7027 OR068 = 137-7030

477001

Order Multiple=10	Order Code	10+	100+	1K+	4K+
Values OR01 to OR068		0.47	0.42	0.35	0.31
Values OR1 to OR68		0.44	0.39	0.32	0.27

ULR Series



- Low TCR, Low inductance
- Designed for current sensing in power electronic systems

Resistance tolerance ±1%  
 Temperature coefficient -55 to 170°C

Stocked in the following OHMIC values:

ULR1 - 1 Watt - 2512 Case Size

OR0005 = 129-2472 OR002 = 129-2476 OR004 = 129-2480 OR0055 = 129-2484  
 OR00075 = 129-2473 OR0025 = 129-2477 OR0045 = 129-2482 OR006 = 129-2485  
 OR001 = 129-2474 OR003 = 129-2478 OR005 = 129-2483 OR007 = 129-2486  
 OR0015 = 129-2475 OR0035 = 129-2479

ULR1S - 1 Watt - 1206 Case Size

OR001 = 162-1960 OR003 = 162-1964 OR005 = 162-1969 OR008 = 162-1974  
 OR0015 = 162-1961 OR0035 = 162-1965 OR0055 = 162-1971 OR009 = 162-1975  
 OR002 = 162-1962 OR004 = 162-1966 OR006 = 162-1972 OR01 = 162-1976  
 OR0025 = 162-1963 OR0045 = 162-1967 OR007 = 162-1973

ULR15S - 1 Watt - 2010 Case Size

OR001 = 162-1977 OR003 = 162-1982 OR005 = 162-1986 OR008 = 162-1990  
 OR0015 = 162-1978 OR0035 = 162-1983 OR0055 = 162-1987 OR009 = 162-1991  
 OR002 = 162-1979 OR004 = 162-1984 OR006 = 162-1988 OR01 = 162-1992  
 OR0025 = 162-1980 OR0045 = 162-1985 OR007 = 162-1989

ULR2 - 2 Watt - 2512 Case Size

OR00075 = 129-2488 OR0015 = 129-2490 OR007 = 129-2492 OR009 = 129-2495 OR01 = 129-2496  
 OR001 = 129-2489 OR002 = 129-2491 OR008 = 129-2494

ULR25 - 2.5 Watt - 2512 Case Size

OR0035 = 129-2497 OR0045 = 129-2499 OR005 = 129-2501 OR0055 = 129-2502 OR006 = 129-2503  
 OR004 = 129-2498

ULR3 - 3 Watt - 2512 Case Size

OR0005 = 129-2504 OR001 = 129-2506 OR002 = 129-2508 OR003 = 129-2510  
 OR00075 = 129-2505 OR0015 = 129-2507 OR0025 = 129-2509

451985

Series	Order Code	5+	25+	100+	500+	2K+
ULR1	All Values ● RL	0.410	0.330	0.280	0.230	0.195
ULR1S	NEW All Values ● RL	0.460	0.370	0.310	0.260	0.184
ULR15S	NEW All Values ● RL	0.460	0.370	0.310	0.260	0.184
ULR2	All Values ● RL	0.072	--	--	--	--
ULR25	All Values ● RL	0.470	0.380	0.310	0.260	0.220
ULR3	All Values ● RL	0.670	0.530	0.440	0.380	0.310



40,000 PRICES REDUCED

2010 Series - 0.6 Watt Wirewound ±1%



- Compact wirewound resistors for current sense applications
- Available in low ohmic values



Power Rating	Voltage Rating	Dimensions			Tolerance
0.6W	50V	L	W	H	±±1%
		5.14mm	2.54mm	3.42mm	

Stocked in the following OHMIC values:  
 OR01 = 146-2254 OR02 = 146-2256 OR05 = 146-2259 OR075 = 146-2261 OR1 = 146-2262  
 OR015 = 146-2255 OR03 = 146-2257

Order Multiple=1	Price Each				
Order Code	1+	50+	250+	500+	2K5+
All Values ● RL	1.12	0.85	0.73	0.58	0.49

LR Series - Low Ohmic Value

0.5 Watt (1206 Case Size), 1 Watt (2010 Case Size) & 2 Watt (2512 Case Size)



- Resistance values from OR005 to OR5
- 2010 and 2512 case sizes
- Nickel barrier layer
- Excellent thermal characteristics
- For low current sensing applications



Power rating @ 70°C	1206 Case Size (LR1206)	2010 Case Size (LR2010)	2512 Case Size (LR2512)
Resistance tolerance	±1	±1	±5
Temperature coefficient	≤OR005 ±5% ±100ppm/°C	≤OR005 ±5% ±100ppm/°C	≤OR005 ±5% ±100ppm/°C
Case dimensions	L. 3.2, W. 1.63, H. 0.8	L. 5.23, W. 2.64, H. 0.8	L. 6.5, W. 3.25, H. 0.8

Stocked in the following OHMIC values:

2010 Case Size	1206 Case Size	2512 Case Size
OR003 = 110-0341 OR005 = 110-0043 OR01 = 110-0044 OR015 = 110-0045	OR02 = 110-0046 OR025 = 110-0047 OR033 = 110-0048 OR04 = 110-0049	OR05 = 110-0050 OR07 = 110-0052 OR1 = 110-0053 OR2 = 110-0054
OR003 = 109-9903 OR005 = 109-9906 OR01 = 109-9907 OR015 = 109-9908	OR02 = 109-9909 OR025 = 109-9910 OR033 = 109-9911 OR04 = 109-9912	OR05 = 109-9913 OR07 = 110-0335 OR1 = 109-9914 OR2 = 110-0337
OR003 = 110-0343 OR005 = 110-0057 OR01 = 110-0058 OR015 = 110-0059	OR02 = 110-0060 OR025 = 110-0061 OR033 = 110-0062 OR04 = 110-0064	OR05 = 110-0065 OR07 = 110-0066 OR1 = 110-0067 OR2 = 110-0068

Order Multiple=5	Price Each				
Order Code	5+	50+	100+	500+	1K+
<b>1206 Case Size</b>					
Values OR003 to OR05 ● RL	0.470	0.410	0.340	0.290	0.250
Values OR07 to OR2 ● RL	0.280	0.240	0.200	0.160	0.143
Values OR33 to 1R ● RL	0.340	0.300	0.250	0.196	0.183
<b>2010 Case Size</b>					
Values OR003 to OR05 ● RL	0.440	0.380	0.320	0.270	0.220
Values OR07 to OR2 ● RL	0.650	0.530	0.440	0.370	0.320
Values OR33 to 1R ● RL	0.560	0.480	0.390	0.330	0.290
<b>2512 Case Size</b>					
Values OR003 to OR05 ● RL	0.470	0.410	0.340	0.290	0.250
Values OR07 to OR2 ● RL	0.720	0.580	0.480	0.410	0.350
Values OR33 to 1R ● RL	0.670	0.550	0.460	0.390	0.340

LR Lab Kit



- Surface mount ring binder laboratory kit
- Contains 1206, 2010 and 2512 case size LR series low ohmic resistors

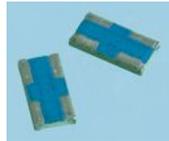
Kit contains 25 of each Ohmic Value in 1206, 2010 and 2512 case sizes  
 OR003, OR005, OR01, OR015, OR02, OR025, OR033, OR04, OR05, OR07, OR1, OR2, OR33, OR5, 1R

Order Code	Price Each
SMD110-0080 ●	152.13

Over 480,000 products online

3 Watt LRF3W Series - Low Ohmic Value

2512 Case Size



- High power rating - 3W
- Resistance values from OR003 to OR1
- Four terminal flip-chip 2512 case size
- Excellent thermal characteristics
- Nickel barrier layer
- For low current sensing applications



Power rating @ 70°C	3W	Temp. coefficient	±100ppm/°C
Resistance tolerance	±5%	Case dimensions	L. 6.35, W. 3.175, H. 0.813

Stocked in the following OHMIC values:			
OR003 = 110-0071	OR01 = 110-0074	OR025 = 110-0346	OR05 = 110-0078
OR004 = 110-0072	OR015 = 110-0345	OR03 = 110-0077	OR07 = 110-0349
OR005 = 110-0073	OR02 = 110-0076	OR04 = 110-0347	OR1 = 110-0079

Order Code	1+	50+	Price Each	500+	1K+
All Values ● RL	0.91	0.80	0.72	0.63	0.54

Low Ohmic - 2512 2W 1%



- Current Sensor - Low TCR



Power	Temperature Coefficient	Temperature Range	Tolerance	Voltage
2W	100ppm/°C	-55 to 155°C	±1%	250V

Stocked in the following OHMIC values:

OR001 = 940-3116	OR004 = 940-3140	OR007 = 940-3175	OR01 = 940-3205	OR047 = 940-3280
OR002 = 940-3124	OR005 = 940-3159	OR008 = 940-3183	OR033 = 940-3264	OR15 = 940-3230
OR003 = 940-3132	OR006 = 940-3167	OR009 = 940-3191		

Order Multiple=10	Price Each			
Order Code	10+	100+	1K+	4K+
All Values ● RL	0.57	0.51	0.44	0.40

TLRH Series

2512 Case Size



Power Rating	2W
Tolerance	1%
Temperature Coefficient	±50ppm/°C
Operating Temperature	-65°C to +170°C

2512 L=6.3mm, W=3.2mm, D=0.5

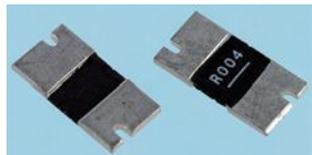
- High reliability and performance
- Ultra low height with a thickness of 0.5mm
- Suitable for use in small equipment
- Automatic mounting machine is applicable
- Suitable for reflow soldering
- Ideal to use for current detecting of motor control, power supply, PC application, etc.
- Meets or exceeds IEC 60115-1, JIS C 5201-1

Stocked in the following OHMIC values:

22m = 162-7959	33m = 162-7963	56m = 162-7966	82m = 162-7968	120m = 162-7970
25m = 162-7961	39m = 162-7964	68m = 162-7967	100m = 162-7969	150m = 162-7972
27m = 162-7962	47m = 162-7965			

Order Code	5+	50+	Price Each	1K+	5K+
All Values ● RL	0.99	0.81	0.62	0.53	0.41

WSK Series - Power Metal Strip



- Ideal for all types of precision current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifiers
- Proprietary processing technique produces extremely low resistance values

Case Size	2512	Operating temperature	-65°C to +170°C
Power rating @ 70°C	1W	Temperature coefficient max	±250ppm/°C
Resistance tolerance	±1%		

Stocked in the following OHMIC Values:

OR001 = 110-7426	OR005 = 110-7428	OR015 = 110-7430	OR025 = 110-7432
OR002 = 110-7427	OR01 = 110-7429	OR02 = 110-7431	

Order Code	5+	50+	Price Each	500+	2K+
All Values ●	0.49	0.39	0.33	0.27	0.22

Low Ohmic / Current Sense - continued

Surface Mount Power Resistors

RW Series



- Wirewound resistors
  - Flammability UL material rating UL94V0
- Power rating 1W  
 Temperature coefficient 480ppm/°C  
 Tolerance 5%  
 Voltage rating 50V



L=6.25mm, W=3.45mm, D=3.45mm

Stocked in the following OHMIC values:

Resistance	Voltage Rating	Voltage Rating	Temperature Coefficient	Voltage Rating	Mfrs. List No.	Order Code
0.005ohm	50V	1W	480ppm/°C	5%	RW1S0BAR005JE	155-0746
0.01ohm	50V	1W	250ppm/°C	5%	RW1S0BAR010JE	155-0747
0.025ohm	50V	1W	140ppm/°C	5%	RW1S0BAR025JE	155-0748
0.05ohm	50V	1W	90ppm/°C	5%	RW1S0BAR050JE	155-0749
0.1ohm	50V	1W	90ppm/°C	5%	RW1S0BAR100JE	155-0750
0.36ohm	50V	1W	90ppm/°C	5%	RW1S0BAR360JE	155-0751
0.68ohm	50V	1W	90ppm/°C	5%	RW1S0BAR680JE	155-0752
1ohm	50V	1W	90ppm/°C	5%	RW1S0BA1R00JE	155-0753

501308

Order Multiple=1	Order Code	1+	10+	Price Each	25+	50+	250+
All Values ●		2.40	2.06	1.77	1.37	1.22	

ERJM1W Series

Current Sensing Resistors



- Low resistance values and high precision
- Stable resistance not influenced by measurement position
- High heat emission
- Low profile, strong body



Case style	2512	Tolerance	±1%
Power rating	1W	Operating temperature	-55°C to +170°C

Stocked in the following OHMIC values:

OR001 = 157-7573 OR002 = 157-7575 OR004 = 157-7577 OR006 = 157-7581 OR015 = 157-7583  
 OR0015 = 157-7574 OR003 = 157-7576 OR005 = 157-7579 OR01 = 157-7582 OR02 = 157-7584

527237

Values	1+	10+	Price Each	100+	500+	1K+
<0R003Ω ●	1.65	1.18	0.96	0.77	0.60	0.60
≥0R003Ω ●	1.41	1.02	0.82	0.65	0.50	0.50

1 Watt—SL1 Series



- Surface mount low ohmic value
- Non-inductive, low TCR fully sealed case
- Applications include current sensing and monitoring



L=6.3 W=3.5 H=3.5  
 Supplied on 12mm embossed tape

Power rating @25°C	1W	Resistance tolerance	±5%
Voltage rating	√PR	Operating temperature	-55°C to +125°C
Dielectric strength	1000V/m	Temperature coefficient	100ppm/°C

OR005 = 117-4242 OR015 = 117-4244 OR033 = 117-4246 OR051 = 117-4248  
 OR01 = 117-4243 OR022 = 117-4245 OR047 = 117-4247 OR068 = 117-4249

207216

Order Code	1+	50+	Price Each	100+	500+
All Values ● RL	1.88	1.41	1.26	0.93	

SL Series



- Low ohm surface mount power resistors
- Low profile design
- Ideal for current sensing
- Fully welded construction with flexible tinned copper terminations for reliable solder joints
- Able to withstand the higher temperatures associated with reflow, vapour phase, or infrared (IR) manufacturing processes without degradation

Resistance tolerance	±5%	Temperature coefficient max	±100ppm/°C
Operating temperature	-55°C to +275°C	Dimensions (LxWxH)	12.14 x 5.84 x 5.33mm

Stocked in the following OHMIC Values:

2 Watt

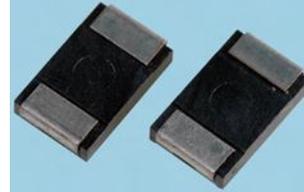
OR005 = 126-5034 OR015 = 126-5035 OR033 = 126-5038 OR051 = 126-5042  
 OR01 = 126-5036 OR022 = 126-5037 OR047 = 126-5041 OR068 = 126-5043

3 Watt

OR005 = 126-5044 OR01 = 126-5046 OR022 = 126-5047 OR033 = 126-5048  
 451346

Power Rating	Order Code	5+	25+	Price Each	100+	500+
2W	All Values ●	1.51	1.26	1.08	0.95	
3W	All Values ●	2.25	1.94	1.70	1.51	

WSR Series – Power Metal Strip



- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifiers
- Excellent frequency response
- Low thermal EMF

Case size	4527
Resistance tolerance	±1%
Operating temperature	-65°C to +275°C
Temperature coefficient	±110ppm/°C
	±75ppm/°C

Stocked in the following OHMIC Values:

2W

OR = 110-7433 OR03 = 110-7441 OR09 = 110-7448 OR33 = 110-7454  
 OR001 = 110-7435 OR04 = 110-7442 OR1 = 110-7449 OR4 = 110-7455  
 OR01 = 110-7437 OR05 = 110-7443 OR15 = 110-7450 OR5 = 110-7456  
 OR015 = 110-7438 OR06 = 110-7444 OR2 = 110-7451 OR75 = 110-7457  
 OR02 = 110-7439 OR07 = 110-7445 OR25 = 110-7452 1R = 110-7436  
 OR025 = 110-7440 OR08 = 110-7447 OR3 = 110-7453

3W

OR001 = 110-7459 OR02 = 110-7464 OR05 = 110-7468 OR1 = 110-7472  
 OR002 = 110-7461 OR025 = 110-7465 OR07 = 110-7469 OR15 = 110-7473  
 OR01 = 110-7462 OR03 = 110-7466 OR09 = 110-7470 OR2 = 110-7474  
 OR015 = 110-7463 OR04 = 110-7467

5W

OR0075 = 110-7475 OR03 = 110-7479 OR09 = 110-7486 OR2 = 110-7489  
 OR01 = 110-7476 OR04 = 110-7480 OR1 = 110-7487 OR25 = 110-7490  
 OR015 = 110-7477 OR05 = 110-7481 OR15 = 110-7488 OR3 = 110-7491  
 OR02 = 110-7478 OR07 = 110-7484

423703

2W	5+	50+	Price Each	250+	500+	2K+
Value OR ●	0.55	0.45	0.36	0.31	0.26	
Value OR001 ●	0.71	0.58	0.47	0.41	0.33	
Values OR01 to 1R ●	0.68	0.56	0.45	0.39	0.32	
3W						
Value OR001 to OR002 ●	0.73	0.60	0.48	0.42	0.34	
Value OR01 to OR2 ●	0.68	0.56	0.45	0.39	0.32	
5W						
All Values ●	1.29	1.03	0.85	0.73	0.59	

WSC Series – Power Metal Strip



- Excellent stability at different environmental conditions
- Superior surge capability
- High power ratings
- Molded encapsulation

Resistance tolerance	±1%	Temperature coefficient max	500V
Operating temperature	-65°C to +175°C		

Stocked in the following OHMIC Values:

WSC01/02

Case Size	2012	Power Rating	0.5W
2R =	110-7493		

WSC2515

Case Size	2515	Power Rating	1W
OR5 = 110-7505	5R = 110-7504	50R = 110-7503	1K = 110-7498
1R = 110-7499	10R = 110-7497	100R = 110-7496	2K = 110-7500
2R = 110-7502			

WSC4527

Case Size	4527	Power Rating	2W
2R = 110-7511	10R = 110-7507	50R = 110-7512	1K = 110-7508
5R = 110-7514	20R = 110-7509	100R = 110-7506	2K = 110-7510

WSC6927

Case Size	6927	Power Rating	3W
1R = 110-7518	10R = 110-7516	100R = 110-7515	1K = 110-7517
OR5 = 110-7519			

423706



Low Ohmic / Current Sense - continued

PWR220 Series - continued

S Series Shunt Resistor - continued

Stocked in the following OHMIC Values

OR05 = 143-5958 OR002 = 143-5960 OR05 = 143-5962 OR01 = 143-5964 OR05 = 143-5965  
OR1 = 143-5959 OR01 = 143-5961 OR002 = 143-5963

484427

Resistance	Order Code	Price Each				
		1+	10+	50+	100+	500+
0.05ohm	143-5958	7.12	6.33	5.66	5.23	4.78
0.1ohm	143-5959	7.12	6.33	5.66	5.23	4.78
0.002ohm	143-5960	7.53	6.69	5.97	5.53	5.04
0.01ohm	143-5961	7.53	6.69	5.97	5.53	5.04
0.05ohm	143-5962	7.53	6.69	5.97	5.53	5.04
0.002ohm	143-5963	7.53	6.69	5.97	5.53	5.04
0.01ohm	143-5964	7.53	6.69	5.97	5.53	5.04
0.05ohm	143-5965	7.53	6.69	5.97	5.53	5.04

OAR Series



- Through hole low ohmic current sensing resistors
- Open design for cooler running
- Close tolerance low inductance
- For use in current sensing, feedback, surge and pulse applications

Power rating @ 85°C  
Resistance tolerance ±1%  
Inductance <10nH  
Temperature coefficient ±20ppm/°C

	H	W	Lead Pitch	Lead Dia.	Lead length
OAR-1	5.08	1.65	11.43	1.02	3.18
OAR-3	25.4	1.65	15.24	1.02	3.18
OAR-5	25.4	1.65	20.32	1.02	3.18

Stocked in the following OHMIC Values:

OAR - 1 Watt  
OR005 = 120-0357 OR02 = 120-0359 OR03 = 120-0361 OR04 = 120-0362 OR05 = 120-0363  
OR01 = 120-0358 OR025 = 120-0360

OAR - 3 Watt  
OR005 = 120-0364 OR015 = 120-0366 OR025 = 120-0369 OR04 = 120-0371 OR05 = 120-0372  
OR01 = 120-0365 OR02 = 120-0368 OR03 = 120-0370

OAR - 5 Watt  
OR005 = 120-0373 OR01 = 120-0374 OR015 = 120-0375 OR02 = 120-0376 OR025 = 120-0377

207372

	Order Code	Price Each				
		1+	10+	50+	100+	500+
OAR - 1 Watt	All Values	0.78	0.77	0.54	0.42	0.40
OAR - 3 Watt	All Values	0.84	0.82	0.58	0.45	0.43
OAR - 5 Watt	All Values	0.93	0.79	0.65	0.48	0.47

PWR4412-2S Series

Bare Metal Element Resistor



- High current capability
- Low inductance
- Radial leads
- Low ohmic
- Applications include power supplies, UPS, motor drives

Version	Dimensions		Temperature Coefficient	Tolerance
	H	Lead Pitch		
B	5.08±50%	11.43	±20ppm/°C	±1%
C	25.4	15.24	±20ppm/°C	±1%
D	25.4	20.32	±20ppm/°C	±1%

1 Watt ±1% - B Version

Stocked in the following OHMIC Values

OR003 = 143-5970 OR02 = 143-5972 OR03 = 143-5975 OR04 = 143-5976 OR05 = 143-5977  
OR005 = 143-5971 OR025 = 143-5974

1 Watt	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	0.75	0.63	0.53	0.41	0.39

3 Watt ±1% - C Version

Stocked in the following OHMIC Values

OR005 = 143-5979 OR015 = 143-5981 OR025 = 143-5982 OR04 = 143-5983 OR05 = 143-5984

3 Watt	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	0.87	0.84	0.60	0.46	0.42

5 Watt ±1% - D Version

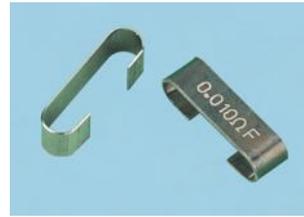
Stocked in the following OHMIC Values

OR005 = 143-5985 OR01 = 143-5986 OR015 = 143-5987 OR02 = 143-5988 OR025 = 143-5989

484428

1 Watt	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	0.96	0.87	0.66	0.49	0.44

OARS Series - Surface Mount



- Surface mount current sensing resistors
- Open air design for cooler operation
- Close tolerance low inductance
- For use in current sensing, feedback, surge and pulse applications

L=11.18 H=3.05 T=2.36 D=4.83 W=3.175

Power rating @85°C ≤OR015 1W ≥OR020 2W  
Resistance tolerance ±1%  
Inductance <10nH  
Temperature coefficient ±20ppm/°C

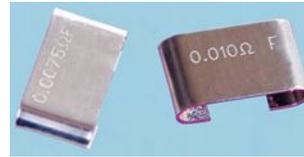
Stocked in the following OHMIC Values:

OR003 = 120-0347 OR015 = 120-0350 OR025 = 120-0352 OR04 = 120-0354  
OR01 = 120-0349 OR02 = 120-0351 OR03 = 120-0353 OR05 = 120-0356

207370

Order Code	All Values <th colspan="5">Price Each</th>	Price Each				
		1+	10+	50+	100+	500+
		0.92	0.80	0.64	0.51	0.48

OARSXP Series



- Extended power surface mount current sense resistors
- Open air design provides cooler operation
- Unique form factor provides TCE compliant termination

L=12, W=6.3, H=4.6

Power rating 3.5  
Resistance tolerance ±5%  
Temperature coefficient 0.001Ω ±±240ppm/°C  
≥0.002Ω ±±40ppm/°C

Stocked in the following OHMIC Values:

OR001 = 129-2583 OR0025 = 129-2586 OR01 = 129-2588 OR025 = 129-2590  
OR002 = 129-2585 OR005 = 129-2587 OR02 = 129-2589

451983

Order Code	All Values <th colspan="5">Price Each</th>	Price Each				
		1+	10+	50+	100+	500+
		1.02	0.86	0.71	0.57	0.53

Low Ohm Moulded Silicone Axial Wirewound Resistors



1W - L = 10.31, Dia. = 2.39, Lead length = 39.67, Lead dia. = 0.8  
3W - L = 14.22, Dia. = 5.21, Lead length = 39.67, Lead dia. = 0.8  
5W - L = 23.5, Dia. = 8.38, Lead length = 39.67, Lead dia. = 1.0

- Ideal for current sensing applications
- Low inductance

Temperature coefficient 90ppm/°C  
Tolerance ±1%  
Overload power rating 5xPr for 5 secs  
Operating temperature -55°C to + 275°C

1W

Stocked in the following OHMIC Values

OR01 = 130-6688 OR05 = 130-6689 OR1 = 130-6690

Order Code	All Values <th colspan="5">Price Each</th>	Price Each				
		1+	10+	100+	250+	500+
		0.97	0.93	0.90	0.86	0.84

3W

Stocked in the following OHMIC Values

OR01 = 130-6691 OR05 = 130-6692 OR1 = 130-6693

Order Code	All Values <th colspan="5">Price Each</th>	Price Each				
		1+	10+	100+	250+	500+
		0.91	0.88	0.85	0.82	0.79

5W

Stocked in the following OHMIC Values

OR01 = 130-6694 OR05 = 130-6695 OR1 = 130-6696

451903

Order Code	All Values <th colspan="5">Price Each</th>	Price Each				
		1+	10+	100+	250+	500+
		0.99	0.94	0.90	0.85	0.82

£ € 40,000 PRICES REDUCED

## LVR Series

Wirewound low Ohmic value



- Ideal for all types of current sensing applications including switching and linear power supplies, instruments and power amplifiers
- Proprietary processing technique produces extremely low resistance values
- Low temperature coefficient
- Cooler operation for high power to size ratio

Resistance tolerance	±1%	Dielectric withstanding voltage	1000V
Operating temperature	-65°C to +175°C	Insulation resistance	10000Mohm

## 1 Watt - LVR01

Power rating (Pr) @ 25°C	1W	Diameter Body	2.92mm
Length Body	10.85mm	Diameter Lead	0.508mm

Stocked in the following OHMIC Values :

OR01 = 110-8056	OR03 = 110-8059	OR07 = 110-8063
OR02 = 110-8057	OR04 = 110-8060	OR08 = 110-8064
OR025 = 110-8058	OR05 = 110-8061	OR1 = 110-8065

## 3 Watt - LVR03

Power rating (Pr) @ 25°C	3W	Diameter Body	5.21mm
Length Body	14.22mm	Diameter Lead	0.813mm

Stocked in the following OHMIC Values :

OR005 = 110-8066	OR025 = 110-8070	OR07 = 110-8075	OR2 = 110-8079
OR01 = 110-8067	OR03 = 110-8071	OR08 = 110-8076	
OR015 = 110-8068	OR04 = 110-8072	OR1 = 110-8077	
OR02 = 110-8069	OR05 = 110-8073	OR15 = 110-8078	

## 5 Watt - LVR05

Power rating (Pr) @ 25°C	5W	Diameter Body	8.38mm
Length Body	23.5mm	Diameter Lead	1.02mm

Stocked in the following OHMIC Values :

OR005 = 110-8080	OR025 = 110-8084	OR07 = 110-8089	OR15 = 110-8092
OR01 = 110-8081	OR03 = 110-8085	OR08 = 110-8090	OR2 = 110-8093
OR015 = 110-8082	OR04 = 110-8087	OR1 = 110-8091	OR3 = 110-8094
OR02 = 110-8083	OR05 = 110-8088		

423495

Power rating	Order Code	Price Each				
		5+	25+	100+	250+	500+
1W	All Values ●	1.10	1.03	0.90	0.64	0.60
3W	All Values ●	1.10	1.03	0.90	0.64	0.60
5W	All Values ●	1.41	1.24	1.11	0.84	0.72

## 3 Watt - W31 Series - Low Ohmic



L = 13, Dia. = 5.6, Lead length = 22.75 min, Lead dia. = 0.8  
Supplied bandioliered on tape (box = 1000 pcs)

- Cement coated wirewound resistors
  - Low ohmic values for pulse handling applications
  - Non-flammable
- |                         |      |                         |             |
|-------------------------|------|-------------------------|-------------|
| Power rating @ 25°C     | 3W   | Temperature coefficient | <1000ppm/°C |
| Power rating @ 70°C     | 2.5W |                         | <500ppm/°C  |
| Resistance tolerance    | ±5%  | 0.033 to 0.082Ω         | <200ppm/°C  |
| Limited element voltage | 100V | 0.1 to 1Ω               |             |

Stocked in the following OHMIC Values:

OR01 = 949-7072	OR22 = 949-7242	4R7 = 156-5258	120R = 156-5224
OR012 = 949-7080	OR27 = 949-7250	5R6 = 156-5261	150R = 156-5226
OR015 = 949-7099	OR33 = 949-7269	6R8 = 156-5264	180R = 156-5228
OR018 = 949-7102	OR39 = 949-7277	8R2 = 156-5268	220R = 156-5240
OR022 = 949-7110	OR47 = 949-7285	10R = 156-5223	270R = 156-5243
OR027 = 949-7129	OR51 = 949-7293	12R = 156-5225	330R = 156-5249
OR033 = 949-7137	OR56 = 949-7307	15R = 156-5227	390R = 156-5251
OR039 = 949-7145	OR68 = 949-7315	18R = 156-5231	470R = 156-5256
OR047 = 949-7153	OR82 = 949-7323	22R = 156-5241	560R = 156-5259
OR051 = 949-7161	1R = 949-7064	27R = 156-5244	680R = 156-5262
OR056 = 949-7170	1R2 = 156-5236	33R = 156-5250	820R = 156-5265
OR068 = 949-7188	1R5 = 156-5238	39R = 156-5252	1K = 156-5233
OR082 = 949-7196	1R8 = 156-5239	47R = 156-5257	1K2 = 156-5232
OR1 = 949-7200	2R2 = 156-5247	56R = 156-5260	1K5 = 156-5234
OR12 = 949-7218	2R7 = 156-5248	68R = 156-5263	1K8 = 156-5235
OR15 = 949-7226	3R3 = 156-5253	82R = 156-5267	2K2 = 156-5245
OR18 = 949-7234	3R9 = 156-5255	100R = 156-5222	2K7 = 156-5246

227210

Order Multiple=5	Order Code	Price Each				
		5+	25+	100+	500+	1K+
	All Values ●	0.460	0.430	0.350	0.200	0.187

Over 480,000 products online



## 10 Series

Axial Wire Element Current Sense



Series	Body		Lead		Dia.
	Length	Dia.	Length	Dia.	
12	10.6mm	2.4mm	39.7mm	0.05mm	
13	14.5mm	5.2mm	39.7mm	0.05mm	
15	23.8mm	8.4mm	39.7mm	0.05mm	

Operating Temperature	-55°C to +200°C	Temperature Coefficient	<0.015R ±100ppm/°C
Tolerance	±1%		≥0.015R ±50ppm/°C

## Series 12 — 2W

Stocked in the following OHMIC Values

OR005 = 163-3904	OR015 = 163-3906	OR025 = 163-3908	OR05 = 163-3911	OR1 = 163-3912
OR01 = 163-3905	OR2 = 163-3907			

## Series 13 — 3W

Stocked in the following OHMIC Values

OR005 = 163-3913	OR015 = 163-3915	OR025 = 163-3917	OR1 = 163-3919	OR2 = 163-3921
OR01 = 163-3914	OR2 = 163-3916	OR05 = 163-3918	OR15 = 163-3920	

## Series 15 — 4W

Stocked in the following OHMIC Values

OR005 = 163-3923	OR015 = 163-3925	OR05 = 163-3927	OR15 = 163-3929	OR25 = 163-3930
OR01 = 163-3924	OR25 = 163-3926	OR1 = 163-3928		

520509

Order Code	Mfrs. List No.	Price Each				
		1+	10+	100+	500+	1K+
<b>Series 12 — 2W</b>						
163-3904●	12FR005E	2.40	2.00	1.67	1.46	1.20
163-3905●	12FR010E	2.40	2.00	1.67	1.46	1.20
163-3906●	12FR015E	2.40	2.00	1.67	1.46	1.20
163-3907●	12FR020E	2.40	2.00	1.67	1.46	1.20
163-3908●	12FR025E	2.26	1.96	1.63	1.44	1.18
163-3911●	12FR050E	2.24	1.86	1.55	1.37	1.12
163-3912●	12FR100E	2.63	2.19	1.83	1.60	1.31
<b>Series 13 — 3W</b>						
163-3913●	13FR005E	2.27	1.96	1.63	1.44	1.11
163-3914●	13FR010E	2.24	1.86	1.55	1.37	1.12
163-3915●	13FR015E	2.24	1.86	1.55	1.37	1.12
163-3916●	13FR020E	2.15	1.79	1.50	1.31	1.07
163-3917●	13FR025E	2.15	1.79	1.50	1.31	1.07
163-3918●	13FR050E	2.13	1.77	1.47	1.29	1.06
163-3919●	13FR100E	2.27	1.96	1.63	1.44	1.11
163-3920●	13FR150E	2.27	1.96	1.63	1.44	1.11
163-3921●	13FR200E	2.27	1.96	1.63	1.44	1.11
<b>Series 15 — 4W</b>						
163-3923●	15FR005E	2.83	2.36	1.96	1.73	1.42
163-3924●	15FR010E	2.56	2.14	1.78	1.57	1.28
163-3925●	15FR015E	2.56	2.14	1.78	1.57	1.28
163-3926●	15FR025E	2.56	2.14	1.78	1.57	1.28
163-3927●	15FR050E	2.67	2.23	1.86	1.63	1.34
163-3928●	15FR100E	2.65	2.21	1.84	1.61	1.33
163-3929●	15FR150E	2.65	2.21	1.84	1.61	1.33
163-3930●	15FR250E	2.65	2.21	1.84	1.61	1.33

## 4 Watt - SBL4 - Series Low Ohmic



L=20, W=6.4, D=6.4, Lead dia=0.8

Power rating @70°C	4W	Stability @ 70°C	1000 hours ±±3%
derating to zero watts at 250°C		Measuring Length for R <sub>W</sub>	40mm
Resistance Tolerance	±5%	Voltage Rating	√PR
Isolation resistance (max)	>1000MΩ	Operating temperature	-55°C to +250°C
Temperature Coefficient	100 to 600ppm/°C (dependent on value)		

Stocked in the following OHMIC values:

OR01 = 117-3906	OR022 = 117-3908	OR047 = 117-3910
OR015 = 117-3907	OR033 = 117-3909	OR051 = 117-3912

207418

Order Code	Price Each				
	1+	50+	100+	250+	500+
All Values ●	0.99	0.84	0.79	0.74	0.69

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## High Voltage

### MCHV05 and MCHV06 Series ±5%

High Voltage



- Superior voltage performance over commercial range chips



	0805 0.1W	1206 0.125W
Power rating	0.1W	0.125W
Operating temperature	-55°C to +155°C	-55°C to +155°C
Temperature coefficient	±200ppm/°C	±200ppm/°C
Max. working voltage	300V	400V
Max. overload voltage	800V	1000V
Resistance tolerance	±5%	±5%

#### 0805 Case Size

Stocked in the following OHMIC Values

100K = 157-6128	270K = 157-6140	680K = 157-6152	1M8 = 157-6163	4M3 = 157-6174
110K = 157-6129	300K = 157-6141	750K = 157-6153	2M = 157-6164	4M7 = 157-6175
120K = 157-6130	330K = 157-6142	820K = 157-6154	2M2 = 157-6165	5M1 = 157-6176
130K = 157-6131	360K = 157-6143	910K = 157-6155	2M4 = 157-6166	5M6 = 157-6177
150K = 157-6132	390K = 157-6144	1M = 157-6156	2M7 = 157-6167	6M2 = 157-6178
160K = 157-6134	430K = 157-6145	1M1 = 157-6157	3M = 157-6169	6M8 = 157-6179
180K = 157-6135	470K = 157-6146	1M2 = 157-6158	3M3 = 157-6170	7M5 = 157-6180
200K = 157-6137	510K = 157-6147	1M3 = 157-6159	3M6 = 157-6171	8M2 = 157-6181
220K = 157-6138	560K = 157-6149	1M5 = 157-6160	3M9 = 157-6172	9M1 = 157-6182
240K = 157-6139	620K = 157-6151	1M6 = 157-6162		

Order Code	10+	50+	Price Each	100+	500+	1K+
0805 Case Size All values	0.032	0.028		0.023	0.020	0.017

#### 1206 Case Size

Stocked in the following OHMIC Values

100K = 157-6183	270K = 157-6194	680K = 157-6206	1M8 = 157-6218	4M3 = 157-6230
110K = 157-6184	300K = 157-6195	750K = 157-6207	2M = 157-6219	4M7 = 157-6233
120K = 157-6186	330K = 157-6196	820K = 157-6209	2M2 = 157-6220	5M1 = 157-6236
130K = 157-6187	360K = 157-6198	910K = 157-6210	2M4 = 157-6221	5M6 = 157-6238
150K = 157-6188	390K = 157-6199	1M = 157-6211	2M7 = 157-6222	6M2 = 157-6241
160K = 157-6189	430K = 157-6200	1M1 = 157-6212	3M = 157-6223	6M8 = 157-6243
180K = 157-6190	470K = 157-6201	1M2 = 157-6213	3M3 = 157-6224	7M5 = 157-6246
200K = 157-6191	510K = 157-6202	1M3 = 157-6214	3M6 = 157-6225	8M2 = 157-6248
220K = 157-6192	560K = 157-6204	1M5 = 157-6216	3M9 = 157-6228	9M1 = 157-6249
240K = 157-6193	620K = 157-6205	1M6 = 157-6217		

Order Code	10+	50+	Price Each	100+	500+	1K+
1206 Case Size All values	0.032	0.028		0.023	0.020	0.017

### LHVC Series - 0.125 Watt, 0.25 Watt and 0.5 Watt ±1%



- Superior voltage performance over commercial range chips



Case Size	Voltage Rating (V)	Temperature Coefficient	Operating Temperature	Tolerance
0805	300V	±200ppm/°C	-55°C to +155°C	±±1%
1206	400V	±200ppm/°C	-55°C to +155°C	±±1%
2010	800V	±200ppm/°C	-55°C to +155°C	±±1%

#### 0805 Case Size

Stocked in the following OHMIC Values:

100K = 150-6148	2M = 150-6150	3M = 150-6151	4M02 = 150-6152	10M = 150-6153
1M = 150-6149				

Order Multiple=10	Order Code		10+	50+	Price Each	100+	500+	1K+
	0805 Case Size ●		0.033	0.029		0.026	0.022	0.020

#### 1206 Case Size

Stocked in the following OHMIC Values:

100K = 150-6154	2M = 150-6156	3M = 150-6157	4M02 = 150-6159	10M = 150-6161
1M = 150-6155				

Order Multiple=10	Order Code		10+	50+	Price Each	100+	500+	1K+
	1206 Case Size ●		0.066	0.057		0.051	0.044	0.042

#### 2010 Case Size

Stocked in the following OHMIC Values:

100K = 150-6162	2M = 150-6164	3M = 150-6165	4M02 = 150-6166	10M = 150-6167
1M = 150-6163				

Order Multiple=10	Order Code		10+	50+	Price Each	100+	500+	1K+
	2010 Case Size ●		0.34	0.29		0.27	0.22	0.20

### HV73 Series



- Flat chip resistors for high voltage
- Suitable for flow and reflow solderings

	0805	2512
Power Rating	0.25W	1W
Voltage Rating	500V	3000V
Tolerance	±1%	±1%
Temperature Coefficient	±100ppm/°C	±100ppm/°C
Operating Temperature	-55°C to +155°C	-55°C to +155°C

0805 L=3.2mm, W=1.6mm, D=0.6  
2512 L=6.3mm, W=3.1mm, D=0.6

#### 0805 Case Size

Stocked in the following OHMIC values:

100K = 162-7832	270K = 162-7842	680K = 162-7853	1M8 = 162-7865	4M7 = 162-7876
110K = 162-7833	300K = 162-7844	750K = 162-7854	2M = 162-7866	5M1 = 162-7877
120K = 162-7834	330K = 162-7845	820K = 162-7857	2M2 = 162-7868	5M6 = 162-7878
130K = 162-7835	360K = 162-7846	910K = 162-7858	2M4 = 162-7869	6M2 = 162-7881
150K = 162-7836	390K = 162-7847	1M = 162-7859	2M7 = 162-7870	6M8 = 162-7882
160K = 162-7837	430K = 162-7848	1M1 = 162-7860	3M = 162-7871	7M5 = 162-7883
180K = 162-7838	470K = 162-7849	1M2 = 162-7861	3M3 = 162-7872	8M2 = 162-7884
200K = 162-7839	510K = 162-7850	1M3 = 162-7862	3M6 = 162-7873	9M1 = 162-7885
220K = 162-7840	560K = 162-7851	1M5 = 162-7863	3M9 = 162-7874	10M = 162-7886
240K = 162-7841	620K = 162-7852	1M6 = 162-7864	4M3 = 162-7875	

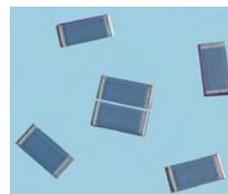
#### 2512 Case Size

Stocked in the following OHMIC values:

43K = 162-7887	150K = 162-7901	510K = 162-7916	1M8 = 162-7930	6M2 = 162-7944
47K = 162-7888	160K = 162-7902	560K = 162-7917	2M = 162-7931	6M8 = 162-7945
51K = 162-7889	180K = 162-7903	620K = 162-7918	2M2 = 162-7932	7M5 = 162-7947
56K = 162-7890	200K = 162-7904	680K = 162-7919	2M4 = 162-7933	8M2 = 162-7948
62K = 162-7891	220K = 162-7905	750K = 162-7920	2M7 = 162-7935	9M1 = 162-7949
68K = 162-7893	240K = 162-7906	820K = 162-7921	3M = 162-7936	10M = 162-7950
75K = 162-7894	270K = 162-7907	910K = 162-7923	3M3 = 162-7937	11M = 162-7951
82K = 162-7895	300K = 162-7908	1M = 162-7924	3M6 = 162-7938	12M = 162-7952
91K = 162-7896	330K = 162-7911	1M1 = 162-7925	3M9 = 162-7939	13M = 162-7953
100K = 162-7897	360K = 162-7912	1M2 = 162-7926	4M3 = 162-7940	15M = 162-7954
110K = 162-7898	390K = 162-7913	1M3 = 162-7927	4M7 = 162-7941	16M = 162-7955
120K = 162-7899	430K = 162-7914	1M5 = 162-7928	5M1 = 162-7942	18M = 162-7956
130K = 162-7900	470K = 162-7915	1M6 = 162-7929	5M6 = 162-7943	20M = 162-7957

Order Multiple=10	Case Size		10+	50+	Price Each	100+	500+	1K+	5K+
	0805	All Values ● RL	0.099	0.082		0.066	0.045	0.038	
	2512	All Values ● RL	0.350	0.300		0.240	0.194	0.163	

### HVC Series - 2512 Case Size 1 Watt ±1%



- High voltage chip resistors
- Robust thick film construction

Power rating @ 70°C	1W
Resistance tolerance	±±1%
Voltage rating	3kV
Operating temperature	-55°C to +155°C
Temperature coefficient	±±100ppm/°C

Stocked in the following OHMIC Values:

100K = 150-6199	2M = 150-6202	4M = 150-6204	20M = 150-6206	40M = 150-6207
1M = 150-6200	3M = 150-6203	10M = 150-6205		

Order Multiple=5	Order Code		5+	50+	Price Each	100+	500+	1K+
	All Values ●		1.54	1.32		1.18	1.03	0.96

### High Voltage Resistors HVR Series



- High power, high voltage resistors
- High stability with proven reliability
- Application include high frequency switching (MHz), balancing, voltage divider, high voltage

HVR10: L=70, Dia=10  
HVR30: L=140, Dia=30  
HVR50: L=260, Dia=30

	HVR10	HVR30	HVR50
Power rating @ 70°C	3W	15W	25W
Voltage rating	10kV	30kV	50kV
Temperature coefficient	<±300ppm/°C	<±300ppm/°C	<±300ppm/°C
Tolerance	±10%	±10%	±10%

**HVR10**

Stocked in the following OHMIC Values:

1M = 150-2933 5M = 150-2935 10M = 150-2932 50M = 150-2934 100M = 150-2930

Order Multiple=1	Price Each			
Order Code	1+	2+	5+	10+
All Values ●	72.12	54.09	43.27	36.05

**HVR30**

Stocked in the following OHMIC Values:

1M = 150-2938 5M = 150-2940 10M = 150-2937 50M = 150-2939 100M = 150-2936

Order Multiple=1	Price Each			
Order Code	1+	2+	5+	10+
All Values ●	148.38	111.30	89.03	74.20

**HVR50**

Stocked in the following OHMIC Values:

1M = 150-2944 5M = 150-2946 10M = 150-2942 50M = 150-2945 100M = 150-2941

Order Multiple=1	Price Each			
Order Code	1+	3+	5+	10+
All Values ●	249.60	224.34	199.68	166.40

**High Voltage Resistors**

**HB Series**



- Unique specification for the most demanding applications
- Established product with proven reliability
- Applications include high voltage, voltage divider, surge, filter, balancing, inrush limiting



HBA: H=12.5, W=8.0, D=2.6  
 HB1: H=10.4, W=26.5, D=3.0  
 HB3: H=10.4, W=52.0, D=3.0

	HBA	HB1	HB2
Power Rating @ 20°C	0.8W	2W	4W
Voltage Rating (max)	1kV	7.5kV	15kV
Temperature Coefficient	±100ppm/°C	±100ppm/°C	±100ppm/°C
Operating Temperature	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C
Tolerance	±1%	±1%	±1%

**HBA**

Stocked in the following OHMIC Values:

10M = 150-2903 22M = 150-2905 47M = 150-2908 68M = 150-2909 100M = 150-2902  
 15M = 150-2904 33M = 150-2907

Order Multiple=1	Price Each			
Order Code	1+	15+	50+	100+
All Values ●	1.39	1.17	1.11	0.97

**HB1**

Stocked in the following OHMIC Values:

10K = 150-2879 500K = 150-2889 5M = 150-2893 50M = 150-2892 400M = 150-2887  
 100K = 150-2877 1M = 150-2882 10M = 150-2880 100M = 150-2878 500M = 150-2891  
 300K = 150-2884 3M = 150-2886 20M = 150-2883 300M = 150-2885 1G = 150-2881

Order Multiple=1	Price Each			
Order Code	1+	15+	50+	100+
All Values ●	5.00	4.25	4.00	3.50

**HB3**

Stocked in the following OHMIC Values:

1M = 150-2897 10M = 150-2895 100M = 150-2894 500M = 150-2899 1G = 150-2896  
 5M = 150-2901 50M = 150-2900 330M = 150-2898

Order Multiple=1	Price Each			
Order Code	1+	15+	50+	100+
All Values ●	6.92	5.88	5.53	4.84

**RX Series**

**Hi-Meg**



Power Rating 0.5W  
 Voltage Rating 1kV  
 Tolerance ±1%  
 Temperature Coefficient ±50ppm/°C

L=47.63, Dia=5mm, Lead length=22.9mm



- Glass sealed hermetic resistors
- Improved temperature stability
- Improved voltage stability
- Metal oxide resistive elements
- No outgassing
- Applications include ultra high vacuum, medical instrumentation, current pulse limiters, avionics

Stocked in the following OHMIC Values:

100M = 163-3829 5G = 163-3832 25G = 163-3834 100G = 163-3835 500G = 163-3836  
 1G = 163-3830 10G = 163-3833

Order Multiple=1	Order Code	1+	10+	50+	100+	500+
	RX-1M1006FE	163-3829●	37.20	32.44	29.33	27.73
	RX-1M1007FE	163-3830●	37.20	32.44	29.33	27.73
	RX-1M5007FE	163-3832●	37.20	32.44	29.33	27.73
	RX-1M1008FE	163-3833●	37.20	32.44	29.33	27.73
	RX-1M2508FE	163-3834●	45.74	39.90	36.07	34.10
	RX-1M1009FE	163-3835●	45.74	39.90	36.07	34.10
	RX-1M5009KE	163-3836●	49.32	43.02	38.89	36.76

**High Voltage Resistors – 10 Watt**

**T48 Series**



- Thick film construction
- Leaded terminations



L=150, Dia=8.4, Lead length=32, Lead dia=0.8

Power Rating	Voltage Rating	Operating Temperature	Temperature Coefficient	Tolerance
10W	50kV	-55°C to +150°C	100ppm/°C	±1%

Stocked in the following OHMIC Values:

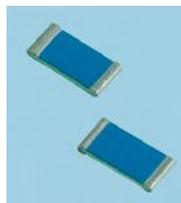
100M = 160-5139 220M = 160-5141 330M = 160-5142 470M = 160-5143 680M = 160-5144  
 150M = 160-5140

Order Multiple=1	Price Each				
Order Code	1+	5+	10+	+	+
All Values ●	78.24	68.85	52.16	--	--

**Pulse Withstanding**

**PWC Series**

**0.5 Watt, 0.75 Watt, 1.5 Watt & 2 Watt**



- Thick film technology pulse withstanding chip resistors
- 0805, 1206, 2010 and 2512 case sizes
- Nickel barrier layer
- Applications include pulse protection in telecom and power supply circuits



	0805 Case Size	1206 Case Size	2010 Case Size	2512 Case Size
Power rating @ 70°C	0.5W	2W	0.75W	1.5W
Resistance tolerance	±5%	±5%	±5%	±5%
Temperature coefficient	±100ppm/°C	±100ppm/°C	±100ppm/°C	±100ppm/°C

Stocked in the following OHMIC values:

0805 Case Size			
10R = 111-2212	150R = 111-2219	1K5 = 111-2226	15K = 111-2232
15R = 111-2213	220R = 111-2220	2K2 = 111-2227	22K = 111-2233
22R = 111-2214	330R = 111-2221	3K3 = 111-2228	33K = 111-2234
33R = 111-2215	470R = 111-2222	4K7 = 111-2229	47K = 111-2236
47R = 111-2216	680R = 111-2224	6K8 = 111-2230	68K = 111-2237
68R = 111-2217	1K = 111-2225	10K = 111-2231	100K = 111-2238
100R = 111-2218			
1206 Case Size			
10R = 111-2239	100R = 111-2245	1K = 111-2253	10K = 111-2261
15R = 111-2240	150R = 111-2248	1K5 = 111-2254	15K = 111-2262
22R = 111-2241	220R = 111-2249	2K2 = 111-2255	22K = 111-2263
33R = 111-2242	330R = 111-2250	3K3 = 111-2256	47K = 111-2265
47R = 111-2243	470R = 111-2251	4K7 = 111-2257	100K = 111-2267
68R = 111-2244	680R = 111-2252	6K8 = 111-2258	
2010 Case Size			
10R = 110-0081	150R = 110-0089	1K5 = 110-0095	15K = 110-0102
15R = 110-0082	220R = 110-0090	2K2 = 110-0096	22K = 110-0104
22R = 110-0083	330R = 110-0091	3K3 = 110-0097	33K = 110-0106
33R = 110-0084	470R = 110-0092	4K7 = 110-0098	47K = 110-0107
47R = 110-0085	680R = 110-0093	6K8 = 110-0100	68K = 110-0108
68R = 110-0086	1K = 110-0094	10K = 110-0101	100K = 110-0109
100R = 110-0088			
2512 Case Size			
10R = 110-0110	100R = 110-0116	1K = 110-0123	10K = 110-0131
15R = 110-0111	150R = 110-0118	1K5 = 110-0124	22K = 110-0132
22R = 110-0112	220R = 110-0119	2K2 = 110-0125	33K = 110-0133
33R = 110-0113	330R = 110-0120	3K3 = 110-0126	47K = 110-0134
47R = 110-0114	470R = 110-0121	4K7 = 110-0127	68K = 110-0135
68R = 110-0115	680R = 110-0122	6K8 = 110-0128	100K = 110-0136



Order Multiple=1	Price Each				
Order Code	1+	10+	25+	50+	250+
All Values ●	7.02	6.74	6.28	6.00	5.73

**AX Series**

Stocked in the following OHMIC values:

1R = 155-0693 10R = 155-0695 22R = 155-0696 47R = 155-0697 100R = 155-0699  
3R3 = 155-0694

Order Multiple=1	Price Each				
Order Code	1+	10+	25+	50+	250+
All Values ●	9.73	9.29	8.85	8.21	7.84

**AY Series**

Stocked in the following OHMIC values:

4R7 = 155-0700 22R = 155-0702 33R = 155-0703 47R = 155-0704 100R = 155-0705  
10R = 155-0701

Order Multiple=1	Price Each				
Order Code	1+	10+	25+	50+	250+
All Values ●	8.16	7.93	7.71	6.99	6.62

**AZ Series**

Stocked in the following OHMIC values:

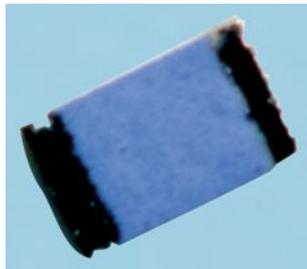
22R = 155-0707 100R = 155-0708 1K = 155-0709

501294

Order Multiple=1	Price Each				
Order Code	1+	10+	25+	50+	250+
All Values ●	16.11	15.25	14.41	12.80	

**Bulk Metal® Foil Precision**

**VSMF Series – Foil Resistors**



The VSMF Series utilizes ultra precision Bulk Metal® Z-Foil(BMZF). The new Z-Foil technology provides a significant reduction of the resistive element sensitivity to changes of temperature due to ambient temperature variations (TCR) and to self heating when power is applied (power coefficient).

**Features:**

- 300mW at +70°C
- Low Current Noise: – 40dB 'Noise free component'

**Applications:**

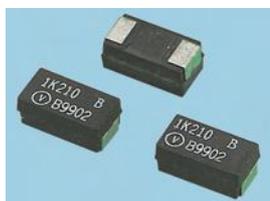
- Automatic Test Equipment
- Military and Space
- Communication

Power rating @ 70°C (0805) 0.2W Resistance tolerance ±0.25%  
Power rating @ 70°C (1206) 0.3W Temperature coefficient max ±0.2ppm/°C

423447

Resistance	Order Code	1+	25+	100+	250+	500+
<b>Case 0805</b>						
10R	110-9023●RL	8.78	7.70	6.44	5.21	4.77
100R	110-9024●RL	10.01	8.76	7.33	5.93	5.44
250R	110-9025●RL	10.45	9.15	7.66	6.19	5.67
350R	110-9026●RL	10.74	9.40	7.87	6.37	5.83
500R	110-9027●RL	10.45	9.15	7.66	6.19	5.67
1K	110-9028●RL	10.74	9.40	7.87	6.37	5.83
2K	110-9031●RL	10.74	9.40	7.87	6.37	5.83
2K5	110-9033●RL	10.45	9.15	7.66	6.19	5.67
5K	110-9034●RL	10.74	9.40	7.87	6.37	5.83
10K	110-9035●RL	10.74	9.40	7.87	6.37	5.83
<b>Case 1206</b>						
10R	110-9036●RL	8.78	7.70	6.44	5.21	4.77
100R	110-9037●RL	9.73	8.52	7.13	5.77	5.28
250R	110-9038●RL	10.45	9.15	7.66	6.19	5.67
350R	110-9039●RL	10.45	9.15	7.66	6.19	5.67
500R	110-9040●RL	10.45	9.15	7.66	6.19	5.67
1K	110-9041●RL	10.45	9.15	7.66	6.19	5.67
2K	110-9043●RL	7.83	6.87	5.74	4.64	4.25
2K5	110-9044●RL	10.74	9.40	7.87	6.37	5.83
5K	110-9045●RL	8.93	7.83	6.55	5.29	4.85
10K	110-9046●RL	10.74	9.40	7.87	6.37	5.83
20K	110-9047●RL	9.93	8.70	7.28	5.89	5.40
25K	110-9048●RL	12.08	10.58	8.84	7.15	6.56

**0.25 Watt ±0.01% - SMR1D Series Surface Mount**



- Fully encapsulated precision resistor in surface mount package
- Bulk metal® foil technology
- High precision
- Low temperature coefficient

L = 6.0 ±0.3, W = 3.2 ±0.3, H = 2.5 ±0.3  
P = 1.3 ±0.3, TW = 2.2 ±0.1, TH(min) 1.0



Power rating @ 70°C 0.25W  
Resistance variation ±0.01%  
Temperature coefficient <0.6ppm/°C nom, 0°C to +60°C  
Shelf life stability ±25PPM/yr  
Load life stability ±50ppm/°C typical at full rated power for 2000hrs  
Thermal e.m.f. <0.1µV/°C max  
Rise time 1ns@ 1k  
Working voltage 54V dc or ac peak

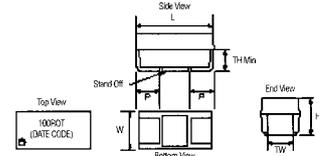
Stocked in the following OHMIC Values:

100R = 118-7043 500R = 120-3363 2K = 120-3365 5K = 120-3367 20K = 120-3371  
250R = 120-3361 1K = 120-3364 2K5 = 120-3366 10K = 120-3369 25K = 120-3372  
350R = 120-3362

207299

Order Code	1+	5+	10+	25+	50+
Values 100R to 2K5 ●	8.76	8.17	7.85	6.03	5.69
Value 5K ●	8.91	8.29	7.97	6.14	5.79
Values 10K to 25K ●	9.04	8.42	8.09	6.21	5.90

**0.6 Watt ±0.01% - SMR3D Series Surface Mount**



L = 7.3 ±0.3, W = 4.3 ±0.3, H = 2.8 ±0.3  
P = 1.3 ±0.3, TW = 2.4 ±0.1, TH(min) 1.0

- Fully encapsulated precision resistor in surface mount package
- Bulk metal® foil technology
- High precision
- Low temperature coefficient

Power rating @ 70°C 0.6W  
Resistance variation ±0.01%  
Temperature coefficient <0.6ppm/°C nom, 0°C to +60°C  
Shelf life stability ±25PPM/yr  
Load life stability ±50ppm/°C typical at full rated power for 2000hrs  
Thermal e.m.f. <0.1V/°C max  
Rise time 1ns@ 1k  
Working voltage 300V dc or ac peak

Stocked in the following OHMIC Values:

100R = 120-3373 500R = 120-3375 2K5 = 120-3377 10K = 120-3379 100K = 120-3382  
250R = 120-3374 1K = 120-3376 5K = 120-3378 20K = 120-3380

207301

Order Code	1+	5+	10+	25+	50+
Values 100R to 20K ●	10.81	10.09	9.70	7.43	7.02
Values 100K ●	16.20	15.11	14.56	11.17	10.54

**0.6 Watt ±0.01% - S102J Series**



- Bulk metal® foil technology
- High precision
- Low temperature coefficient
- High performance instrumentation applications

H = 8.0, W = 7.49, D = 2.49,  
Lead pitch = 5.08, Lead dia. = 0.6

Power rating @ 70°C 0.6W  
Resistance variation ±0.01%  
Temperature coefficient <0.6ppm/°C nom, 0°C to +60°C  
Shelf life stability ±25PPM/yr  
Load life stability ±50ppm/°C typical at full rated power for 2000hrs  
Thermal e.m.f. <0.1µV/°C max  
Rise time 1ns@ 1k  
Working voltage 300V dc or ac peak

Stocked in the following OHMIC Values:

100R = 120-3343 350R = 120-3348 2K = 120-3351 10K = 120-3354 50K = 120-3358  
120R = 120-3346 500R = 120-3349 2K5 = 120-3352 20K = 120-3355 100K = 120-3359  
250R = 120-3347 1K = 120-3350 5K = 120-3353 25K = 120-3357

207305

Order Code	1+	5+	10+	25+	50+
Values 100R to 25K ●	11.56	10.77	10.38	7.99	7.53
Value 25K ●	12.64	11.77	11.30	8.69	8.19
Value 50K ●	16.06	14.96	14.39	11.05	10.42
Value 100K ●	22.03	20.53	19.78	15.16	14.33

**DSM Series – Foil Resistors**



The DSM surface mount divider provides a matched pair of Bulk Metal® Foil Resistors in a small epoxy molded package. The electrical specification of this integrated construction offers improved performance and better real estate utilization over discrete resistors and matched pairs.









Metal Film - continued

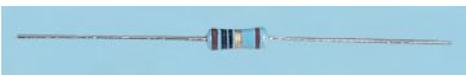
0.6 Watt ±1% - MRS25 Series - continued

Table listing resistor values and part numbers for the MRS25 series, including part numbers like 6K19, 6K2, 6K34, etc.

207410

MIXED QUANTITY PRICING table showing Price Each for various order codes (50+, 300+, 3K+, 10K+, +).

0.75 Watt ±1% - MFR5 Series



L=10 max, Dia=3.2 max, Lead length=21 nom, Lead dia=0.8, Supplied bandioliered on tape (box=2K pcs)

Fully approved to BS9111-NO16 and available to CECC 40101-019/EZ release.

Technical specifications for the MFR5 series: Power rating @ 70°C (0.75W commercial), Voltage rating (350V), Operating temperature, etc.

Stocked in the following OHMIC Values:

Table listing resistor values and part numbers for the MFR5 series, including part numbers like 10R, 12R, 15R, etc.

207411

MIXED QUANTITY PRICING table for the MFR5 series.

Over 480,000 products online



Metal Film High Voltage

1.6kV & 3.5kV - MH Series

1/4Watt MH25 & 1/2Watt MH37



MH25 - L = 6.2, Dia. = 2.3, Lead length = 21min, Lead dia. = 0.6, Supplied bandioliered on tape (box = 5000 pcs)



MH37 - L = 9.0, Dia. = 3.7, Lead length = 19.6 min, Lead dia. = 0.8, Supplied bandioliered on tape (box = 2500 pcs)

- High voltage metal film resistors
High pulse load capability
Applications include high voltage power supplies, domestic appliance motor speed control, barrier resistors in televisions, capacitor bleed resistors

Power rating @ 70°C, Resistance tolerance, Operating temperature range, etc.

Stocked in the following OHMIC Values:

1.6kV MH25 Series

Table listing resistor values and part numbers for the 1.6kV MH25 series.

3.5kV MH37 Series

Table listing resistor values and part numbers for the 3.5kV MH37 series.

312073

MIXED QUANTITY PRICING table for Metal Film High Voltage resistors.

Metal Film Power

A homogeneous film of metal alloy is deposited on a high grade ceramic body. After a helical groove has been cut in the resistive layer, tinned connecting wires of electrolytic copper are welded to the end-caps...

213416



1 Watt ±5% - MFP1 Series



Technical specifications for the MFP1 series: Voltage rating (350V), Operating temperature, Temperature coefficient.

L=6.2 max, Dia=2.5 max, Lead length = 21 min, Lead dia. = 0.6 mm

Stocked in the following OHMIC Values:

Table listing resistor values and part numbers for the MFP1 series.

505571

MIXED QUANTITY PRICING table for the MFP1 series.

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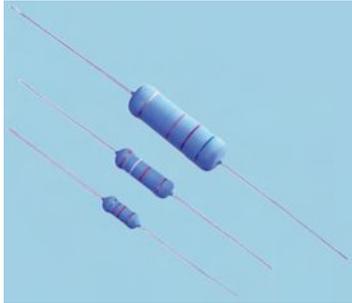
Contact us now: Web: www.farnell.co.uk, Phone: 08447 11 11 11





Metal Oxide - continued

WM05S Series  
5 Watt



- Flameproof metal oxide resistors
- Cost effective
- Small size for power rating
- Good pulse handling capability

L = 26, Dia. = 8.5, Lead length = 38, Lead dia. = 0.8

Resistance tolerance ±5% Temperature coefficient -55 to 155°C  
Temperature coefficient ±350ppm/°C

Stocked in the following OHMIC values:

10R = 130-6233	68R = 130-6241	470R = 130-6246	3K3 = 130-6253	22K = 130-6258
15R = 130-6237	100R = 130-6242	680R = 130-6247	4K7 = 130-6254	33K = 130-6259
22R = 130-6238	150R = 130-6243	1K = 130-6249	6K8 = 130-6255	47K = 130-6260
33R = 130-6239	220R = 130-6244	1K5 = 130-6251	10K = 130-6256	68K = 130-6262
47R = 130-6240	330R = 130-6245	2K2 = 130-6252	15K = 130-6257	100K = 130-6263

451981

Order Code	5+	100+	500+	1K+	5K+
All Values ●	0.47	0.41	0.35	0.31	0.26

MOR Series

0.5, 1, 3 and 7 Watt



- Excellent non-flame coating
- High purity ceramic core
- Stable performance in diverse environment

	MOR0S2	MOR01S	MOR03S	MOR07W
Power rating @ 70°C	0.5W	1W	3W	7W
Resistance tolerance	±5%	±5%	±5%	±5%
Temperature coefficient	±350ppm/°C	±350ppm/°C	±350ppm/°C	±350ppm/°C

Stocked in the following OHMIC values:

MOR0S2 0.5 Watt

10R = 135-7847	68R = 135-7853	470R = 135-7858	3K3 = 135-7863	15K = 135-7868
15R = 135-7848	100R = 135-7854	680R = 135-7859	4K7 = 135-7865	22K = 135-7869
22R = 135-7849	150R = 135-7855	1K = 135-7860	6K8 = 135-7866	33K = 135-7870
33R = 135-7850	220R = 135-7856	1K5 = 135-7861	10K = 135-7867	47K = 135-7871
47R = 135-7851	330R = 135-7857	2K2 = 135-7862		

MOR01S 1 Watt

10R = 135-7872	68R = 135-7878	470R = 135-7883	3K3 = 135-7889	15K = 135-7894
15R = 135-7873	100R = 135-7879	680R = 135-7884	4K7 = 135-7891	22K = 135-7895
22R = 135-7874	150R = 135-7880	1K = 135-7885	6K8 = 135-7892	33K = 135-7896
33R = 135-7875	220R = 135-7881	1K5 = 135-7886	10K = 135-7893	47K = 135-7897
47R = 135-7877	330R = 135-7882	2K2 = 135-7887		

MOR03S 3 Watt

10R = 135-7898	68R = 135-7903	470R = 135-7909	3K3 = 135-7914	15K = 135-7919
15R = 135-7899	100R = 135-7904	680R = 135-7910	4K7 = 135-7915	22K = 135-7921
22R = 135-7900	150R = 135-7905	1K = 135-7911	6K8 = 135-7916	33K = 135-7922
33R = 135-7901	220R = 135-7907	1K5 = 135-7912	10K = 135-7917	47K = 135-7923
47R = 135-7902	330R = 135-7908	2K2 = 135-7913		

MOR07W 7 Watt

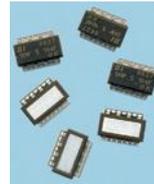
22R = 135-7924	150R = 135-7929	1K = 135-7935	6K8 = 135-7940	33K = 135-7945
33R = 135-7925	220R = 135-7930	1K5 = 135-7936	10K = 135-7941	47K = 135-7946
47R = 135-7926	330R = 135-7932	2K2 = 135-7937	15K = 135-7942	68K = 135-7947
68R = 135-7927	470R = 135-7933	3K3 = 135-7938	22K = 135-7944	100K = 135-7948
100R = 135-7928	680R = 135-7934	4K7 = 135-7939		

472860

Order Multiple=5	Order Code	5+	100+	Price Each	500+	1K+	5K+
0.5 Watt MOR0S2 Series	All Values ●	0.148	0.101	0.089	0.075	0.069	
1 Watt MOR01S Series	All Values ●	0.158	0.111	0.100	0.087	0.081	
3 Watt MOR03S Series	All Values ●	0.210	0.170	0.140	0.117	0.107	
7 Watt MOR07W Series	All Values ●	0.550	0.480	0.410	0.360	0.320	

Thick Film Power

SMP Series - 5 Watt



- Surface mount power resistors
- Very low thermal resistance in multiple planes
- SOIC type Package
- Applications include:
  - High frequency emitter resistors in switching power supplies
  - High frequency snubber and pulse handling circuits
  - In-rush current protection

Voltage rating 50V a.c./d.c. Operating temperature -55°C to + 155°C  
Power rating @ 25°C 5W Resistance tolerance ±5%  
Temperature Coefficient ±100ppm/°C Dimensions 11.3 x 5.59 x 2mm

Stocked in the following OHMIC values:

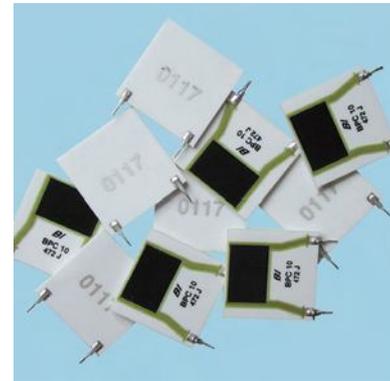
10R = 130-5910	470R = 130-5912	1K = 130-5913	10K = 130-5914	100K = 130-5915
100R = 130-5911				

451442

Order Code	1+	50+	250+	500+	1K+
All Values ●	1.81	1.45	1.20	0.90	0.77

BPC Series

Thick Film - Power Resistor



- High power density
- Low temperature
- Power is dissipated above circuit board
- Applications includes UPS systems, Snubber circuits, Power supply preloads

Resistance Tolerance (min) ±10% Temperature Coefficient 100ppm/°C to 100ppm/°C  
Temperature range -55°C to 125°C

3W

Resistance	Mfrs. List No.	Order Code	1+	50+	100+	500+
1ohm	BPC31R0J	943-1969●	0.46	0.38	0.32	0.25
10ohm	BPC3100J	943-1993●	0.59	0.49	0.41	0.32
50ohm	BPC3500J	943-2019●	0.59	0.49	0.41	0.32
100ohm	BPC3101J	943-2027●	0.44	0.36	0.30	0.23

5W

Resistance	Mfrs. List No.	Order Code	1+	50+	100+	500+
1ohm	BPC51R0J	943-2116●	0.65	0.53	0.45	0.34
2ohm	BPC52R0J	943-2124●	0.65	0.53	0.45	0.34
5ohm	BPC55R0J	943-2132●	0.51	0.42	0.35	0.26
10ohm	BPC5100J	943-2140●	0.65	0.53	0.45	0.34
20ohm	BPC5200J	943-2159●	0.65	0.53	0.45	0.34
50ohm	BPC5500J	943-2167●	0.65	0.53	0.45	0.34
100ohm	BPC5101J	943-2175●	0.65	0.53	0.45	0.34
200ohm	BPC5201J	943-2183●	0.65	0.53	0.45	0.34
500ohm	BPC5501J	943-2191●	0.65	0.53	0.45	0.34
1kohm	BPC5102J	943-2205●	0.65	0.53	0.45	0.34
2kohm	BPC5202J	943-2213●	0.65	0.53	0.45	0.34
5kohm	BPC5502J	943-2221●	0.48	0.39	0.33	0.25
10kohm	BPC5103J	943-2230●	0.65	0.53	0.45	0.34

10W

Resistance	Mfrs. List No.	Order Code	1+	50+	100+	500+
1ohm	BPC101R0J	943-2264●	1.31	1.09	0.96	0.86
2ohm	BPC102R0J	943-2272●	1.31	1.09	0.96	0.86
5ohm	BPC105R0J	943-2280●	1.31	1.09	0.96	0.86
10ohm	BPC10100J	943-2299●	1.31	1.09	0.96	0.86
20ohm	BPC10200J	943-2302●	1.31	1.09	0.96	0.86
50ohm	BPC10500J	943-2310●	1.31	1.09	0.96	0.86
100ohm	BPC10101J	943-2329●	1.31	1.09	0.96	0.86
2kohm	BPC10202J	943-2361●	1.31	1.09	0.96	0.86
10kohm	BPC10103J	943-2388●	1.31	1.09	0.96	0.86
20kohm	BPC10203J	943-2396●	1.02	0.86	0.75	0.67
50kohm	BPC10503J	943-2400●	1.31	1.09	0.96	0.86

411616

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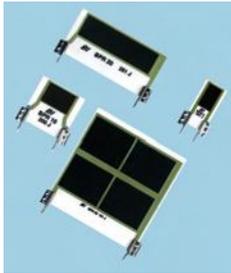


40,000 PRICES REDUCED



**BPR Series**

Thick Film – Power Resistor



- High power density
- Low temperature
- Power is dissipated above circuit board
- Applications includes Inrush current suppression and limiters, Snubber circuits, Switching power supplies

Resistance Tolerance (min) ±5%  
 Temperature range -55°C to 155°C  
 Temperature Coefficient 100ppm/°C to 100ppm/°C

10W		Price Each				
Resistance	Mfrs. List No.	Order Code	1+	50+	100+	500+
1ohm	BPR101R0J	943-2418	2.21	1.96	1.61	1.43
2ohm	BPR102R0J	943-2426	2.21	1.96	1.61	1.43
5ohm	BPR105R0J	943-2434	2.21	1.96	1.61	1.43
10ohm	BPR10100J	943-2442	2.21	1.96	1.61	1.43
20ohm	BPR10200J	943-2450	2.21	1.96	1.61	1.43
50ohm	BPR10500J	943-2469	3.01	2.66	2.19	1.94
100ohm	BPR10101J	943-2477	2.21	1.96	1.61	1.43
200ohm	BPR10201J	943-2485	3.01	2.66	2.19	1.94
100kohm	BPR10104J	943-2540	2.21	1.96	1.61	1.43

411618

30W		Price Each				
Resistance	Mfrs. List No.	Order Code	1+	50+	100+	500+
1ohm	BPR301R0J	943-2566	3.87	3.70	3.51	3.30
5ohm	BPR305R0J	943-2582	3.63	3.47	3.29	3.09
10ohm	BPR30100J	943-2590	3.63	3.47	3.29	3.09
20ohm	BPR30200J	943-2604	4.84	4.62	4.39	4.12
50ohm	BPR30500J	943-2612	4.94	4.71	4.48	4.20
100ohm	BPR30101J	943-2620	4.94	4.71	4.48	4.20

**5 Watt-MPC Series**



- Non-inductive thick film power resistor
- For snubber, pulse generators and surge absorption in power products.

Power rating @ 70°C 5W  
 Maximum working Voltage 300V a.c.  
 Dielectric strength 5000 Volts d.c.  
 Resistance tolerance ±5%  
 Operating temperature -55°C to +155°C  
 Temperature coefficient ±100ppm/°C

H=25.4, W=12.7, Lead pitch=5.08

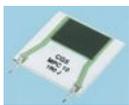
Stocked in the following OHMIC Values:

1R = 117-4263 20R = 117-4267 200R = 117-4270 2K = 117-4273 20K = 117-4276  
 5R = 117-4264 50R = 117-4268 500R = 117-4271 5K = 117-4274 50K = 117-4278  
 10R = 117-4266 100R = 117-4269 1K = 117-4272 10K = 117-4275

207237

		Price Each			
Order Code		1+	50+	100+	500+
All Values ●		0.69	0.54	0.48	0.38

**MPC Series - 10 Watt**



- Non-inductive thick film power resistors
- High power density
- Complements the T0220 packaged MPR series
- For snubber, pulse generators and surge absorption in power products.

H=30.86, W=25.4, Lead pitch=20.32

Power rating @ 70°C 10W  
 Maximum working Voltage 300V a.c.  
 Dielectric strength 5000 Volts d.c.  
 Resistance tolerance ±5%  
 Operating temperature -55°C to +155°C  
 Temperature coefficient ±100ppm/°C

Stocked in the following OHMIC Values:

1R = 126-5148 50R = 126-5152 200R = 126-5154 2K = 126-5158 20K = 126-5161  
 5R = 126-5149 100R = 126-5153 1K = 126-5157 10K = 126-5160 50K = 126-5162  
 10R = 126-5150

451343

		Price Each			
Order Code		1+	50+	250+	500+
All Values ●		0.94	0.81	0.72	0.66

**TK / TN Series**

20 and 15 Watt T0-220 Package



- Low resistance values
- Thick and thin film
- Thin film construction is the first thin film power resistor in heatsinkable packaging on the market
- Please see data sheet for heatsink requirements

Series	Resistance	Power Rating	Tolerance	Mfrs. List No.	Order Code
TK	0.03ohm	20W	±±5%	TK20PR030JE	146-2263
TK	0.04ohm	20W	±±5%	TK20PR040JE	146-2264
TK	0.05ohm	20W	±±5%	TK20PR050JE	146-2265
TK	0.1ohm	20W	±±5%	TK20PR100JE	146-2266
TK	1ohm	20W	±±5%	TK20P1R00JE	146-2267
TK	5ohm	20W	±±5%	TK20P5R00JE	146-2268
TK	10ohm	20W	±±5%	TK20P10R0JE	146-2269
TK	50ohm	20W	±±5%	TK20P50R0JE	146-2270
TK	100ohm	20W	±±5%	TK20P100RJE	146-2272
TN	5ohm	15W	±±1%	TN15P5R00FE	146-2273
TN	7.5ohm	15W	±±1%	TN15P7R50FE	146-2274
TN	10ohm	15W	±±2%	TN15P10R0GE	146-2275
TN	50ohm	15W	±±1%	TN15P50R0FE	146-2276
TN	75ohm	15W	±±1%	TN15P75R0FE	146-2277
TN	100ohm	15W	±±2%	TN15P100RGE	146-2278
TN	500ohm	15W	±±1%	TN15P500RFE	146-2279
TN	750ohm	15W	±±1%	TN15P750RFE	146-2280
TN	1kohm	15W	±±2%	TN15P1K00GE	146-2281

**20 Watt Thick Film**

Stocked in the following OHMIC values:

0R03 = 146-2263 0R05 = 146-2265 1R = 146-2267 10R = 146-2269 100R = 146-2272  
 0R04 = 146-2264 0R1 = 146-2266 5R = 146-2268 50R = 146-2270

Order Multiple=1		Price Each				
Order Code		1+	25+	50+	100+	500+
All Values		3.08	2.64	2.52	2.19	1.83

**15 Watt Thin Film**

Stocked in the following OHMIC values:

5R = 146-2273 10R = 146-2275 75R = 146-2277 500R = 146-2279 1K = 146-2281  
 7R5 = 146-2274 50R = 146-2276 100R = 146-2278 750R = 146-2280

48623

Order Multiple=1		Price Each				
Order Code		1+	25+	50+	100+	500+
All Values		3.93	3.37	3.22	2.81	2.33

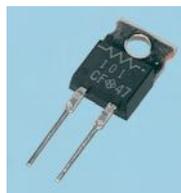
**Mounting Bracket for TK and TN Series**

Height = 22.86mm Width = 8.12mm Depth = 6.10mm Thread size = 3mm

496966

Order Multiple=1		Price Each				
Order Code		1+	25+	50+	100+	500+
146-2282 ●		4.53	3.89	3.62	3.17	--

**20 Watt - MPR 20 Series T0-220 Package**



- Non-inductive power resistors
- T0-220 package for PCB or heatsink mounting
- Base plate and lead frame are copper ensuring excellent thermal dissipation

H (above PCB)=19 W=10.6 D=4.5

Power rating @ 25°C 2W (20W with 6.0°C/W heat sink fitted)  
 Voltage rating 500V  
 Dielectric strength 2000dc  
 Resistance tolerance ±5%  
 Operating temperature -55°C to +155°C  
 Temperature coefficient ±250ppm/°C

Stocked in the following OHMIC Values:

0R22 = 117-4220 3R3 = 117-4224 33R = 117-4231 330R = 117-4234 4K7 = 117-4238  
 0R47 = 117-4221 4R7 = 117-4225 47R = 117-4231 470R = 117-4235 10K = 117-4239  
 1R = 117-4222 10R = 117-4226 100R = 117-4232 1K = 117-4236 15K = 117-4240  
 2R2 = 117-4223 22R = 117-4227 220R = 117-4233

207127

Order Code		Price Each				
Order Code		1+	25+	50+	100+	250+
All Values ●		3.79	3.26	3.03	2.14	1.81

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**Thick Film Power - continued**

**20 Watt - MHP 20S Series  
TO-126 Package**



- Superior vibration durability
- Small thin package for high density PCB installation
- TO-126 style package offering a very low thermal resistance of 5.9 C°/W

Application includes: High precision CRT color video amplifiers, Pulse generator load resistors, VHF amplifiers.

Power rating	20W	Temperature coefficient	50ppm/°C (10-1kΩ)
Voltage rating	300V		100ppm/°C (0.1-2kΩ)
Resistance tolerance	±1%		250ppm/°C (0.02kΩ)
Operating temperature	-55°C to ++155°C		

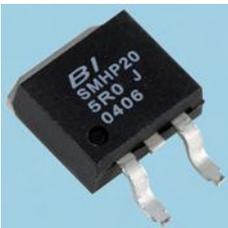
Stocked in the following OHMIC Values:

OR02 = 111-4395	1R = 111-4399	10R = 111-4392	47R = 111-4394
OR1 = 111-4397	2R = 111-4400	22R = 111-4398	1K = 111-4393

423669

Order Code	1+	50+	Price Each	500+	1K+
All Values ●	2.16	1.80	1.54	1.20	1.13

**20 Watt - SMHP Series  
TO-263 Package**



- TO-263 surface mount package offering a very low thermal resistance
- Suitable for board mounting with either solder or clip
- Non-inductive, high power resistor.

Application includes: High precision CRT color video amplifiers, In-rush current protection, rush current protection, Bleeder Resistors.

Power rating	20W	Temperature coefficient	50ppm/°C (10-1kΩ)
Voltage rating	500V		100ppm/°C (0.1-2kΩ)
Resistance tolerance	±1%		250ppm/°C (0.02kΩ)
Operating temperature	155°C to ++55°C		

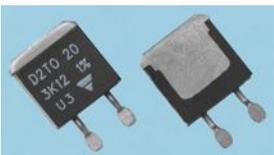
Stocked in the following OHMIC Values:

OR02 = 111-4435	1R = 111-4439	10R = 111-4432	1K = 111-4433
OR1 = 111-4436	2R = 111-4441	47R = 111-4434	

423562

Order Code	1+	50+	Price Each	500+	1K+
All Values ● RL	3.01	2.62	2.38	2.08	1.87

**20 Watt - D2T020 Series  
D2-PAK Package**



- Surface mounted resistor - TO-263 (D2 PAK) style package
- Non Inductive
- Resistor isolated from metal tab
- Solder reflow secure at 270°C/10s

Power rating	20W	Operating temperature	-55°C to +155°C
Voltage rating	250V	Temperature coefficient	±±150ppm/°C
Resistance tolerance	±±1%		

Stocked in the following OHMIC Values:

OR01 = 151-7328	OR068 = 151-7333	4R7 = 151-7339	22R = 151-7344
OR015 = 151-7329	OR1 = 151-7334	5R = 151-7341	47R = 151-7345
OR022 = 151-7330	OR47 = 151-7335	10R = 151-7342	100R = 151-7346
OR047 = 151-7331	1R = 151-7336	15R = 151-7343	1K = 151-7347
OR05 = 151-7332	2R2 = 151-7337		

496929

Values	Order Code	1+	10+	Price Each	50+	100+	500+
0.01ohm to 0.022ohm ●		8.88	8.29	7.58	7.06	6.26	
0.047ohm to 0.1ohm ●		7.31	6.92	6.25	5.90	5.22	
0.47ohm to 1kohm ●		6.16	5.73	5.22	4.89	4.41	

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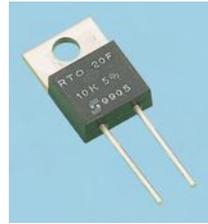
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**20 & 50 Watt – RTO Series**



**TO-220 Package**



- Non-inductive thick film technology
- Low temperature coefficient
- High power dissipation to size ratio

**20 Watt**

Power rating (Pr) @ 25°C	20W	Dielectric strength	2000Vrms
with heatsink		Limiting element voltage	250V
without heatsink	2W	Thermal resistance	6.5°C/W
Resistance tolerance	±5%	Overload capacity	2Xpr for 5 secs
Operating temperature	-55°C to +155°C		

Stocked in the following OHMIC Values:

OR1 = 114-0196	10R = 114-0201	47R = 114-0205	330R = 114-0210	2K7 = 114-0214
1R = 114-0197	12R = 114-0202	56R = 114-0207	680R = 114-0211	4K7 = 114-0215
2R2 = 114-0198	15R = 114-0203	82R = 114-0208	1K = 114-0212	6K8 = 114-0216
3R9 = 114-0199	22R = 114-0204	100R = 114-0209	1K5 = 114-0213	10K = 114-0217
4R7 = 114-0200				

Order Code	1+	10+	Price Each	50+	100+	250+	500+
All Values ●	2.33	2.11	2.05	2.00	1.95	1.90	

**50 Watt**

Power rating (Pr) @ 25°C	50W	Dielectric strength	2000Vrms
with heatsink		Limiting element Voltage	300V
without heatsink	2.25W	Thermal resistance	2.6°C/W
Resistance Tolerance	±5%	Overload capacity	2 x pr for 5 secs
Operating temperature	-55°C to +155°C		

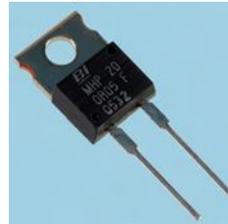
Stocked in the following OHMIC Values:

OR1 = 114-0219	4R7 = 114-0225	22R = 114-0229	330R = 114-0235	2K7 = 114-0239
1R = 114-0221	10R = 114-0226	47R = 114-0230	680R = 114-0236	4K7 = 114-0240
2R2 = 114-0223	12R = 114-0227	56R = 114-0232	1K = 114-0237	10K = 114-0242
3R9 = 114-0224	15R = 114-0228	100R = 114-0234	1K5 = 114-0238	

207312

Order Code	1+	10+	Price Each	50+	100+	250+	500+
Values OR1 to 4R7 ●	4.31	3.96	3.51	2.95	2.65	2.40	
Values 10R to 10K ●	3.47	3.19	2.83	2.36	2.16	1.93	

**20 Watt - MHP 20 Series  
TO-220 Package**



- Non-inductive power resistors
- TO-220 package for PCB or heatsink mounting
- Base plate and lead frame are copper ensuring excellent thermal dissipation

Application includes: switching power supplies, current limiters, snubbers

Power rating	20W	Temperature coefficient	50ppm/°C (22-10kΩ)
Voltage rating	500V		100ppm/°C (0.1-4.7kΩ)
Resistance tolerance	±1%		250ppm/°C (0.01-0.05kΩ)
Operating temperature	155°C to ++55°C		

Stocked in the following OHMIC Values:

OR01 = 111-4386	1R = 111-4389	22R = 111-4382	270R = 111-4383
OR05 = 111-4387	4R7 = 111-4390	33R = 111-4385	10K = 111-4391
OR1 = 111-4388			

423555

Order Code	1+	50+	Price Each	500+	1K+
All Values ●	2.54	2.12	1.91	1.64	1.42

**TDH35 Series Thick Film Power Resistors**



- SMD - TO-220 package configuration
- Moulded case for environmental protection
- Resistor element electrically insulated from metal sink tab
- 35W power rating at 20°C case temperature



Length	Depth	Width	Pitch	Voltage Rating	Operating Temperature Range	Tolerance
8.6mm	4.5mm	10.1mm	5.08mm	350V	-55°C to +150°C	±5%

Soldering note: During surface mount soldering the soldering temperature profile must not cause the metal tab of this device to exceed 220°C.



Resistance	Temperature Coefficient	Mfrs. List No.	Order Code
0.1ohm	500ppm/°C	TDH35PR100JE	155-0663
0.36ohm	250ppm/°C	TDH35PR360JE	155-0665
1ohm	100ppm/°C	TDH35P1R00JE	155-0666
5ohm	100ppm/°C	TDH35P5R00JE	155-0667
7.5ohm	100ppm/°C	TDH35P7R50JE	155-0668
10ohm	50ppm/°C	TDH35P10R0JE	155-0670
25ohm	50ppm/°C	TDH35P25R0JE	155-0672
47ohm	50ppm/°C	TDH35P47R0JE	155-0673
75ohm	50ppm/°C	TDH35P75R0JE	155-0674
100ohm	50ppm/°C	TDH35P100RJE	155-0675
150ohm	50ppm/°C	TDH35P150RJE	155-0677
500ohm	50ppm/°C	TDH35P500RJE	155-0678

502124

Order Multiple=1 Order Code	1+	10+	Price Each	25+	50+	250+
<1R ●	5.70	5.08	4.80	4.34	3.87	
≥1R ●	4.75	4.28	3.99	3.54	3.36	

**35 Watt - MHP 35 Series  
TO-220 Package**



- Low thermal resistance, 3.3 °C/W resistor hot spot to metal tab
- Small thin package for high density PCB installation
- TO-126 style package offering a very low thermal resistance of 5.9 C°/W

Application includes: Motor control and drive circuits, High frequency circuits and high speed pulse designs.

Power rating	35W	Temperature coefficient	50ppm/°C (10-1kΩ)
Voltage rating	500V		100ppm/°C (0.1-4.7kΩ)
Resistance tolerance	±1%		250ppm/°C (0.05kΩ)
Operating temperature	155°C to +55°C		

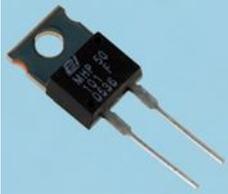
Stocked in the following OHMIC Values:

OR05 = 111-4406	1R = 111-4408	10R = 111-4401	200R = 111-4404
OR1 = 111-4407	4R7 = 111-4409	47R = 111-4405	1K = 111-4403

423674

Order Code	1+	50+	Price Each	500+	1K+
All Values ●	2.75	2.34	2.12	1.85	1.63

**50 Watt - MHP 50 Series  
TO-220 Package**



- Low thermal resistance, 2.3 °C/W resistor hot spot to metal tab.
- Small thin package for high density PCB installation
- TO-220 style package offering a very low thermal resistance of 5.9 C°/W

Application includes: AC motor control, electronic load and drive circuits, Industrial PC modules (IPM) and measurement systems.

Power rating	50W	Temperature coefficient	50ppm/°C (47-1kΩ)
Voltage rating	500V		100ppm/°C (0.25-1kΩ)
Resistance tolerance	±1%		250ppm/°C (0.01-0.05kΩ)
Operating temperature	155°C to +55°C		

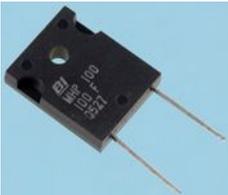
Stocked in the following OHMIC Values:

OR01 = 111-4415	OR47 = 111-4418	47R = 111-4412	470R = 111-4413
OR05 = 111-4416	1R = 111-4419	100R = 111-4410	1K = 111-4411
OR25 = 111-4417			

423675

Order Code	1+	50+	Price Each	500+	1K+
All Values ●	2.75	2.34	2.12	1.85	1.63

**100 Watt - MHP 100 Series  
TO-247 Package**



- Extremely Low thermal resistance, 1.3 °C/W resistor hot spot to metal tab
- Small thin package for high density PCB installation
- Non-inductive, high power resistor.

Application includes: AC motor control, electronic load and drive circuits, Industrial PC modules (IPM) and measurement systems.

Power rating	100W	Temperature coefficient	50ppm/°C (10-100kΩ)
Voltage rating	700V		100ppm/°C (0.22-4.7kΩ)
Resistance tolerance	±1%		
Operating temperature	155°C to +55°C		

Stocked in the following OHMIC Values:

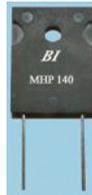
OR22 = 111-4423	2R = 111-4427	10R = 111-4420	100R = 111-4421
1R = 111-4425	4R7 = 111-4428	50R = 111-4422	

423676

Order Code	1+	50+	Price Each	500+	1K+
All Values ●	5.03	4.26	3.44	3.34	3.24

**140 Watt - MHP 140 Series**

**TO-247 Package**



- Extremely Low thermal resistance, 0.9 °C/W resistor hot spot to metal tab
- Small thin package for high density PCB installation
- Non-inductive, high power resistor.

Application includes: AC motor control, UPS and power supply circuits, PLC drivers.

Power rating	140W
Voltage rating	700V
Resistance tolerance	±1%
Operating temperature	155°C to +55°C
Temperature coefficient	50ppm/°C (100kΩ)
	100ppm/°C (0.22-1kΩ)

Stocked in the following OHMIC Values:

OR22 = 111-4430	1R = 111-4431	100R = 111-4429
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423677

Order Code	1+	50+	Price Each	500+	1K+
All Values ●	5.81	5.05	4.22	4.12	3.91

**LTO Series**



- Direct mounting ceramic on heatsink
- Non Inductive
- Isolated case

Series	LTO 30 Series	LTO 50 Series	LTO 100 Series
Power	30W	50W	100W
Temperature Coefficient	150ppm/°C	150ppm/°C	150ppm/°C
Temperature Range	-55 to +150°C	-55 to +150°C	-55 to +175°C
Voltage	250V	250V	375V
Dimension (mm)	L = 16.2, W = 10.4, D = 3.2 (LTO 30 & 50 Series)		L = 20.7, W = 15.76, D = 5 (LTO 100 Series)

**LTO 30 Series - 5% - TO-220 Case Size**

Value	Order Code						
OR01	956-6872	OR068	956-6929	4R7	956-6970	47R	956-7020
OR015	956-6880	OR1	956-6937	5R	956-6988	100R	956-7038
OR022	956-6899	OR47	956-6945	10R	956-6996	1K	956-7046
OR047	956-6902	1R	956-6953	15R	956-7003	10K	956-7054
OR05	956-6910	2R2	956-6961	22R	956-7011		

**LTO 50 Series - 5% - TO-220 Case Size**

Value	Order Code						
OR01	956-7062	OR47	956-7127	5R	956-7160	47R	956-7194
OR022	956-7070	1R	956-7135	10R	956-7178	100R	956-7208
OR05	956-7097	2R2	956-7143	22R	956-7186	1K	956-7216
OR1	956-7119	4R7	956-7151				

**LTO 100 Series - 5% - TO-247 Case Size**

Value	Order Code						
OR015	956-7240	1R	956-7291	10R	956-7313	100R	956-7330
OR1	956-7283	4R7	956-7305	15R	956-7321	1K	956-7348

**LTO 30 Series - 1% - TO-220 Case Size**

Value	Order Code						
OR01	135-7059	OR05	135-7064	1R	135-7068	10R	135-7072
OR015	135-7060	OR068	135-7065	2R2	135-7069	15R	135-7073
OR022	135-7061	OR1	135-7066	4R7	135-7070	22R	135-7075
OR047	135-7063	OR47	135-7067	5R	135-7071	47R	135-7076

**LTO 50 Series - 1% - TO-220 Case Size**

Value	Order Code						
OR01	135-7080	OR068	135-7084	2R2	135-7090	10R	135-7093
OR022	135-7081	OR1	135-7085	4R7	135-7091	22R	135-7094
OR047	135-7082	OR47	135-7087	5R	135-7092	47R	135-7096
OR05	135-7083	1R	135-7089				

**LTO 100 Series - 1% - TO-247 Case Size**

Value	Order Code						
OR015	135-7101	OR05	135-7105	4R7	135-7108	15R	135-7110
OR022	135-7102	OR1	135-7106	10R	135-7109	100R	135-7111
OR047	135-7103	1R	135-7107				

411627

	Order Code	1+	10+	Price Each	50+	100+	250+
5%	All LTO 30 Values ●	2.48	2.11	2.07	2.03	1.99	
	All LTO 50 Values ●	3.12	2.88	2.79	2.71	2.62	
	All LTO 100 Values ●	7.16	6.60	6.40	6.20	6.02	
1%	All LTO 30 Values ●	6.24	6.03	5.77	5.57	5.22	
	All LTO 50 Values ●	7.65	7.35	7.02	6.79	6.35	
	All LTO 100 Values ●	13.39	12.87	12.29	11.88	11.11	

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**Thick Film Power - continued**

**25 & 50 Watt – RCH Series**



- Non-inductive thick film technology
- Audio and high frequency applications
- High power rating
- High overload capabilities
- High stability

**25 Watt**

Power rating @ 25°C with 1°C/W heatsink without heatsink  
 Resistance Tolerance  
 Operating temperature  
 Dimensions:  
 L=28, W=14, Height above PCB=15  
 Fixing centres=18.3 x 19.8, Hole dia.=3.2

25W	4W	±5%	-55°C to +125°C	Dielectric strength 3500Vrms	Insulation resistance 10 <sup>9</sup> MΩ	Limiting element Voltage 550Vrms	Maximum overload voltage 1100Vrms	Thermal resistance 1.4°C/W
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Order Code	1+	20+	50+	100+	500+
All Values ●	2.73	2.32	2.18	1.91	1.65

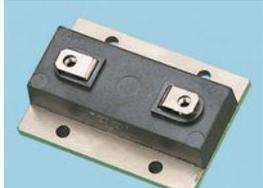
**50 Watt**

Power rating @ 25°C with 1°C/W heatsink without heatsink  
 Resistance Tolerance  
 Operating temperature  
 Dimensions:  
 L=47.8, W=15.5, Height above PCB=15  
 Fixing centres=39.7 x 21.4, Hole dia.=3.2

50W	5.5W	±5%	-55°C to +125°C	Dielectric strength 3500Vrms	Insulation resistance 10 <sup>9</sup> MΩ	Limiting element Voltage 1285Vrms	Maximum overload voltage 2500Vrms	Thermal resistance 0.8°C/W
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Order Code	1+	20+	50+	100+	500+
All Values ●	2.82	2.74	2.65	2.58	2.50

**100 Watt – RPH Series**



- Non-inductive thick film technology
- High power rating
- Low thermal radiation
- High overload capabilities
- Screw terminals

L=65.5, W=46.7, Height above PCB=21.6  
 Fixing centres=35x37, Hole dia.=4.2

Power rating @ 25°C with 0.45°C/W heatsink 100W without heatsink 10W  
 Resistance tolerance ±5%  
 Operating temperature -55°C to +125°C

Dielectric strength 5000Vrms  
 Limiting element voltage 1900Vrms  
 Insulation resistance >10<sup>9</sup>MΩ  
 Thermal resistance 0.55°C/W  
 Overload capacity 4 x Pr for 5 secs

OR1 = 114-1532	4R7 = 114-1536	22R = 114-1539	47R = 114-1541	1K = 114-1546
1R = 114-1534	6R8 = 114-1537	33R = 114-1540	470R = 114-1544	4K7 = 114-1547
2R2 = 114-1535	10R = 114-1538			

Order Code	1+	10+	50+	100+
All Values ●	15.26	14.28	12.69	9.89

**TGH Series Thick Film Power Resistors**



- Highly suited to high frequency and pulse load applications
- Direct mounting on a heatsink realises significant cost advantages
- Applications include variable speed drives, power supplies and other switching designs



Power Rating	Tolerance	Operating Temperature Range	Temperature Coefficient
100W	±1%	-55°C to +155°C	60ppm/°C
200W	±5%	-55°C to +155°C	250ppm/°C

100W	0m5 = 155-0726	2m = 155-0728	10m = 155-0730	50m = 155-0733
	1m = 155-0727	5m = 155-0729	20m = 155-0732	

Order Multiple=1	Order Code	1+	10+	25+	50+
All Values ●		28.27	25.25	22.62	19.33

200W	1R = 155-0734	10R = 155-0735	25R = 155-0736	50R = 155-0736
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Order Multiple=1	Order Code	1+	10+	25+	50+
All Values ●		52.89	48.35	41.87	39.11

**100 & 200 Watt – RTOP Series SOT227B Package**



- Non-inductive thick film technology.
- High power rating
- Low thermal radiation
- High dielectric strength
- Integrated base avoids mounting stress, optimises resistor reliability
- Air abrading for improved stability and overload capability

L = 38, W = 25, Height above PCB = 12.5  
 Fixing centres = 30, Hole Dia. = 4.2

**100 Watt**

Power rating (Pr) @ 25°C with heatsink without heatsink  
 Resistance Tolerance  
 Operating temperature

100W	5W	±5%	-55°C to +125°C	Insulation resistance >10 <sup>9</sup> MΩ	Limiting element voltage 1500Vrms	Thermal resistance 1°C/W	Overload capability 2.5xPr for 5 secs	Terminals M4x6 screw terminals
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Order Code	1+	10+	50+	100+
All Values ●	18.81	17.31	14.20	12.09

**200 Watt**

Power rating (Pr) @ 25°C with heatsink without heatsink  
 Resistance Tolerance  
 Operating temperature

200W	5W	±5%	-55°C to +125°C	Insulation resistance >10 <sup>9</sup> MΩ	Limiting element voltage 1500Vrms	Thermal resistance 0.5°C/W	Overload capability 2.5 x pr for 5 secs	Terminals M4x6 screw terminals
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Order Code	1+	10+	50+	100+
All Values ●	35.62	31.97	25.28	24.79

**BDS 100 & 250 Watt**



- Non-inductive thick film power resistors
- Cermet film on high purity alumina
- Bonded on a copper heatsink cased in moulded epoxy
- Values below 1R have four terminals for voltage monitoring

**100 Watt**

Power rating with 0.7° c/w heatsink  
 Power rating without heatsink  
 Resistance tolerance  
 Max working voltage  
 Temperature coefficient

100W	10W	±10%	500V d.c	150 ppm/°C	Inductance Virtually non Inductive	Dimensions: L=38, W=25.5, Height above PCB=25.4
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Order Code	1+	25+	50+	100+
All Values ●	7.45	6.94	6.42	5.78

£ € **40,000 PRICES REDUCED**

250 & 500 Watt - RPS Series



- Non-inductive thick film technology
- High power rating
- Low thermal radiation
- High overload capability
- Integral base for easy mounting and internal thermal junction

L = 73, W = 57  
Fixing Centres = 57, Hole dia. = 4.0

250 Watt

Power rating (Pr) @ 70°C with heatsink	250W	Dielectric strength	12kVrms
Resistance tolerance	±5%	Limiting element voltage	5kVrms
Operating temperature	-55°C to +125°C	Thermal resistance	0.22°C/W
Insulation resistance	>10 <sup>9</sup> MΩ	Overload capability	4xPr for 10 secs
		Terminals	M4 screw terminals

Stocked in the following OHMIC Values:

1R = 114-1565 10R = 114-1566 100R = 114-1567 220R = 114-1568

250 Watt Order Code	1+	10+	50+	100+
All Values ●	35.47	31.18	28.70	26.87

500 Watt

Power rating (Pr) @ 70°C with heatsink	500W	Dielectric strength	12kVrms
Resistance tolerance	±5%	Limiting element voltage	5kVrms
Operating temperature	-55°C to +125°C	Thermal resistance	0.11°C/W
Insulation resistance	>10 <sup>9</sup> MΩ	Terminals	M4 screw terminals

Stocked in the following OHMIC Values:

1R = 114-1571 10R = 114-1573 47R = 114-1575 470R = 114-1577  
4R7 = 114-1572 22R = 114-1574 100R = 114-1576 1K = 114-1578

207309

500 Watt Order Code	1+	10+	50+	100+
All Values ●	70.29	66.72	63.49	58.29

Heat Sinkable Planar Resistors



- Dielectric strengths up to 12KV
- Special design for low inductive and capacitance values
- Easy termination to contacts with M5 screws
- Calibrated mounting simplifies assembly

L=65.8mm, W=68.0mm, D=32.5mm

Operating temperature range	-55°C to +150°C	Tolerance	10%
Temperature coefficient	±150ppm/°C	Voltage rating	5kV

To operate at full rating please see heatsink requirements on the data sheet.

TAP600 Series

Stocked in the following OHMIC values:

0R5 = 155-0710 2R = 155-0712 10R = 155-0715 100R = 155-0717 1K = 155-0719  
1R = 155-0711 3R = 155-0713 50R = 155-0716

Order Multiple=1 Order Code	1+	10+	25+	50+
All Values ●	84.80	67.96	61.50	54.24

TAP800 Series

Stocked in the following OHMIC values:

1R = 155-0721 10R = 155-0722 50R = 155-0723 100R = 155-0724 1K = 155-0725

501292

Order Multiple=1 Order Code	1+	10+	25+	50+
All Values ●	116.32	94.25	81.67	77.23

TAP1000 Series ±10%

1000 Watt Heat Sinkable Planar



- Delivers 1000 Watts of continuous power when properly mounted to a liquid cooled heat sink (please see data sheet)
- Applications include power conditioning, power distribution, power conversion, power control

Operating temperature -55°C to +150°C

Power Rating	L	Dimensions W	H	Temperature Coefficient	Tolerance
1000W	76.20mm	76.20mm	39.31mm	±250ppm/°C	±±10%

Stocked in the following OHMIC values:

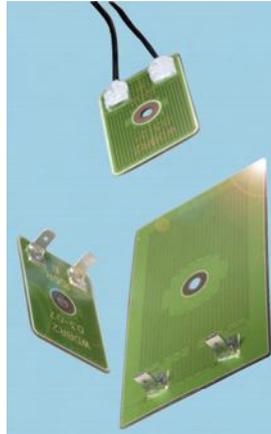
2R5 = 146-2346 4R = 146-2348 10R = 146-2352 25R = 146-2354 50R = 146-2356  
3R = 146-2347 5R = 146-2351 15R = 146-2353 30R = 146-2355

486815

Order Multiple=1 Order Code	1+	3+	5+	10+
All Values	89.98	82.88	76.46	70.58

Please note that the resistors in the above series should not be used for new designs

WDBR Series



- Ultra low profile thick film on steel planar power resistors
- High power rating - 1.5kW, 2kW, 3kW and 7kW versions
- High pulse handling capability
- Will 'failsafe' (open circuit) under overload (fault) conditions while maintaining minimum 1kV dielectric withstand voltage
- Applications include dynamic motor braking and industrial welding

WDBR1 L = 49.3, W = 35.85, D = 0.9  
WDBR2 L = 60.96, W = 40.64, D = 0.9  
WDBR3 L = 101.6, W = 70, D = 0.9  
WDBR7 L = 152.4, W = 101.6, D = 1.5

1.5 kWatt - WDBR1

Max Pulse Power	1.5kW	Resistance tolerance	±10%
Max Continuous Load	180W	Max working voltage	2500V d.c

Stocked in the following OHMIC Values:

12R = 129-2591 22R = 129-2592 47R = 129-2593 100R = 129-2594 150R = 129-2595

2 kWatt - WDBR2

Max Pulse Power	2kW	Resistance tolerance	±10%
Max Continuous Load	200W	Max working voltage	2500V d.c

Stocked in the following OHMIC Values:

12R = 129-2597 22R = 129-2598 47R = 129-2599 100R = 129-2600 150R = 129-2601

3 kWatt - WDBR3

Max Pulse Power	3kW	Resistance tolerance	±10%
Max Continuous Load	260W	Max working voltage	2500V d.c

Stocked in the following OHMIC Values:

12R = 129-2603 22R = 129-2604 47R = 129-2605 100R = 129-2606 150R = 129-2607

7 kWatt - WDBR7

Max Pulse Power	7kW	Resistance tolerance	±10%
Max Continuous Load	280W	Max working voltage	2500V d.c

Stocked in the following OHMIC Values:

47R = 129-2608 100R = 129-2609 150R = 129-2610

451987

Power rating	Order Code	1+	5+	10+	25+
1.5 kW	All Values ●	9.50	8.55	7.70	6.93
2 kW	All Values ●	12.71	11.44	10.30	9.27
3 kW	All Values ●	21.78	19.60	17.64	15.88
7 kW	All Values ●	21.78	19.60	17.64	15.88

Thin Film

MCTC05 Series - ±0.1%



- High precision resistors in 0805 case
- Close tolerance ±0.1%
- Industry standard ±25ppm/°C

Power rating	0.1W
Operating temperature	-55°C to +155°C
Temperature coefficient	±25ppm/°C
Max. working voltage	100V
Max. overload voltage	200V
Resistance tolerance	±0.1%



Stocked in the following OHMIC Values

1R = 157-6695 14R3 = 157-5400 21R = 157-5441 30R9 = 157-5464 45R3 = 157-5502  
10R = 157-5376 14R7 = 157-5403 21R5 = 157-5443 31R6 = 157-5465 46R4 = 157-5505  
10R2 = 157-5379 15R = 157-5406 22R1 = 157-5444 32R4 = 157-5468 47R5 = 157-5509  
10R5 = 157-5380 15R4 = 157-5408 22R6 = 157-5445 33R2 = 157-5470 48R7 = 157-5512  
10R7 = 157-5381 15R8 = 157-5411 23R2 = 157-5446 34R = 157-5473 49R9 = 157-5515  
11R = 157-5382 16R2 = 157-5412 23R7 = 157-5447 34R8 = 157-5476 51R1 = 157-5517  
11R3 = 157-5383 16R5 = 157-5415 24R3 = 157-5449 35R7 = 157-5479 52R3 = 157-5520  
11R5 = 157-5386 16R9 = 157-5418 24R9 = 157-5450 36R5 = 157-5482 53R6 = 157-5523  
11R8 = 157-5388 17R4 = 157-5420 25R5 = 157-5451 37R4 = 157-5485 54R9 = 157-5525  
12R1 = 157-5389 17R8 = 157-5423 26R1 = 157-5453 38R3 = 157-5486 56R2 = 157-5528  
12R4 = 157-5391 18R2 = 157-5426 26R7 = 157-5455 39R2 = 157-5487 57R6 = 157-5529  
12R7 = 157-5392 18R7 = 157-5431 27R4 = 157-5456 40R2 = 157-5492 59R = 157-5530  
13R = 157-5393 19R1 = 157-5434 28R = 157-5457 41R2 = 157-5494 60R4 = 157-5534  
13R3 = 157-5394 19R6 = 157-5436 28R7 = 157-5459 42R2 = 157-5496 61R9 = 157-5536  
13R7 = 157-5396 20R = 157-5439 29R4 = 157-5461 43R2 = 157-5498 63R4 = 157-5539  
14R = 157-5398 20R5 = 157-5440 30R1 = 157-5463 44R2 = 157-5500 64R9 = 157-5541







Thin Film - continued

Surface Mount - Ni-Chrome Thin Film - continued

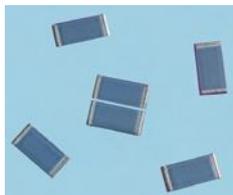
PCF Series ± 0.1%, ±25ppm/°C, 0805 Case Size - continued

Table listing PCF Series resistors with columns for value, quantity, and price. Includes values like 100R = 116-0111, 1K78 = 116-0150, etc.

240516

Price Each table for PCF Series resistors. Columns: Order Code, 1+, 50+, 100+, 500+, 1K+.

PCF-P Series - 0.063 Watt and 0.1 Watt ±0.1%



- Passivated range for superior humidity performance, load life stability and humidity to 0.05%
● Precision thin film technology

Technical specifications table for PCF-P Series resistors. Columns: 0603, 0805. Rows: Power rating @ 70°C, Resistance tolerance, Voltage rating, Operating temperature, Temperature coefficient.

0.063 Watt 0603

Stocked in the following OHMIC Values:

Table listing 0.063 Watt 0603 resistors with columns for value, quantity, and price. Includes values like 27R = 150-5951, 120R = 150-5969, etc.

Price Each table for 0.063 Watt 0603 resistors. Columns: Order Multiple=5, Order Code, 5+, 25+, 100+, 500+, 1K+.

0.1 Watt 0805

Stocked in the following OHMIC Values:

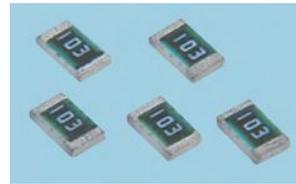
Table listing 0.1 Watt 0805 resistors with columns for value, quantity, and price. Includes values like 27R = 150-6035, 120R = 150-6053, etc.

494016

Price Each table for Surface Mount - Nickel Barrier resistors. Columns: Order Multiple=5, Order Code, All Values, 5+, 25+, 100+, 500+, 1K+.

Surface Mount - Nickel Barrier

RN Series ±0.1% ±25ppm/°C 0603 Case Size



- Very high precision, now available in 0603
● Thin film technology, low noise and very high stability
● Applications include high frequency in miniature circuits

H = 0.3 ± 0.1 W = 0.8 ± 0.1 L = 1.6 ± 0.1p
Supplied on tape full reel = 5Kpcs

Technical specifications table for Surface Mount - Nickel Barrier resistors. Columns: Power rating @ 70°C, Operating temperature, Temperature coefficient, Max. working voltage, Max. overload voltage, 50 Volts, 100 Volts.

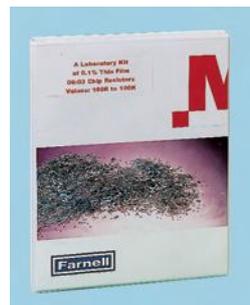
Stocked in the following OHMIC Values:

Table listing Surface Mount - Nickel Barrier resistors with columns for value, quantity, and price. Includes values like 10R = 114-0385, 150R = 114-0392, etc.

207294

Price Each table for Surface Mount - Nickel Barrier resistors. Columns: Order Multiple=5, Order Code, All Values, 5+, 25+, 100+, 500+, 5K+.

RN - 0603 Laboratory Kit ±0.1%, ±25ppm/°C



- Surface mount ring binder laboratory kit
● Contains 0603 high precision resistors
● Thin film technology, low noise and very high stability
● Kit can be restocked when required

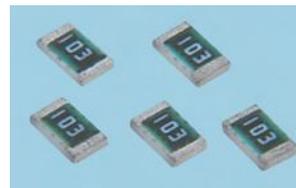
Kit contains 20 of each Ohmic Value
10R, 15R, 22R, 33R, 47R, 68R, 100R, 150R, 220R, 330R, 470R, 680R, 1K, 1K5, 2K2, 3K3, 4K7, 6K8, 10K, 15K, 22K, 33K

207294

Price Each table for RN - 0603 Laboratory Kit. Columns: Order Code, 1+, 3+.

Surface Mount - Nickel Barrier

RN Series ±0.1% ±10ppm/°C 0603 Case Size



- E96 range precision thin film resistors
● 0603 case size
● Close tolerance ±0.1%
● Temperature coefficient ±10ppm/°C
● Excellent long term stability

H = 0.3, W = 0.8, L = 1.6
Supplied on 8mm tape, individually marked

Technical specifications table for Surface Mount - Nickel Barrier resistors. Columns: Power rating @ 70°C, Operating temperature, Temperature coefficient, Max. working voltage, Max. overload voltage, 50 Volts, 100 Volts.

Stocked in the following OHMIC Values:

Table listing Surface Mount - Nickel Barrier resistors with columns for value, quantity, and price. Includes values like 10R = 121-9854, 56R2 = 114-0452, etc.





Thin Film - continued

Surface Mount - Precision Resistors - continued

RP73 Series - continued

Table listing various resistor part numbers and values for the RP73 Series, including values like 576R=150-2146, 590R=150-2147, etc.

Order Multiple=5 table with columns for Order Code, All Values, and Price Each (5+, 50+, 100+, 500+, 1K+).

0.250 Watt ±0.1% (1206 Case Size)

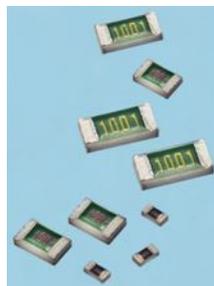
Stocked in the following OHMIC Values:

Large table listing various resistor part numbers and values for the 0.250 Watt ±0.1% (1206 Case Size) series, including values like 4R75=150-1354, 4R87=150-1356, etc.

Large table listing various resistor part numbers and values, including values like 402R=150-1560, 412R=150-1561, etc.

Order Multiple=5 table for the 0.250 Watt resistors with columns for Order Code, All Values, and Price Each (5+, 50+, 100+, 500+, 1K+).

RN73H Series - Precision



- Operating temperature up to 155 °C
Tolerance ±0.1%
TCR ±10 ppm/°C and 25 ppm/°C
Nickel chromium thin film resistor element

0603 L=1.6mm, W=0.8mm, D=0.45mm
0805 L=2.0mm, W=1.25mm, D=0.5mm
1206 L=3.2mm, W=1.6mm, D=0.6mm

Table with columns for Power rating @ 85°C, Temperature coefficient, Operating Temperature, and Rated Voltage for different case sizes (0603, 0805, 1206).

Stocked in the following OHMIC values:

0603 Case Size 0.1% 10ppm

Table listing resistor values for the 0603 Case Size 0.1% 10ppm series, including values like 100R=140-0541, 110R=140-0542, etc.



7K5 = 140-0590 11K = 140-0594 16K = 140-0598 24K = 140-0603 36K = 140-0608  
 8K2 = 140-0591 12K = 140-0595 18K = 140-0600 27K = 140-0604 39K = 140-0609  
 9K1 = 140-0592 13K = 140-0596 20K = 140-0601 30K = 140-0606 43K = 140-0610  
 10K = 140-0593 15K = 140-0597 22K = 140-0602 33K = 140-0607 47K = 140-0611

**0805 Case Size 0.1% 10ppm**

100R = 140-0612 430R = 140-0628 1K8 = 140-0646 7K5 = 140-0662 30K = 140-0677  
 110R = 140-0613 470R = 140-0631 2K = 140-0647 8K2 = 140-0663 33K = 140-0679  
 120R = 140-0614 510R = 140-0632 2K2 = 140-0648 9K1 = 140-0664 36K = 140-0681  
 130R = 140-0615 560R = 140-0633 2K4 = 140-0649 10K = 140-0665 39K = 140-0682  
 150R = 140-0616 620R = 140-0634 2K7 = 140-0650 11K = 140-0667 43K = 140-0683  
 160R = 140-0618 680R = 140-0635 3K = 140-0651 12K = 140-0668 47K = 140-0684  
 180R = 140-0619 750R = 140-0636 3K3 = 140-0652 13K = 140-0669 51K = 140-0685  
 200R = 140-0620 820R = 140-0637 3K6 = 140-0653 15K = 140-0670 56K = 140-0686  
 220R = 140-0621 910R = 140-0638 3K9 = 140-0655 16K = 140-0671 62K = 140-0687  
 240R = 140-0622 1K = 140-0639 4K3 = 140-0656 18K = 140-0672 68K = 140-0688  
 270R = 140-0623 1K1 = 140-0640 4K7 = 140-0657 20K = 140-0673 75K = 140-0689  
 300R = 140-0624 1K2 = 140-0641 5K1 = 140-0658 22K = 140-0674 82K = 140-0690  
 330R = 140-0625 1K3 = 140-0643 5K6 = 140-0659 24K = 140-0675 91K = 140-0692  
 360R = 140-0626 1K5 = 140-0644 6K2 = 140-0660 27K = 140-0676 100K = 140-0693  
 390R = 140-0627 1K6 = 140-0645 6K8 = 140-0661

**1206 Case Size 0.1% 25ppm**

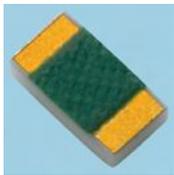
15R = 140-0694 110R = 140-0718 820R = 140-0741 6K2 = 140-0764 47K = 140-0788  
 16R = 140-0695 120R = 140-0719 910R = 140-0742 6K8 = 140-0765 51K = 140-0789  
 18R = 140-0696 130R = 140-0720 1K = 140-0743 7K5 = 140-0766 56K = 140-0790  
 20R = 140-0698 150R = 140-0722 1K1 = 140-0744 8K2 = 140-0767 62K = 140-0791  
 22R = 140-0699 160R = 140-0723 1K2 = 140-0746 9K1 = 140-0768 68K = 140-0792  
 24R = 140-0700 180R = 140-0724 1K3 = 140-0747 10K = 140-0771 75K = 140-0793  
 27R = 140-0701 200R = 140-0725 1K5 = 140-0748 11K = 140-0772 82K = 140-0795  
 30R = 140-0702 220R = 140-0726 1K6 = 140-0749 12K = 140-0773 91K = 140-0796  
 33R = 140-0703 240R = 140-0727 1K8 = 140-0750 13K = 140-0774 100K = 140-0797  
 36R = 140-0704 270R = 140-0728 2K = 140-0751 15K = 140-0775 110K = 140-0798  
 39R = 140-0705 300R = 140-0729 2K2 = 140-0752 16K = 140-0776 120K = 140-0799  
 43R = 140-0706 330R = 140-0730 2K4 = 140-0753 18K = 140-0777 130K = 140-0801  
 47R = 140-0707 360R = 140-0731 2K7 = 140-0754 20K = 140-0778 150K = 140-0802  
 51R = 140-0709 390R = 140-0732 3K = 140-0755 22K = 140-0779 160K = 140-0803  
 56R = 140-0711 430R = 140-0734 3K3 = 140-0756 24K = 140-0780 180K = 140-0804  
 62R = 140-0712 470R = 140-0735 3K6 = 140-0758 27K = 140-0781 200K = 140-0805  
 68R = 140-0713 510R = 140-0736 3K9 = 140-0759 30K = 140-0783 220K = 140-0806  
 75R = 140-0714 560R = 140-0737 4K3 = 140-0760 33K = 140-0784 240K = 140-0807  
 82R = 140-0715 620R = 140-0738 4K7 = 140-0761 36K = 140-0785 270K = 140-0808  
 91R = 140-0716 680R = 140-0739 5K1 = 140-0762 39K = 140-0786 300K = 140-0809  
 100R = 140-0717 750R = 140-0740 5K6 = 140-0763 43K = 140-0787

476742

Case Size	Order Code	Price Each				
		5+	50+	100+	1K+	5K+
0603	All Values	1.01	0.79	0.71	0.63	0.54
0805	All Values	0.93	0.72	0.67	0.58	0.50
1206	All Values	0.71	0.58	0.44	0.38	0.33

**High Frequency Resistors and Terminators**

**FC High Frequency Series – Thin Film**



FC series chip resistors are designed with low internal reactance. They function as almost pure resistors on a very high range of frequencies. The specialized laser edge trimming allows for precision tolerances to 0.1%

**Features:**

- Small standard size 0402 case size
- Edge trimmed block resistors

**Applications:**

- Low noise amplifiers
- Line termination

Power rating 50mW Resistance tolerance ±0.1%

423449

Resistance	Order Code	Price Each				
		1+	25+	100+	250+	500+
50R	110-9049	1.59	1.40	1.17	0.95	0.87
100R	110-9051	1.64	1.44	1.21	0.98	0.90
500R	110-9052	1.60	1.40	1.17	0.95	0.88
1K	110-9053	1.37	1.20	1.00	0.81	0.78

**CRA2512 Series**

**High Power Current Sense Chip Resistor**



- Special alloy resistor
- Power rating at 70°C: CRA2512 - 3W
- Applications include power supplies, stepper motor drives

Operating temperature -55°C to +170°C

Case Size	Dimensions			Temperature Coefficient	Tolerance
	L	W	H		
2512	6.4	2.1	0.9	±75ppm/°C	±1%

**3 Watt ±1% (2512 Case Size)**

Stocked in the following OHMIC Values

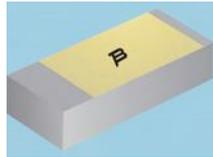
OR01 = 143-5947 OR04 = 143-5949 OR05 = 143-5950 OR08 = 143-5951 OR1 = 143-5952 OR02 = 143-5948

484424

2512 Case Size	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	0.240	0.210	0.189	0.168	0.158

**CHF2010 Series**

**10 W Power RF Chip Resistor**



- DC to 2.2 GHz
- Terminals for PCB placement
- Low VSWR
- Aluminium Nitride ceramic
- High power
- Applications include RF amplifiers, attenuators, antenna feeds, Wilkinson dividers

Case Size	Dimensions			Tolerance
	L	W	H	
2010	5.08	2.54	0.99	±5%

**10 Watt ±5% (2010 Case Size)**

Stocked in the following OHMIC Values

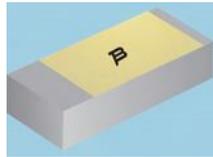
50R = 143-5941 100R = 143-5940

484416

2010 Case Size	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	2.90	2.57	2.31	2.13	1.95

**CHF1206 Series**

**20 W Power RF Chip Termination**



- DC to 4 GHz
- Terminal for lead attachment
- Low VSWR
- Aluminium Nitride ceramic
- Applications include RF amplifiers, drop in isolators

Case Size	Dimensions			Tolerance
	L	W	H	
1206	3.048	1.575	0.635	±5%

**20 Watt ±5% (1206 Case Size)**

Stocked in the following OHMIC Values

50R = 143-5937

484417

1206 Case Size	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	2.26	2.00	1.79	1.65	1.51

**CHF2525 Series**

**40 W Power Termination Chip**



- DC to 1 GHz
- Low VSWR
- Aluminium Nitride ceramic
- Terminal for lead attachment
- Applications include RF amplifiers, isolators

Case Size	Dimensions			Tolerance
	L	W	H	
2525	6.35	6.35	0.635	±5%

**40 Watt ±5% (2525 Case Size)**

Stocked in the following OHMIC Values

50R = 143-5943

484420

2525 Case Size	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	4.50	4.00	3.57	3.32	3.02

**CHF3725 Series**

**40W SMT Power RF Chip Termination**



- DC to 3 GHz
- Terminals for placement on PCB
- Low VSWR
- Aluminium Nitride ceramic
- Applications include RF amplifiers, attenuators, antenna feeds

Case Size	Dimensions			Tolerance
	L	W	H	
3725	9.39	6.35	0.99	±5%

**40 Watt ±5% (3725 Case Size)**

Stocked in the following OHMIC Values

50R = 143-5945

484422

3725 Case Size	Order Code	Price Each				
		1+	10+	50+	100+	500+
	All Values	4.84	4.29	3.85	3.55	3.24

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**Metal Film Fusible - continued**

**0.33 Watt ±5% – NFR25 Series**



L=6.5 max, Dia=2.5 max.  
Lead length=26 nom, Lead dia.=0.6  
Supplied bandioliered on tape (box=1K pcs)

- Leaded fusible resistor
- Coated in grey flame retardant lacquer
- Resistant to cleaning solvents according to MIL STD 202E method 215 and IEC 68-2-45

Power rating @ 70°C 0.33W Operating temperature -55°C to +155°C  
Temperature coefficient ±100ppm/°C (1R to 10R=200 ppm/°C)  
Voltage rating 250V ac

Stocked in the following OHMIC Values:  
1R = 947-3939 10R = 947-3912 100R = 947-3890 1K = 947-3920 4K7 = 947-4005  
2R2 = 947-3971 22R = 947-3955 220R = 947-3947 2K2 = 947-3963 10K = 947-3904  
4R7 = 947-4013 47R = 947-3998 470R = 947-3980

Order Multiple=10	Price Each				
Order Code	10+	300+	3K+	10K+	30K+
All Values ●	0.125	0.085	0.064	0.046	0.041

**0.5W ±5% – NFR25H Series**



L=6.5, Dia=2.5 max  
Lead length=26 nom, Lead dia.=0.6  
Supplied bandioliered on tape (box=1K pcs)

- Leaded fusible resistor
- Coated in grey flame retardant lacquer
- Resistant to cleaning solvents according to MIL STD 202E method 215 and IEC 68-2-45

Power rating @ 70°C 0.5W Operating temperature -55°C to +155°C  
Voltage rating 350V ac Temperature coefficient ±200ppm/°C

Stocked in the following OHMIC Values:  
1R = 947-4048 4R7 = 947-4080 22R = 947-4056 100R = 947-4021  
2R2 = 947-4064 10R = 947-4030 47R = 947-4072

Order Multiple=10	Price Each				
Order Code	10+	300+	3K+	10K+	30K+
All Values ●	0.127	0.095	0.066	0.046	0.041

**Metal Glazed**

**MGRF Series**



1 and 2 Watt



- Small in dimension and broad range in high resistance
- Metal glaze resistor elements provide high stable performance against environmental conditions and overload
- Excellent in absorption of pulse and surge voltage

Power rating @ 70°C 1W Operating temperature -55°C to +155°C  
Maximum overload voltage 4000 V Temperature coefficient ±200 ppm/°C

Stocked in the following OHMIC values:

**MGRF 1 Watt**  
1M2 = 135-7949 2M2 = 135-7952 3M9 = 135-7956 6M8 = 135-7959 15M = 135-7962  
1M5 = 135-7950 2M7 = 135-7953 4M7 = 135-7957 8M2 = 135-7960 22M = 135-7963  
1M8 = 135-7951 3M3 = 135-7954 5M6 = 135-7958 10M = 135-7961 33M = 135-7964

**MGRF 2 Watt**  
1M2 = 135-7965 2M2 = 135-7969 3M9 = 135-7972 6M8 = 135-7975 15M = 135-7978  
1M5 = 135-7966 2M7 = 135-7970 4M7 = 135-7973 8M2 = 135-7976 22M = 135-7981  
1M8 = 135-7968 3M3 = 135-7971 5M6 = 135-7974 10M = 135-7977 33M = 135-7982

Order Code	10+	50+	Price Each	500+	1K+
1 Watt MGRF Series All Values ●	0.117	0.086	0.074	0.064	0.053
2 Watt MGRF Series All Values ●	0.160	0.117	0.107	0.096	0.086

**VRW Series**

0.25 and 0.5 Watt



0.25W: L = 6.2, Dia. = 2.5, Lead length = 21, Lead dia. = 0.6  
0.5W: L = 9, Dia. = 3.7, Lead length = 19.6, Lead dia. = 0.8

- High working voltage to 3.5kV in compact size
- High pulse load capability
- High ohmic range
- Robust flameproof coating material

Resistance tolerance ±5% Voltage rating DC 0.25W = 1600V  
Temperature coefficient ±200ppm/°C 0.5W = 3500V  
Temperature coefficient -55 to 155°C

Stocked in the following OHMIC values:

**0.25W**

330K = 129-2545 1M = 129-2550 2M2 = 129-2554 3M9 = 129-2557 6M8 = 129-2562  
470K = 129-2546 1M2 = 129-2551 2M7 = 129-2555 4M7 = 129-2558 8M2 = 129-2563  
680K = 129-2548 1M5 = 129-2552 3M3 = 129-2556 5M6 = 129-2561 10M = 129-2564  
820K = 129-2549 1M8 = 129-2553

**0.5W**

Stocked in the following OHMIC values:

330K = 129-2565 1M2 = 129-2570 2M7 = 129-2575 5M6 = 129-2579  
470K = 129-2566 1M5 = 129-2571 3M3 = 129-2576 6M8 = 129-2580  
680K = 129-2567 1M8 = 129-2573 3M9 = 129-2577 8M2 = 129-2581  
820K = 129-2568 2M2 = 129-2574 4M7 = 129-2578 10M = 129-2582  
1M = 129-2569

Order Code	10+	50+	Price Each	500+	1K+
0.25W 330K - 2M2 ●	0.117	0.089	0.077	0.071	0.061
0.25W 2M7 - 10M ●	0.126	0.095	0.082	0.077	0.065
0.5W 330K - 2M2 ●	0.161	0.121	0.105	0.097	0.085
0.5W 2M7 - 10M ●	0.173	0.131	0.112	0.104	0.091

**0.25 Watt ±5% – HVR25 Series**



L=6.5 max, Dia=2.5 max  
Lead length=26 nom, Lead dia.=0.6  
Supplied bandioliered on tape (box=1K pcs)

Offering high resistance, good stability and reliability at high voltage. Meets safety requirements of IEC65.

Power rating @ 70°C 0.25W Operating temperature -55°C to +155°C  
Voltage rating 1150V ac or 1600V dc Temperature coefficient ±250ppm/°C

Stocked in the following OHMIC Values:

1M2 = 947-7152 2M2 = 947-7187 3M9 = 947-7217 6M8 = 947-7241  
1M5 = 947-7160 2M7 = 947-7195 4M7 = 947-7225 8M2 = 947-7250  
1M8 = 947-7179 3M3 = 947-7209 5M6 = 947-7233 10M = 947-7144

Order Multiple=10	Price Each				
Order Code	10+	300+	3K+	10K+	30K+
All Values ●	0.155	0.108	0.083	0.076	0.065

**0.5 Watt ±5% – HVR37 Series**



L=10 max, Dia=3.7 max  
Lead length=26 nom, Lead dia.=0.7  
Supplied bandioliered on tape (box=1K pcs)

- BS415 safety approved for mains equipment.
- UL Approved

Power rating @ 70°C 0.5W Operating temperature -55°C to +155°C  
Voltage rating 2500V ac or 3500V dc Temperature coefficient ±250ppm/°C

Stocked in the following OHMIC Values:

1M2 = 947-7284 2M2 = 947-7322 3M9 = 947-7365 6M8 = 947-7390 15M = 947-7276  
1M5 = 947-7292 2M7 = 947-7330 4M7 = 947-7373 8M2 = 947-7403 22M = 947-7314  
1M8 = 947-7306 3M3 = 947-7357 5M6 = 947-7381 10M = 947-7268

Order Multiple=10	Price Each				
Order Code	10+	300+	3K+	10K+	30K+
All Values ●	0.200	0.139	0.111	0.098	0.093

CHP Series – 1 Watt and 2 Watt ±1%



- Metal Glaze™ General Purpose Surface Mount Resistors
- Power rating @ 70°C CHP1 = 1W  
CHP2 = 2W
- Operating temperature Maximum 150°C
- Temperature coefficient ±±100ppm/°C

2512: L=6.38, W=2.01  
3610: L=9.32, W=2.67

CHP1 - Case Size 2512

Stocked in the following OHMIC Values:

1R = 150-6168 100R = 150-6170 10K = 150-6173 100K = 150-6174 1M = 150-6175  
10R = 150-6169 1K = 150-6172

Order Multiple=5	Price Each				
Order Code	5+	50+	100+	500+	1K+
1R to 100kR ●	0.41	0.35	0.32	0.28	0.26
1MR ●	0.43	0.37	0.33	0.29	0.27

CHP2 - Case Size 3610

Stocked in the following OHMIC Values:

1R = 150-6176 100R = 150-6178 10K = 150-6180 100K = 150-6181 1M = 150-6182  
10R = 150-6177 1K = 150-6179

Order Multiple=5	Price Each				
Order Code	5+	50+	100+	500+	1K+
1R to 100kR ●	0.68	0.59	0.53	0.46	0.43
1MR ●	0.75	0.63	0.57	0.50	0.47

SMC Series – 1 Watt and 2 Watt ±1%



- Ideal for automotive and other harsh thermal applications
- Uncompromised Metal Glaze™ performance gives excellent surge performance

Case Size	Dimensions Length Diameter	Power Rating	Temperature Coefficient	Tolerance
2512	6.35 3.10	1W	±100ppm/°C	±±1%
3610	9.32 3.10	2W	±100ppm/°C	±±1%

1 Watt

Stocked in the following OHMIC Values:

10R = 150-6184 100R = 150-6186 1K = 150-6188 4K99 = 150-6189 10K = 150-6190  
49R9 = 150-6185 499R = 150-6187

Order Multiple=10	Price Each				
Order Code	10+	50+	100+	500+	1K+
All Values ●	0.36	0.31	0.28	0.25	0.22

2 Watt

Stocked in the following OHMIC Values:

10R = 150-6191 100R = 150-6193 1K = 150-6196 4K99 = 150-6197 10K = 150-6198  
49R9 = 150-6192 499R = 150-6194

Order Code	5+	50+	100+	500+	1K+
All Values ●	0.59	0.51	0.46	0.40	0.37

High Precision Wirewound



0.2 Watt ±0.1% – 5E10D Series



L=7.94, Dia.=3.97, Lead length=38 nom., Lead dia.=0.51

- High precision epoxy sealed non-inductive wire wound resistors.
- Ideal for all analogue measuring and reference applications.

Power rating @ 85°C	0.2W	Thermal e.m.f	<0.2µV/°C
Max. voltage	175V dc or ac peak	Full load stability	±35ppm/10,000 hrs
Operating temperature	-55°C to +125°C	No load stability	±50ppm/26,000 hrs
Temperature coefficient	±3ppm 0°C to +85°C ±5ppm -55°C to +125°C	(-55°C to +125°C)	±25ppm/10,000 hrs ±35ppm/26,000 hrs

Stocked in the following OHMIC Values:

120R = 962-1938 50R = 962-2136 1K = 962-2160 10K = 962-2187  
350R = 962-1946 100R = 962-2144 5K = 962-2179 100K = 962-2195  
10R = 962-2128 250R = 962-2152

Order Code	1+	25+	50+	100+	250+
All Values	4.12	3.59	3.46	2.54	2.53

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0.33 Watt ±0.1% – 8E16D Series



L=12.7, Dia.=6.35, Lead length=38 nom, Lead dia.=0.64

- High precision epoxy sealed non-inductive wire wound resistors
- Ideal for all analogue measuring and reference applications.

Power rating @ 85°C	0.33W	Full load stability	±35ppm/10,000 hrs ±50ppm/26,000hrs
Temperature coefficient	±3ppm 0°C to +85°C ±5ppm -55°C to +125°C	No load stability (-55°C to 125°C)	±25ppm/10,000 hrs ±35ppm/26,000hrs
Thermal e.m.f	<0.2µV/°C	Operating temperature	-55°C to +125°C
Max. voltage	175V dc or ac peak		

Stocked in the following OHMIC Values:

10R = 962-1954 120R = 962-1997 2K = 962-2039 200R = 962-2063 40K = 962-2098  
20R = 962-1962 250R = 962-2004 5K = 962-2047 350R = 962-2071 50K = 962-2101  
50R = 962-1970 500R = 962-2012 10K = 962-2055 20K = 962-2080 100K = 962-2110  
100R = 962-1989 1K = 962-2020

Order Code	1+	25+	50+	100+	250+
Values 10R to 50R ●	4.29	3.93	3.59	3.23	2.88
Values 100R to 100K ●	3.73	3.45	3.44	2.54	2.53

Vitreous Enamel Wirewound



3 Watt – W21 Series



L=12.7, Dia.=5.6, Lead length=22 min, Lead dia.=0.8

High stability and reliability resistors, offering high power and resistance in a small size. Suitable for use in harsh environments.

- Fully approved to styles J BS9114-N001 and JB CECC 40 201-002
- Available with BS-CECC release.

Power rating @ 25°C	3W	Voltage rating	100V
Power rating @ 70°C	2.5W	Operating temperature	-55°C to +350°C
Resistance tolerance	±5%	Temperature coefficient max	±75ppm/°C

Stocked in the following OHMIC Values:

OR1 = 950-3463 2R = 950-3889 24R = 950-3811 180R = 950-3676 1K = 950-3692  
OR12 = 950-3471 2R2 = 950-3897 27R = 950-3838 200R = 950-3773 1K2 = 950-3706  
OR15 = 950-3480 2R4 = 950-3900 33R = 950-3951 220R = 950-3781 1K5 = 950-3714  
OR18 = 950-3498 2R7 = 950-3919 30R = 950-3935 240R = 950-3803 1K8 = 950-3722  
OR2 = 950-3501 3R = 950-4010 39R = 950-3978 270R = 950-3820 2K = 950-3846  
OR27 = 950-3528 3R3 = 950-4028 43R = 950-4052 300R = 950-3927 2K2 = 950-3854  
OR22 = 950-3510 3R9 = 950-4036 47R = 950-4079 330R = 950-3943 2K4 = 950-3862  
OR33 = 950-3536 4R7 = 950-4095 50R = 950-4117 390R = 950-3960 2K7 = 950-3870  
OR39 = 950-3544 5R = 950-4184 51R = 950-4133 430R = 950-4044 3K = 950-3986  
OR47 = 950-3552 5R1 = 950-4192 56R = 950-4150 470R = 950-4060 3K3 = 950-3994  
OR5 = 950-3560 5R6 = 950-4206 62R = 950-4222 500R = 950-4109 3K9 = 950-4001  
OR51 = 950-3579 6R8 = 950-4265 68R = 950-4249 510R = 950-4125 4K7 = 950-4087  
OR56 = 950-3587 8R2 = 950-4320 75R = 950-4281 560R = 950-4141 5K1 = 950-4168  
OR68 = 950-3595 10R = 950-3625 82R = 950-4303 620R = 950-4214 5K6 = 950-4176  
1R = 950-3730 12R = 950-3641 91R = 950-4346 680R = 950-4230 6K8 = 950-4257  
1R2 = 950-3749 15R = 950-3668 100R = 950-3609 750R = 950-4273 8K2 = 950-4311  
1R5 = 950-3757 18R = 950-3684 120R = 950-3633 820R = 950-4290 10K = 950-3617  
1R8 = 950-3765 22R = 950-3790 150R = 950-3650 910R = 950-4338

Order Code	1+	25+	100+	250+	500+
Values OR1 to 1R ●	0.58	0.51	0.46	0.43	0.41
Values 1R2 to 1K5 ●	0.45	0.40	0.36	0.34	0.32
Values 1K8 to 4K7 ●	0.46	0.41	0.37	0.35	0.33
Values 5K1 to 10K ●	0.87	0.78	0.70	0.66	0.59

7 Watt – W22 Series



L=22.2, Dia.=8.0, Lead length=23 min, Lead dia.=0.8

- Fully approved to styles K BS9114-N001 and KB CECC40 201-002
- Available with BS-CECC release.

Power rating @ 25°C	7W	Voltage rating	200V
Power rating @ 70°C	6W	Operating temperature	-55°C to +350°C
Resistance tolerance	±5%	Temperature coefficient max	±75ppm/°C

Stocked in the following OHMIC Values:

OR1 = 950-4354 OR56 = 950-4460 4R7 = 950-5016 22R = 950-4737 75R = 950-5172  
OR12 = 950-4362 OR68 = 950-4478 5R = 950-5083 24R = 950-4753 82R = 950-5202  
OR15 = 950-4370 1R = 950-4656 5R1 = 950-5091 27R = 950-4770 91R = 950-5237  
OR18 = 950-4389 1R2 = 950-4664 5R6 = 950-5105 30R = 950-4869 100R = 950-4486  
OR22 = 950-4397 1R5 = 950-4672 6R8 = 950-5156 33R = 950-4885 120R = 950-4516  
OR27 = 950-4400 1R8 = 950-4680 8R2 = 950-5229 39R = 950-4915 130R = 950-4540  
OR33 = 950-4419 2R = 950-4826 10R = 950-4508 47R = 950-4990 150R = 950-4559  
OR39 = 950-4427 2R2 = 950-4834 12R = 950-4532 51R = 950-5032 180R = 950-4583  
OR47 = 950-4435 2R7 = 950-4842 15R = 950-4575 56R = 950-5059 200R = 950-4699  
OR5 = 950-4443 3R3 = 950-4966 18R = 950-4605 62R = 950-5113 220R = 950-4729  
OR51 = 950-4451 3R9 = 950-4974 20R = 950-4710 68R = 950-5130 240R = 950-4745

Vitreous Enamel Wirewound - continued

7 Watt – W22 Series - continued

270R = 950-4761	560R = 950-5040	1K8 = 950-4648	3K9 = 950-4958	9K1 = 950-5245
300R = 950-4850	680R = 950-5121	2K = 950-4788	4K7 = 950-5008	10K = 950-4494
330R = 950-4877	750R = 950-5164	2K2 = 950-4796	5K1 = 950-5067	12K = 950-4524
360R = 950-4893	820R = 950-5199	2K4 = 950-4800	5K6 = 950-5075	15K = 950-4567
390R = 950-4907	1K = 950-4613	2K7 = 950-4818	6K8 = 950-5148	18K = 950-4591
470R = 950-4982	1K2 = 950-4621	3K = 950-4923	7K5 = 950-5180	20K = 950-4702
510R = 950-5024	1K5 = 950-4630	3K3 = 950-4931	8K2 = 950-5210	

Mftrs. List No. W22 + OHMIC Value

207252

Order Code	5+	25+	100+	250+	500+
Values OR1 to 1R ●	0.64	0.55	0.47	0.44	0.42
Values 1R2 to 2K4 ●	0.55	0.48	0.42	0.39	0.37
Values 2K7 to 5K1 ●	0.68	0.58	0.50	0.47	0.44
Values 5K6 to 20K ●	0.80	0.71	0.59	0.55	0.51

10 Watt – W23 Series



L=38.1, Dia=8.0, Lead length=15 min, Lead dia=0.8

- Fully approved to styles L BS9114-N001 and LB CECC 40 201-002
- Available with BS-CECC release.

Power rating @ 25°C	10W	Voltage Rating	500V
Power rating @ 70°C	9W	Operating temperature	-55°C to +350°C
Resistance tolerance	±5%	Temperature coefficient max	±75ppm/°C

Stocked in the following OHMIC Values:

OR47 = 950-5253	15R = 950-5326	330R = 950-5423	4K7 = 950-5490
OR68 = 950-5261	22R = 950-5393	470R = 950-5466	6K8 = 950-5539
1R = 950-5350	33R = 950-5440	680R = 950-5512	10K = 950-5288
1R5 = 950-5369	47R = 950-5482	1K = 950-5334	15K = 950-5318
2R2 = 950-5415	68R = 950-5520	1K5 = 950-5342	22K = 950-5385
4R7 = 950-5504	100R = 950-5270	2K2 = 950-5407	33K = 950-5431
6R8 = 950-5547	150R = 950-5300	3K3 = 950-5458	47K = 950-5474
10R = 950-5296	220R = 950-5377		

Mftrs. List No. W23 + OHMIC Value

207178

Order Code	1+	25+	100+	250+	500+
Values OR1 to 1R ●	0.75	0.66	0.58	0.54	0.52
Values 1R2 to 2K4 ●	0.62	0.55	0.49	0.45	0.43
Values 2K7 to 5K1 ●	0.77	0.65	0.57	0.53	0.50
Values 5K6 to 20K ●	0.92	0.83	0.64	0.63	0.62
Values 22K to 47K ●	0.92	0.83	0.64	0.63	0.62

14 Watt – W24 Series



L=53.5, Dia=8.0, Lead length=30 min, Lead dia=0.88

- Fully approved to styles M BS9114-N001 and MB CECC 40 201-002
- Available with BS-CECC release.

Power rating @ 25°C	14W	Voltage rating	750V
Power rating @ 70°C	12W	Operating temperature	-55°C to +350°C
Resistance tolerance	±5%	Temperature coefficient	±75ppm/°C

Stocked in the following OHMIC Values:

OR47 = 950-5717	22R = 950-5636	470R = 950-5660	10K = 950-5571
1R = 950-5601	47R = 950-5687	1K = 950-5598	22K = 950-5628
2R = 950-5652	100R = 950-5563	2K2 = 950-5644	47K = 950-5679
4R7 = 950-5709	220R = 950-5610	4K7 = 950-5695	100K = 950-5555
10R = 950-5580			

Mftrs. List No. W24 + OHMIC Value

207177

Order Code	1+	25+	100+	250+	500+
Values 0.47R to 4.7R ●	1.07	0.97	0.87	0.66	0.62
Values 10R to 4K7 ●	0.90	0.83	0.73	0.66	0.62
Values 10K to 47K ●	1.33	1.17	0.99	0.91	0.83
100K ●	1.55	1.36	1.16	1.07	0.98

Ceramic Spacers



- High working temperature
- High voltage insulator
- Used for supporting high power components
- Suitable for bore sizes up to 2 mm (height = 5mm)
- Sold in packs of 50

388645

Order Code  
891-9275 ●

Price per pack  
1+ 3.34  
5+ 2.68

RWM 4 x 10 Series - 3 Watt



- High dissipation
- High reliability level
  - Fire proof
  - Excellent Endurance
  - Good environmental protection
  - Conformal vitreous enamel - All welded construction
- Low ohmic values

Power rating @ 25°C	3W	Voltage rating	120V
Power rating @ 70°C	2.6W	Operating temperature	-55°C to +350°C
Resistance tolerance	±5%	Temperature coefficient max	±75ppm/°C

Stocked in the following OHMIC Values:

OR1 = 110-9189	2R2 = 110-9211	47R = 110-9233	560R = 110-9256
OR12 = 110-9190	2R7 = 110-9213	51R = 110-9234	620R = 110-9257
OR15 = 110-9191	3R = 110-9214	56R = 110-9235	680R = 110-9258
OR18 = 110-9192	3R3 = 110-9215	62R = 110-9237	750R = 110-9259
OR2 = 110-9193	3R9 = 110-9216	68R = 110-9238	820R = 110-9260
OR22 = 110-9195	4R7 = 110-9217	75R = 110-9239	1K = 110-9262
OR27 = 110-9196	5R1 = 110-9218	82R = 110-9240	1K2 = 110-9263
OR33 = 110-9197	5R6 = 110-9219	91R = 110-9241	1K5 = 110-9264
OR39 = 110-9198	6R8 = 110-9220	100R = 110-9242	1K8 = 110-9265
OR47 = 110-9199	7R5 = 110-9221	120R = 110-9243	2K = 110-9266
OR5 = 110-9201	8R2 = 110-9222	150R = 110-9244	2K2 = 110-9267
OR51 = 110-9202	10R = 110-9223	180R = 110-9245	2K7 = 110-9268
OR56 = 110-9203	12R = 110-9225	200R = 110-9246	3K = 110-9269
OR68 = 110-9204	15R = 110-9226	220R = 110-9247	3K3 = 110-9270
OR82 = 110-9205	18R = 110-9227	240R = 110-9249	3K9 = 110-9271
1R = 110-9206	22R = 110-9228	270R = 110-9251	4K7 = 110-9272
1R2 = 110-9207	27R = 110-9229	330R = 110-9252	5K6 = 110-9274
1R5 = 110-9208	30R = 110-9230	390R = 110-9253	6K8 = 110-9275
1R8 = 110-9209	33R = 110-9231	470R = 110-9254	8K2 = 110-9276
2R = 110-9210	39R = 110-9232	510R = 110-9255	10K = 110-9277

423404

Order Code	5+	100+	250+	500+	1K+
Values OR1 to 4K7 ●	0.59	0.48	0.46	0.44	0.41
Values 5K6 to 10K ●	0.78	0.67	0.63	0.58	0.54

RWM 6 x 22 Series - 7 Watt



- High dissipation
- High reliability level
  - Fire proof
  - Excellent Endurance
  - Good environmental protection
  - Conformal vitreous enamel - All welded construction
- Low ohmic values

Power rating @ 25°C	7W	Voltage rating	350V
Power rating @ 70°C	6W	Operating temperature	-55°C to +350°C
Resistance tolerance	±5%	Temperature coefficient max	±75ppm/°C

Stocked in the following OHMIC Values:

OR1 = 110-9278	2R7 = 110-9299	56R = 110-9319	1K = 110-9338
OR12 = 110-9279	3R3 = 110-9300	68R = 110-9320	1K2 = 110-9341
OR18 = 110-9281	3R9 = 110-9301	82R = 110-9321	1K5 = 110-9342
OR22 = 110-9282	4R7 = 110-9302	100R = 110-9322	1K8 = 110-9343
OR27 = 110-9283	5R1 = 110-9304	120R = 110-9323	2K = 110-9344
OR33 = 110-9284	5R6 = 110-9305	150R = 110-9324	2K2 = 110-9345
OR39 = 110-9286	6R8 = 110-9306	180R = 110-9325	2K7 = 110-9346
OR47 = 110-9287	8R2 = 110-9307	200R = 110-9326	3K3 = 110-9347
OR5 = 110-9288	10R = 110-9308	220R = 110-9328	3K9 = 110-9348
OR51 = 110-9289	12R = 110-9309	270R = 110-9329	4K7 = 110-9349
OR56 = 110-9290	15R = 110-9310	300R = 110-9330	5K6 = 110-9350
OR82 = 110-9291	18R = 110-9311	330R = 110-9331	6K8 = 110-9351
1R = 110-9292	22R = 110-9312	390R = 110-9332	8K2 = 110-9353
1R2 = 110-9293	27R = 110-9313	470R = 110-9333	10K = 110-9354
1R5 = 110-9294	33R = 110-9314	560R = 110-9334	12K = 110-9355
1R8 = 110-9295	39R = 110-9316	680R = 110-9335	15K = 110-9356
2R = 110-9296	47R = 110-9317	750R = 110-9336	18K = 110-9357
2R2 = 110-9298	51R = 110-9318	820R = 110-9337	

423416

Order Code	5+	100+	250+	500+	1K+
Values OR1 to 8K2 ●	0.66	0.58	0.52	0.48	0.44
Values 10K to 18K ●	0.76	0.67	0.63	0.59	0.54

RWM 6 x 34 Series - 8 Watt



- High dissipation
- High reliability level
  - Fire proof
  - Excellent Endurance

- Good environmental protection
  - Conformal vitreous enamel - All welded construction
  - Low ohmic values
- |                      |     |                             |                 |
|----------------------|-----|-----------------------------|-----------------|
| Power rating @ 25°C  | 8W  | Voltage rating              | 500V            |
| Power rating @ 70°C  | 7W  | Operating temperature       | -55°C to +350°C |
| Resistance tolerance | ±5% | Temperature coefficient max | ±75ppm/°C       |

Stocked in the following OHMIC Values:

0R33 = 111-2034	15R = 111-2045	220R = 111-2052	3K3 = 111-2060
0R47 = 111-2035	22R = 111-2046	330R = 111-2054	4K7 = 111-2061
1R = 111-2037	33R = 111-2047	470R = 111-2055	6K8 = 111-2062
2R2 = 111-2039	47R = 111-2048	680R = 111-2056	10K = 111-2063
3R3 = 111-2040	68R = 111-2049	1K = 111-2057	15K = 111-2064
4R7 = 111-2042	100R = 111-2050	1K5 = 111-2058	22K = 111-2066
6R8 = 111-2043	150R = 111-2051	2K2 = 111-2059	33K = 111-2067
10R = 111-2044			

Order Code	5+	50+	250+	500+	1K+
Values 0R33 to 2R2 ●	0.83	0.76	0.70	0.61	0.54
Values 3R3 to 4K7 ●	0.84	0.76	0.70	0.58	0.51
Values 6K8 to 33K ●	0.90	0.75	0.72	0.64	0.59

### RWM 8 x 45 Series - 11 Watt



- High dissipation
- High reliability level
  - Fire proof
  - Excellent Endurance
  - Good environmental protection
  - Conformal vitreous enamel - All welded construction
- Low ohmic values

Power rating @ 25°C	11W	Voltage rating	650V
Power rating @ 70°C	9.5W	Operating temperature	-55°C to +350°C
Resistance tolerance	±5%	Temperature coefficient max	±75ppm/°C

Stocked in the following OHMIC Values:

0R47 = 111-2068	10R = 111-2076	220R = 111-2085	6K8 = 111-2096
0R68 = 111-2069	15R = 111-2078	330R = 111-2086	10K = 111-2097
1R = 111-2070	22R = 111-2079	680R = 111-2088	15K = 111-2098
1R5 = 111-2071	33R = 111-2080	1K = 111-2091	22K = 111-2099
2R2 = 111-2072	47R = 111-2081	1K5 = 111-2092	33K = 111-2100
3R3 = 111-2073	68R = 111-2082	3K3 = 111-2094	47K = 111-2101
4R7 = 111-2074	100R = 111-2083	4K7 = 111-2095	62K = 111-2102
6R8 = 111-2075	150R = 111-2084		

Order Code	5+	50+	250+	500+	1K+
Values 0R47 to 4R7 ●	0.91	0.81	0.77	0.73	0.71
Values 6R8 to 2K2 ●	0.97	0.91	0.86	0.80	0.78
Values 3K3 to 62K ●	1.01	0.92	0.86	0.79	0.77

### PFE Series

Powr-Rib® Edgewound ±10%



- Constructed of a heavy resistance alloy mounted on ceramic insulators and supported by a metal mounting bracket
- Edgewound design for very low resistance and high power capacity
- Edgewound units provide clamp-type terminals, permitting a reliable connection which can be moved along the resistive element to obtain intermediate values

Resistance	Maximum Current	Power Rating	Mftrs. List No.	Order Code
0.1ohm	100A	1000W	PFE5KR100E	146-2328
0.12ohm	91A	993W	PFE5KR120E	146-2329
0.14ohm	89A	1108W	PFE5KR140E	146-2330
0.16ohm	78A	973W	PFE5KR160E	146-2331
0.18ohm	75A	1012W	PFE5KR180E	146-2332
0.25ohm	63A	992W	PFE5KR250E	146-2333
0.33ohm	54A	962W	PFE5KR330E	146-2334
0.5ohm	47A	1104W	PFE5KR500E	146-2335
0.75ohm	39A	1140W	PFE5KR750E	146-2336
1ohm	33A	1089W	PFE5K1R00E	146-2338
1.6ohm	26A	1081W	PFE5K1R60E	146-2339
2.8ohm	16.3A	743W	PFE5K2R80E	146-2340
3.5ohm	14.6A	746W	PFE5K3R50E	146-2341
4.5ohm	12.7A	725W	PFE5K4R50E	146-2342
5.4ohm	11.8A	751W	PFE5K5R40E	146-2343
6.8ohm	10.3A	721W	PFE5K6R80E	146-2344
8.5ohm	9.4A	751W	PFE5K8R50E	146-2345

Stocked in the following OHMIC Values:

Resistance	Order Code	1+	3+	5+
0.1ohm	146-2328●	152.98	140.89	129.99
0.12ohm	146-2329●	175.67	161.79	149.27
0.14ohm	146-2330●	118.99	109.58	101.10
0.16ohm	146-2331●	101.98	93.94	86.66
0.18ohm	146-2332●	95.52	87.98	81.17
0.25ohm	146-2333●	116.56	107.35	99.05
0.33ohm	146-2334●	101.98	93.94	86.66
0.5ohm	146-2335●	114.94	105.86	97.68
0.75ohm	146-2336●	96.33	88.72	81.85
1ohm	146-2338●	84.18	77.53	71.53
1.6ohm	146-2339●	68.81	63.38	58.47



Resistance	Order Code	1+	3+	5+
2.8ohm	146-2340●	59.10	54.42	50.21
3.5ohm	146-2341●	56.66	52.19	48.15
4.5ohm	146-2342●	95.52	87.98	81.17
5.4ohm	146-2343●	86.13	79.33	73.18
6.8ohm	146-2344●	83.37	76.79	70.85
8.5ohm	146-2345●	81.75	75.30	69.47

### 250 Series

'Thin' Stackohm® Vitreous Enamel Power



Power	Dia.	Length
10W	9.525mm	19.05mm
20W	9.525mm	50.8mm
30W	25.4mm	31.75mm
40W	25.4mm	50.8mm
55W	25.4mm	88.9mm



Operating Temperature	+25°C to +350°C	Temperature Coefficient	≤20R ±400ppm/°C
Tolerance	±5%		≥20R ±260ppm/°C

- Ideal when limited space is a consideration
- Equipped with integral mounting brackets so they can be fastened to a chassis and stacked in locations with limited surface area
- When properly fastened, the mounting brackets add a heat sinking benefit resulting in a smaller size per watt
- Durable 250 Type resistors are fully welded and coated with lead free vitreous enamel

### 10W — 187V

Stocked in the following OHMIC Values

5R = 163-3837	100R = 163-3838	200R = 163-3839
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Order Multiple=1	Order Code	1+	10+	Price Each	50+	100+	500+
F10J5ROE	163-3837●	6.39	5.87	5.07	4.47	4.06	
F10J10OE	163-3838●	6.09	5.61	4.84	4.26	3.87	
F10J20OE	163-3839●	6.09	5.61	4.84	4.26	3.87	

### 20W — 815V

Stocked in the following OHMIC Values

5R = 163-3840	10R = 163-3841	25R = 163-3842	250R = 163-3844
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Order Multiple=1	Order Code	1+	10+	Price Each	50+	100+	500+
Mftrs. List No.							
F20J5ROE	163-3840●	8.24	7.59	6.56	5.77	5.24	
F20J10RE	163-3841●	7.51	6.91	5.98	5.26	4.78	
F20J25RE	163-3842●	7.51	6.91	5.98	5.26	4.78	
F20J25OE	163-3844●	6.97	6.42	5.54	4.88	4.43	

### 30W — 281V

Stocked in the following OHMIC Values

1R = 163-3845	15R = 163-3847	25R = 163-3848	150R = 163-3849	1K = 163-3850
5R = 163-3846				

Order Multiple=1	Order Code	1+	10+	Price Each	50+	100+	500+
Mftrs. List No.							
F30J1ROE	163-3845●	9.97	9.10	7.93	6.98	6.34	
F30J5ROE	163-3846●	9.97	9.10	7.93	6.98	6.34	
F30J15RE	163-3847●	9.97	9.10	7.93	6.98	6.34	
F30J25RE	163-3848●	9.97	9.10	7.93	6.98	6.34	
F30J15OE	163-3849●	10.10	9.30	7.99	7.07	6.43	
F30J1KOE	163-3850●	10.10	9.30	7.99	7.07	6.43	

### 40W — 655V

Stocked in the following OHMIC Values

5R = 163-3851	50R = 163-3853	500R = 163-3856	1K = 163-3857	10K = 163-3858
25R = 163-3852	100R = 163-3854			

Order Multiple=1	Order Code	1+	10+	Price Each	50+	100+	500+
Mftrs. List No.							
F40J5ROE	163-3851●	10.25	9.44	8.16	7.18	6.52	
F40J25RE	163-3852●	10.21	9.41	8.12	7.15	6.50	
F40J50RE	163-3853●	10.21	9.41	8.12	7.15	6.50	
F40J100E	163-3854●	10.21	9.41	8.12	7.15	6.50	
F40J500E	163-3856●	10.21	9.41	8.12	7.15	6.50	
F40J1KOE	163-3857●	10.21	9.41	8.12	7.15	6.50	
F40J10KE	163-3858●	10.48	9.65	8.34	7.33	6.67	

### 55W — 1405V

Stocked in the following OHMIC Values

1R5 = 163-3859	10R = 163-3861	50R = 163-3863	2K5 = 163-3865	20K = 163-3866
5R = 163-3860	25R = 163-3862	100R = 163-3864		

Order Multiple=1	Order Code	1+	10+	Price Each	50+	100+	500+
Mftrs. List No.							
F55J1R5E	163-3859●	12.81	11.80	10.19	8.97	8.16	
F55J5ROE	163-3860●	12.26	11.29	9.75	8.58	7.80	
F55J10RE	163-3861●	11.70	10.77	9.31	8.19	7.45	
F55J25RE	163-3862●	11.70	10.77	9.31	8.19	7.45	
F55J50RE	163-3863●	11.70	10.77	9.31	8.19	7.45	
F55J100E	163-3864●	11.98	11.04	9.53	8.39	7.62	
F55J2K5E	163-3865●	11.98	11.04	9.53	8.39	7.62	
F55J20KE	163-3866●	13.36	12.29	10.62	9.35	8.50	



Vitreous Enamel Wirewound - continued

Fixed Wirewound Power Resistors



25W L=50.8, Dia. external =14.3, Dia. external = 7.95  
50W L=101.6, Dia. external =14.3, Dia. external = 7.95

- All welded construction
  - Flame resistant coating
  - High wattage applications
  - Rugged vitreous enamel coating
  - Terminals suitable for soldering or bolt connections
- Overload power rating 10xPr for 5 secs  
Resistance tolerance ±5%  
Limiting element voltage 1000 V rms
- Temperature coefficient 1 - 20Ω = ±400ppm/°C  
>20Ω = ±260ppm/°C  
Operating temperature -55°C to +350°C

25 Watt

Stocked in the following OHMIC Values :  
5R = 130-6654 25R = 130-6652 50R = 130-6651 100R = 130-6650  
10R = 130-6651

50 Watt

Stocked in the following OHMIC Values :  
1R = 130-6657 25R = 130-6660 100R = 130-6663  
5R = 130-6658 50R = 130-6661 1K = 130-6664  
10R = 130-6659

Power Rating	Order Code	Price Each			
		1+	10+	50+	100+
25W	All Values ●	1.65	1.59	1.54	1.48
50W	All Values ●	2.29	2.20	2.12	1.99
Accessories	Order Code	2+	6+		
Mounting Bracket	130-6665 ●	39.05	34.15		

451900

72 Watt – RW Series



L = 117, Dia = 23

- Tubular ceramic vitreous enamel coated wirewound resistors
- High power rating
- Meet NF C 93-214 specifications
- High mechanical strength and endurance
- AN collar connections

Power rating @ 25°C 80W  
Resistance tolerance ±5%  
Temperature coefficient ±75ppm/°C

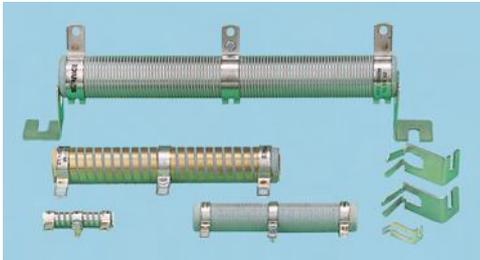
Limiting element voltage 1100V rms  
Operating temperature -55°C to +450°C

Stocked in the following OHMIC Values:  
4R7 = 114-1251 47R = 114-1253 470R = 114-1255 4K7 = 114-1257  
10R = 114-1252 100R = 114-1254 1K = 114-1256 10K = 114-1258

207332

Order Code	1+	10+	Price Each		
			50+	100+	500+
Values 4R7 to 4K7 ●	11.71	9.95	9.37	8.83	8.36
Values 10K ●	12.88	10.95	9.37	9.09	8.82
Order Multiple=2	2+	10+	24+	50+	100+
2EHN Mtg bracket	121-3372 ●	2.45	2.28	2.14	2.11

Adjustable 25, 100, 200 & 280 Watt – RSSD Series



25W L=50, Dia.=11.5  
100W L=117, Dia.=22  
200W L=168, Dia.=27  
280W L=250, Dia.=32

- Tubular ceramic vitreous cement coated wirewound resistors
- Tapped via adjustable collar
- Designed to withstand severe stop/start overloads
- High power rating
- High mechanical strength and endurance
- AN collar connections
- Mounting brackets available separately

25 Watt

Power rating (Pr) @ 25°C 25W  
Resistance tolerance ≥ OR15 ±20%  
≥ 1R ±10%  
≥ 10R ±5%

Overload power rating 10xPr for 5 secs  
Temperature coefficient ±75ppm/°C  
Operating temperature -55°C to +450°C

Stocked in the following OHMIC Values :  
OR47 = 114-1280 5R6 = 114-1282 10R = 114-1283 22R = 114-1285  
1R = 114-1281

100 Watt

Power rating @ 25°C 100W  
Resistance tolerance ≥ OR15 ±20%  
≥ 4R7 ±10%  
≥ 10R ±5%

Overload power rating 10xPr for 5 secs  
Temperature coefficient ±75ppm/°C  
Operating temperature -55°C to +450°C

Stocked in the following OHMIC Values :

1R = 114-1286 10R = 114-1288 47R = 114-1290 100R = 114-1291  
4R7 = 114-1287 22R = 114-1289

Order Code	1+	10+	Price Each		
			25+	50+	100+
Value 1R ●	16.89	15.40	14.41	13.29	12.07
Values 4R7 to 100R ●	11.85	10.81	10.11	9.32	8.47
Order Multiple=2	2+	10+	24+	50+	100+
2EKN Mtg bracket	121-3359 ●	2.41	2.26	2.17	1.84

200 Watt

Power rating @ 25°C 200W  
Resistance tolerance ≥ 1R ±10%  
≥ 10R ±5%

Overload power rating 10xPr for 5 secs  
Temperature coefficient ±75ppm/°C  
Operating temperature -55°C to +450°C

Stocked in the following OHMIC Values :

1R = 114-1292 10R = 114-1294 47R = 114-1297 220R = 114-1299  
4R7 = 114-1293 22R = 114-1295 100R = 114-1298

Order Code	1+	10+	Price Each		
			25+	50+	100+
Value 1R ●	24.56	22.41	20.97	18.66	17.66
Values 4R7 to 200R ●	15.46	14.11	13.20	10.41	9.48
Order Multiple=2	2+	10+	24+	50+	100+
2EMN Mtg bracket	121-3360 ●	3.49	3.28	3.15	2.67

280 Watt

Power rating @ 25°C 280W  
Resistance tolerance ≥ OR47 ±10%  
≥ 10R ±5%

Overload power rating 10xPr for 5 secs  
Temperature coefficient ±75ppm/°C  
Operating temperature -55°C to +450°C

Stocked in the following OHMIC Values :

OR47 = 114-1300 10R = 114-1303 47R = 114-1305 330R = 114-1307  
4R7 = 114-1301 22R = 114-1304 100R = 114-1306

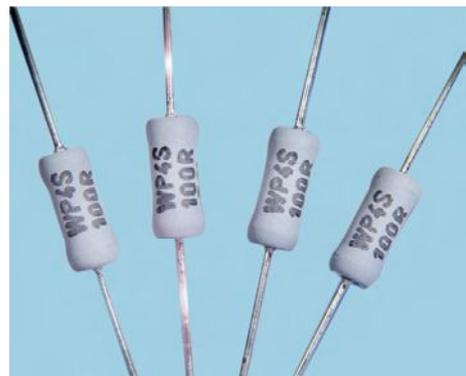
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Order Code	1+	10+	Price Each		
			25+	50+	100+
Value 1R ●	28.96	25.78	24.05	23.23	22.47
Values 4R7 to 330R ●	23.96	21.86	20.46	18.85	17.13
Order Multiple=2	2+	10+	24+	50+	100+
2ESN Mtg bracket	121-3361 ●	3.95	3.56	3.41	2.89

Cement Coated Wirewound

WP-S Series

2W WP2S & 4W WP4S



Supplied bandioliered on tape (WP2S box = 2500 pcs, WP4S = 2000 pcs)

- Flameproof wirewound power resistors
- Enhanced pulse handling capability
- Small size for power rating

	Power rating @ 25°C	5s overload rating @ 25°C	Body Length (mm)	Body ∅ (mm)	Lead Length (mm)	Lead ∅ (mm)
WP2S	2W	10W	9	3.6	19.8	0.8
WP4S	4W	20W	13	5.6	22.75	0.8

Operating temperature range -55°C to +155°C  
Resistance tolerance ±5%  
Temperature coefficient <1ohm = 200ppm/°C  
≥1ohm = 200ppm/°C

Stocked in the following OHMIC Values:

WP2S Series

OR1 = 121-9186 OR27 = 121-9191 OR68 = 121-9197 1R8 = 121-9203 4R7 = 121-9208  
OR12 = 121-9187 OR33 = 121-9192 OR82 = 121-9198 2R2 = 121-9204 5R6 = 121-9209  
OR15 = 121-9188 OR39 = 121-9193 1R = 121-9199 2R7 = 121-9205 6R8 = 121-9210  
OR18 = 121-9189 OR47 = 121-9195 1R2 = 121-9201 3R3 = 121-9206 8R2 = 121-9211  
OR22 = 121-9190 OR56 = 121-9196 1R5 = 121-9202 3R9 = 121-9207 10R = 121-9213

12R = 121-9214	33R = 121-9219	82R = 121-9225	180R = 121-9229	470R = 121-9233
15R = 121-9215	39R = 121-9220	100R = 121-9226	220R = 121-9230	560R = 121-9234
18R = 121-9216	47R = 121-9221	120R = 121-9227	330R = 121-9231	680R = 121-9235
22R = 121-9217	56R = 121-9222	150R = 121-9228	390R = 121-9232	820R = 121-9237
27R = 121-9218	68R = 121-9223			

**WP4S Series**

OR1 = 121-9238	1R = 121-9252	10R = 121-9265	100R = 121-9278	1K2 = 121-9291
OR12 = 121-9239	1R2 = 121-9253	12R = 121-9266	120R = 121-9279	1K5 = 121-9292
OR15 = 121-9240	1R5 = 121-9254	15R = 121-9267	150R = 121-9280	1K8 = 121-9293
OR18 = 121-9241	1R8 = 121-9255	18R = 121-9268	180R = 121-9281	2K2 = 121-9294
OR22 = 121-9242	2R2 = 121-9256	22R = 121-9269	220R = 121-9282	2K7 = 121-9295
OR27 = 121-9243	2R7 = 121-9257	27R = 121-9270	330R = 121-9283	3K2 = 121-9296
OR33 = 121-9244	3R3 = 121-9258	33R = 121-9271	390R = 121-9284	3K9 = 121-9298
OR39 = 121-9245	3R9 = 121-9259	39R = 121-9272	470R = 121-9286	4K7 = 121-9299
OR47 = 121-9246	4R7 = 121-9260	47R = 121-9274	560R = 121-9287	5K6 = 121-9300
OR56 = 121-9247	5R6 = 121-9262	56R = 121-9275	680R = 121-9288	6K8 = 121-9301
OR68 = 121-9249	6R8 = 121-9263	68R = 121-9276	820R = 121-9289	8K2 = 121-9302
OR82 = 121-9251	8R2 = 121-9264	82R = 121-9277	1K = 121-9290	10K = 121-9304

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<b>Order Multiple=5</b>	<b>Order Code</b>	<b>5+</b>	<b>100+</b>	<b>250+</b>	<b>500+</b>	<b>2K5+</b>
<b>WP2S Series</b>	<b>Values 0.1ohm to 330ohm ●</b>	0.200	0.146	0.117	0.090	0.070
	<b>Values 390ohm to 820ohm ●</b>	0.240	0.180	0.145	0.113	0.090
	<b>Order Code</b>	<b>5+</b>	<b>100+</b>	<b>250+</b>	<b>500+</b>	<b>1K+</b>
<b>WP4S Series</b>	<b>Values 0.1ohm to 1K2 ●</b>	0.350	0.250	0.210	0.180	0.154
	<b>Values 1K5 to 10K ●</b>	0.460	0.360	0.310	0.250	0.200

**3 Watt – WA84 Series**



L = 14.5, Dia. = 5.2, Lead length = 24.55 min, Lead dia. = 0.8  
Supplied bandoliered on tape (box = 1000 pcs)

- Cement coated wirewound resistors
- Suitable for pulse handling applications
- Non-flammable

Power rating @ 25°C	3W	Limiting element voltage	100V
Power rating @ 70°C	2.5W	Temperature coefficient	200ppm/°C
Resistance tolerance	±5%		

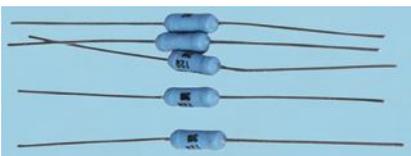
Stocked in the following OHMIC Values:

1R = 950-6012	4R7 = 950-6209	22R = 950-6063	100R = 950-5890	470R = 950-6187
1R2 = 950-6020	5R6 = 950-6233	27R = 950-6080	120R = 950-5911	560R = 950-6217
1R5 = 950-6039	6R8 = 950-6268	33R = 950-6136	150R = 950-5938	680R = 950-6241
1R8 = 950-6047	8R2 = 950-6306	39R = 950-6152	180R = 950-5954	820R = 950-6276
2R2 = 950-6101	10R = 950-5903	47R = 950-6195	220R = 950-6055	1K = 950-5970
2R7 = 950-6110	12R = 950-5920	56R = 950-6225	270R = 950-6071	1K2 = 950-5989
3R3 = 950-6160	15R = 950-5946	68R = 950-6250	330R = 950-6128	1K5 = 950-5997
3R9 = 950-6179	18R = 950-5962	82R = 950-6292	390R = 950-6144	2K2 = 950-6098

227213

<b>Order Multiple=5</b>	<b>Order Code</b>	<b>5+</b>	<b>25+</b>	<b>100+</b>	<b>500+</b>	<b>1K+</b>
<b>All Values ●</b>		0.310	0.270	0.240	0.200	0.168

**Moulded Silicone Axial Wirewound Resistors**



1W - L = 11.1, Dia. = 3.18, Lead length = 38.1, Lead dia. = 0.5  
3W - L = 15.06, Dia. = 5.54, Lead length = 38.1, Lead dia. = 0.8  
5W - L = 23.08, Dia. = 8.71, Lead length = 38.1, Lead dia. = 1

- Economical
- All welded construction
- Stable under high temperature conditions
- Applications include commercial, industrial and communications equipment

Temperature coefficient	<1Ω: ±90ppm/°C	Overload power rating	1 + 3W = 5xPr for 5 secs
	1Ω to 9.99Ω: ±50ppm/°C		5W = 10xPr for 5 secs
	≥10Ω: ±20ppm/°C	Operating temperature	-55°C to + 275°C
Tolerance	±1%		

**1W**

Stocked in the following OHMIC Values

OR1 = 130-6666	OR15 = 130-6668	OR33 = 130-6669	OR5 = 130-6670	1R = 130-6671
OR13 = 130-6667				

<b>Order Code</b>	<b>1+</b>	<b>10+</b>	<b>100+</b>	<b>250+</b>	<b>500+</b>
<b>All Values ●</b>	0.89	0.84	0.79	0.75	0.71

**3W**

Stocked in the following OHMIC Values

2R = 130-6672	5R = 130-6676	20R = 130-6679
3R = 130-6673	10R = 130-6677	25R = 130-6680
4R = 130-6675	15R = 130-6678	

<b>Order Code</b>	<b>1+</b>	<b>10+</b>	<b>100+</b>	<b>250+</b>	<b>500+</b>
<b>All Values ●</b>	0.94	0.91	0.89	0.85	0.82

**5W**

Stocked in the following OHMIC Values

33R = 130-6681	50R = 130-6683	250R = 130-6685
40R = 130-6682	100R = 130-6684	500R = 130-6687

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<b>Order Code</b>	<b>1+</b>	<b>10+</b>	<b>100+</b>	<b>250+</b>	<b>500+</b>
<b>All Values ●</b>	0.90	0.85	0.80	0.76	0.72

**Ceramic Cased Wirewound**

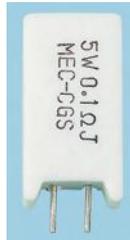
A completely fire-proof ceramic cased resistor, the resistance wire being wound on a fibre glass core and end filled with fire-proof inorganic material. Suitable for either conventional or PCB mounting. The maximum working voltage is  $\sqrt{P \times R}$ , where P=Power Rating and R=Resistance

207165

**5 Watt-SQM5 Series – Vertical Mounting**



**Wirewound and Power Oxide Element**



- Vertical mounting, wirewound or power oxide
- Compact size for PCB space saving
- Low values available for current sensing applications

Power rating @ 70°C	5W
Maximum working voltage	350V
Resistance tolerance	±5%
Operating temperature	-55°C to +275°C
Temperature coefficient	300ppm/°C max.

H=26.5, W=14, D=10,  
Lead length (usable)=3.5, Lead pitch=5, Lead dia.=0.8

Stocked in the following OHMIC Values:

**Wirewound Element**

OR1 = 987-487	1R = 987-530	6R8 = 987-578	33R = 987-610	100R = 987-645
OR22 = 987-499	2R2 = 987-542	10R = 987-580	47R = 987-621	130R = 987-657
OR33 = 987-505	3R3 = 987-554	15R = 987-591	68R = 987-633	150R = 987-669
OR47 = 987-517	4R7 = 987-566	22R = 987-608		

**Power Oxide Element**

220R = 987-670	1K = 987-700	4K7 = 987-736	15K = 987-761	33K = 987-785
470R = 987-682	1K5 = 987-712	6K8 = 987-748	22K = 987-773	47K = 987-797
680R = 987-694	2K2 = 987-724	10K = 987-750		

Mfrs. List No. SQM5 + OHMIC Value

207271

<b>Order Multiple=5</b>	<b>Order Code</b>	<b>5+</b>	<b>50+</b>	<b>100+</b>	<b>500+</b>	<b>1K+</b>
<b>All Values ●</b>		0.41	0.37	0.33	0.29	0.27

**SQM5 Series - 5 Watt**



**Wirewound and Metal Oxide Element**



A high purity ceramic rod, with force fit end caps onto which is wound a wire element: or a deposited metal oxide film (depending on value). The element is fitted into a ceramic case with fireproof insulation cement.



Power Rating	5W
Voltage Rating	350V
Resistance Tolerance	±5%
Operating Temperature	-55°C to +155°C

Stocked in the following OHMIC Values:

**Wirewound Element**

OR1 = 168-7933	OR47 = 168-7936	3R3 = 168-7939	10R = 168-7942	33R = 168-7946
OR22 = 168-7934	1R = 168-7937	4R7 = 168-7940	15R = 168-7944	47R = 168-7947
OR33 = 168-7935	2R2 = 168-7938	6R8 = 168-7941	22R = 168-7945	

**Metal Oxide Element**

68R = 168-7948	220R = 168-7952	1K5 = 168-7957	6K8 = 168-7960	22K = 168-7963
100R = 168-7949	470R = 168-7953	2K2 = 168-7958	10K = 168-7961	33K = 168-7964
130R = 168-7950	680R = 168-7954	4K7 = 168-7959	15K = 168-7962	47K = 168-7965
150R = 168-7951	1K = 168-7956			

Mfrs. List No. SQM5 + OHMIC Value

528894

<b>Order Multiple=5</b>	<b>Order Code</b>	<b>5+</b>	<b>50+</b>	<b>100+</b>	<b>500+</b>	<b>1K+</b>
<b>All Values ●</b>		0.33	0.29	0.25	0.22	0.18



Ceramic Cased Wirewound - continued

7 Watt-SQM7 Series – Vertical Mounting



Wirewound and Power Oxide Element



- Vertical mounting, wirewound or power oxide
- Compact size for PCB space saver
- Low values available for current sensing applications

Power rating @ 70°C	7W
Maximum working voltage	500V
Operating temperature	-55°C to +275°C
Resistance tolerance	±5%
Temperature coefficient	300ppm/°C max

H=40, W=14, D=10, Lead length (usable)=3.5, Lead pitch=5, Lead dia.=0.8

Stocked in the following OHMIC Values:

Wirewound Element

OR1 = 987-803	1R = 987-852	6R8 = 987-890	33R = 987-931	100R = 987-967
OR22 = 987-815	2R2 = 987-864	10R = 987-906	47R = 987-943	130R = 987-979
OR33 = 987-827	3R3 = 987-876	15R = 987-918	68R = 987-955	150R = 987-980
OR68 = 987-840	4R7 = 987-888	22R = 987-920		

Power Oxide Element

220R = 987-992	1K = 988-029	6K8 = 988-066	15K = 988-080	33K = 988-108
470R = 988-005	2K2 = 988-042	10K = 988-078	22K = 988-091	47K = 988-110
680R = 988-017	4K7 = 988-054			

Mftrs. List No. SQM7 + OHMIC Value

207272

Order Multiple=5				
Order Code	5+	50+	100+	500+
All Values ●	0.43	0.39	0.34	0.30

SQM7 Series - 7 Watt



Wirewound and Metal Oxide Element



A high purity ceramic rod, with force fit end caps onto which is wound a wire element; or a deposited metal oxide film (depending on value). The element is fitted into a ceramic case with fireproof insulation cement.



Power Rating	7W
Voltage Rating	500V
Resistance Tolerance	±5%
Operating Temperature	-55°C to +155°C

Stocked in the following OHMIC Values:

Wirewound Element

OR1 = 168-7966	2R2 = 168-7972	10R = 168-7976	47R = 168-7982	150R = 168-7986
OR2 = 168-7968	3R3 = 168-7973	15R = 168-7977	68R = 168-7983	220R = 168-7987
OR33 = 168-7969	4R7 = 168-7974	22R = 168-7978	100R = 168-7984	470R = 168-7988
OR47 = 168-7970	6R8 = 168-7975	33R = 168-7981	130R = 168-7985	680R = 168-7989
	1R = 168-7971			

Metal Oxide Element

1K = 168-7990	2K2 = 168-7993	6K8 = 168-7995	15K = 168-7997	33K = 168-7999
1K5 = 168-7991	4K7 = 168-7994	10K = 168-7996	22K = 168-7998	47K = 168-8000

Mftrs. List No. SQM7 + OHMIC Value

528895

Order Multiple=5				
Order Code	5+	50+	100+	500+
All Values ●	0.35	0.31	0.27	0.24

SQP Series - 7 Watt



- Wirewound metal oxide resistors in a ceramic case
- High overload capability

L=26, W=10, D=10, Lead length = 35. Lead dia=0.75

Power rating @70°C	7W	Temperature Coefficient	≤0.47Ω = ±200ppm/°C
Resistance Tolerance	±5%		≥0.68Ω = ±200ppm/°C
	-55°C to +155°C	Limiting Element Voltage	350W

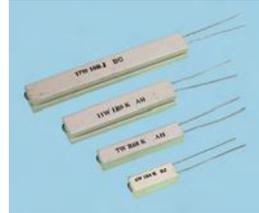
Stocked in the following OHMIC values:

OR1 = 129-2512	1R5 = 129-2520	6R8 = 129-2529	33R = 129-2538
OR22 = 129-2513	1R8 = 129-2521	8R2 = 129-2530	39R = 129-2539
OR33 = 129-2514	2R2 = 129-2522	10R = 129-2531	47R = 129-2540
OR47 = 129-2515	2R7 = 129-2524	12R = 129-2532	56R = 129-2541
OR69 = 129-2516	3R3 = 129-2525	15R = 129-2533	68R = 129-2542
OR82 = 129-2517	3R9 = 129-2526	18R = 129-2534	82R = 129-2543
1R = 129-2518	4R7 = 129-2527	22R = 129-2536	100R = 129-2544
1R2 = 129-2519	5R6 = 129-2528	27R = 129-2537	

451984

Order Code	5+	25+	100+	500+	1K+
All Values ●	0.270	0.250	0.220	0.200	0.181

SBCHE Series — Ceramic Case



- Suitable for vertical and horizontal mounting
- Axial leads

4 Watt: L=20 (10K=25), W=7.3, D=8.1, Lead Dia=0.8  
 7 Watt: L=38, W=7.0, D=8.0, Lead Dia=0.8  
 11 Watt: L=50, W=9.0, D=10.0, Lead Dia=0.8  
 17 Watt: L=75, W=9.3, D=10.3, Lead Dia=0.8

4 Watt - SBCHE4 Series

Power rating	4W @ 25°C	Temperature coefficient	<22R ±400ppm/°C
Note 10K	5W @ 25°C		>18R ± 200 ppm/°C
Resistance tolerance	<4.7ohm ±10%	Operating temperature	-55°C to +250°C
	>6.8R ±5%		

Stocked in the following OHMIC Values:

1R = 117-4321	6R8 = 117-4326	47R = 117-4330	330R = 117-4336	2K2 = 117-4341
1R5 = 117-4322	10R = 117-4327	68R = 117-4331	470R = 117-4337	3K3 = 117-4342
2R2 = 117-4323	15R = 117-4328	100R = 117-4333	680R = 117-4338	4K7 = 117-4343
3R3 = 117-4324	22R = 117-4442	150R = 117-4334	1K = 117-4339	6K8 = 117-4345
4R7 = 117-4325	33R = 117-4329	220R = 117-4335	1K5 = 117-4340	10K = 117-4346

207248

4 Watt

Order Multiple=5				
Order Code	5+	50+	100+	500+
Values 1R to 1K ●	0.30	0.29	0.28	0.27
Values 1K5 to 10K ●	0.26	0.24	0.23	0.22

7 Watt – SBCHE6 Series

Power rating	7W @ 25°C	Temperature coefficient	<22ohm ±400ppm/°C
Resistance tolerance	<5R6 ±10%		>18ohm ±400ppm/°C
	>6R8 ±5%		

Stocked in the following OHMIC Values:

OR47 = 117-4347	4R7 = 117-4360	39R = 117-4373	330R = 117-4385	3K9 = 117-4398
OR56 = 117-4348	5R6 = 117-4361	47R = 117-4374	470R = 117-4387	4K7 = 117-4399
OR68 = 117-4349	6R8 = 117-4362	56R = 117-4375	560R = 117-4388	5K6 = 117-4402
1R = 117-4351	8R2 = 117-4363	68R = 117-4376	680R = 117-4389	6K8 = 117-4404
1R2 = 117-4352	10R = 117-4364	82R = 117-4377	1K = 117-4390	8K2 = 117-4405
1R5 = 117-4353	12R = 117-4365	100R = 117-4378	1K2 = 117-4391	10K = 117-4406
1R8 = 117-4354	15R = 117-4366	120R = 117-4379	1K5 = 117-4392	12K = 117-4407
2R2 = 117-4355	18R = 117-4367	150R = 117-4380	1K8 = 117-4394	15K = 117-4408
2R7 = 117-4357	22R = 117-4369	180R = 117-4382	2K2 = 117-4395	18K = 117-4409
3R3 = 117-4358	27R = 117-4371	220R = 117-4383	2K7 = 117-4396	22K = 117-4410
3R9 = 117-4359	33R = 117-4372	270R = 117-4384	3K3 = 117-4397	

207247

7 Watt

Order Multiple=5				
Order Code	5+	50+	100+	500+
Values R47 to 1K ●	0.38	0.36	0.34	0.33
Values 1K to 22K ●	0.23	0.22	0.21	0.20

11 Watt – SBCHE11 Series

Power rating	11W @ 25°C	Temperature coefficient	<22ohm 200ppm/°C
Resistance tolerance	<4.7 10%		>18ohm 400ppm/°C
	>6.8 5%		

Stocked in the following OHMIC Values:

1R = 117-4412	10R = 117-4419	100R = 117-4426	680R = 117-4431	4K7 = 117-4437
1R5 = 117-4413	15R = 117-4420	150R = 117-4427	1K = 117-4432	6K8 = 117-4438
2R2 = 117-4414	22R = 117-4421	220R = 117-4428	1K5 = 117-4433	10K = 117-4439
3R3 = 117-4416	33R = 117-4422	330R = 117-4429	2K2 = 117-4434	15K = 117-4440
4R7 = 117-4417	47R = 117-4424	470R = 117-4430	3K3 = 117-4436	22K = 117-4441
6R8 = 117-4418	68R = 117-4425			

207251

11 Watt

Order Code	5+	50+	100+	500+
Values 1R to 1K ●	0.37	0.35	0.33	0.32
Values 1K5 to 22K ●	0.39	0.37	0.35	0.34





### Aluminium Clad Wirewound - continued

#### 75 Watt – THS75 Series NEW - continued

68R = 125-9488	180R = 125-9496	500R = 125-9502	2K2 = 125-9510	10K = 125-9515
75R = 125-9491	220R = 125-9497	560R = 125-9503	3K3 = 125-9511	22K = 125-9516
82R = 125-9492	270R = 125-9498	680R = 125-9504	4K7 = 125-9512	33K = 125-9517
100R = 125-9493	330R = 125-9499	820R = 125-9505	5K6 = 125-9513	47K = 125-9518
120R = 125-9494	390R = 125-9500	1K = 125-9506	6K8 = 125-9514	50K = 125-9521
150R = 125-9495	470R = 125-9501	1K5 = 125-9509		

Order Code	1+	20+	100+	200+	500+
All Values ●	1.89	1.64	1.56	1.46	1.35

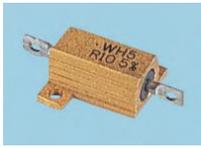
#### 75 Watt – THS75 Series NEW

Power rating @ 25°C	75W	Insulation resistance	10000MΩ
with heatsink	40W	Voltage rating	1400V a.c.
without heatsink		Operating temperature	-25°C to +190°C
Resistance tolerance	±±5%		
Temperature coefficient	±50ppm/°C		
	>100R ±30ppm/°C		

OR47 = 161-9302	6R8 = 161-9307	47R = 161-9311	150R = 161-9314	470R = 161-9318
2R2 = 161-9303	10R = 161-9308	82R = 161-9312	220R = 161-9315	510R = 161-9319
3R3 = 161-9304	22R = 161-9309	100R = 161-9313	330R = 161-9316	680R = 161-9320
4R7 = 161-9306	33R = 161-9310			

Order Code	1+	20+	50+	100+	500+
NEW All Values ●	4.58	3.94	3.68	3.25	2.98

### WH Series



WH5



WH50

WH series aluminium clad resistors for applications where high wattage dissipation in a small space is required. The housing is hard anodised aluminium with terminals of solder coated copper.

The resistive element of tape or wire is wound on a high grade ceramic former and welded to axial terminations. The assembly is encapsulated in an anodised aluminium heat sink, which ensures good heat dispersal and a low hot-spot temperature. Power ratings specified derate linearly from full load at 20°C to zero at 200°C.

- Hard anodised aluminum clad wirewound resistors
- Complete environmental protection
- Manufactured to exacting standard CECC 40203-006
- 100% measurement of value
- Lot release testing of overload performance, isolation resistance and solderability
- Full stability testing
- 12 hour stabilisation burn-in

The WH series maximises the capability to withstand short, high energy pulses and overloads by using a physically larger resistor element than other similar products.

Dimensions:

**WH5** H=9, W=8.9, L=17 (Body) Fixing centres=12.5 x 11.3, Termination L=6.3  
**WH10** H=11, W=12.4, L=21 (Body) Fixing centres=15.9 x 14.3, Termination L=7.4  
**WH25** H=15, W=14.5, L=29 (Body) Fixing centres=19.9 x 18.3, Termination L=10.4  
**WH50** H=17, W=16.1, L=51 (Body) Fixing centres=21.5 x 39.7, Termination L=10.4

#### 10 Watt – WH5 Series

Power rating @ 20°C	10W	Insulation resistance	10000MΩ
with heatsink	5.5W	Surface temperature rise (°C/Watt)	22.2
without heatsink		Voltage rating	160V ac
Tolerance	±5%	Operating temperature	-55°C to +275°C
Temperature coefficient	±75ppm/°C(<10Ω)		
	±50ppm/°C(≥10Ω)		

Stocked in the following OHMIC Values:

OR1 = 950-7698	3R3 = 950-7914	47R = 950-7949	270R = 950-7833
OR3 = 950-7701	4R7 = 950-7957	50R = 950-7965	330R = 950-7884
OR33 = 950-8023	6R8 = 950-8015	56R = 950-7981	1K5 = 950-7787
OR47 = 950-7710	10R = 950-7744	68R = 950-8007	2K2 = 950-7850
OR68 = 950-7728	15R = 950-7779	100R = 950-7736	680R = 950-7990
1R = 950-7795	22R = 950-7825	120R = 950-7752	560R = 950-7973
1R5 = 950-7809	27R = 950-7841	150R = 950-7760	3K3 = 950-7906
2R2 = 950-7868	33R = 950-7892	220R = 950-7817	470R = 950-7930
2R7 = 950-7876	43R = 950-7922		

Order Code	1+	20+	50+	100+	500+
Values OR1 to 680R ●	1.49	1.41	1.31	1.03	0.97
Values 1K5 to 3K3 ●	1.85	1.73	1.64	1.38	1.20

#### 15 Watt – WH10 Series

with heatsink	15W	Insulation resistance	10000MΩ
without heatsink	8.0W	Surface temperature rise (°C/Watt)	19.4
Tolerance	±5%	Voltage rating	265V ac
	±75ppm/°C(<10Ω)	Operating temperature	-55°C to +275°C
	±50ppm/°C(≥10Ω)		

Stocked in the following OHMIC Values:

OR1 = 950-6730	3R = 950-7019	50R = 950-7078	330R = 950-6993
OR2 = 950-6748	3R3 = 950-7027	56R = 950-7094	470R = 950-7035
OR22 = 950-6764	4R7 = 950-7060	62R = 950-7124	560R = 950-7086
OR25 = 950-6772	5R = 950-7116	68R = 950-7140	680R = 950-7132
OR33 = 950-6780	10R = 950-6829	100R = 950-6810	1K = 950-6870
OR47 = 950-6799	12R = 950-6845	120R = 950-6837	1K5 = 950-6888
OR5 = 950-6802	15R = 950-6861	150R = 950-6853	2K2 = 950-6969
1R = 950-6896	20R = 950-6918	220R = 950-6926	3K3 = 950-7000
1R5 = 950-6900	22R = 950-6934	240R = 950-6942	4K7 = 950-7051
2R = 950-6977	47R = 950-7043	270R = 950-6950	5K = 950-7108
2R2 = 950-6985			

Order Code	1+	20+	50+	100+	500+
Values OR1 to 1K ●	2.03	1.88	1.77	1.32	1.26
Values 1K5 to 5K ●	2.01	1.87	1.75	1.32	1.26

#### 25 Watt – WH25 Series

Power rating @ 20°C	25W	Insulation resistance	10000MΩ
with heatsink	12.5W	Surface temperature rise (°C/Watt)	13.3
without heatsink		Voltage rating	560V ac
Tolerance	±5%	Operating temperature	-55°C to +275°C
Temperature coefficient	±75ppm/°C(<10Ω)		
	±50ppm/°C(≥10Ω)		

Stocked in the following OHMIC Values:

OR01 = 950-7159	1R5 = 950-7388	15R = 950-7329	82R = 950-7663	1K5 = 950-7361
OR05 = 950-7167	2R = 950-7442	16R = 950-7337	100R = 950-7256	2K2 = 950-7434
OR1 = 950-7175	2R2 = 950-7450	18R = 950-7345	120R = 950-7280	3K3 = 950-7493
OR15 = 950-7183	3R3 = 950-7515	22R = 950-7400	150R = 950-7302	3K9 = 950-7507
OR22 = 950-7191	3R9 = 950-7523	24R = 950-7418	220R = 950-7396	4K7 = 950-7558
OR24 = 950-7205	4R7 = 950-7566	27R = 950-7426	330R = 950-7469	5K6 = 950-7604
OR27 = 950-7213	5R = 950-7612	39R = 950-7485	470R = 950-7531	6K8 = 950-7647
OR33 = 950-7221	6R8 = 950-7655	50R = 950-7574	560R = 950-7582	8K2 = 950-7671
OR47 = 950-7230	10R = 950-7272	56R = 950-7590	680R = 950-7620	10K = 950-7264
OR56 = 950-7248	12R = 950-7299	68R = 950-7639	1K = 950-7353	15K = 950-7310
1R = 950-7370				

Order Code	1+	20+	50+	100+	500+
Values OR01 to 1K ●	1.62	1.53	1.40	1.29	1.21
Values 1K5 to 15K ●	2.09	1.99	1.88	1.75	1.66

#### 50 Watt – WH50 Series

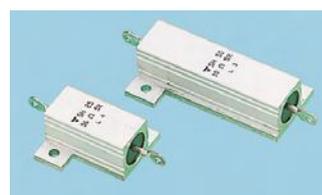
Power rating @ 20°C	50W	Insulation resistance	10000MΩ
with heatsink	20W	Surface temperature rise (°C/Watt)	9.5
without heatsink		Voltage rating	1250V ac
Tolerance	±5%	Operating temperature	-55°C to +275°C
Temperature coefficient	±75ppm/°C(<10Ω)		
	±50ppm/°C(≥10Ω)		

Stocked in the following OHMIC Values:

OR05 = 950-8570	4R7 = 950-8449	30R = 950-8309	220R = 950-8210	2K2 = 950-8279
OR1 = 950-8031	5R = 950-8490	33R = 950-8333	270R = 950-8252	3K3 = 950-8368
OR22 = 950-8589	5R6 = 950-8503	39R = 950-8350	330R = 950-8317	3K9 = 950-8376
OR33 = 950-8597	6R8 = 950-8554	47R = 950-8422	390R = 950-8341	4K7 = 950-8430
OR47 = 950-8040	10R = 950-8082	50R = 950-8465	470R = 950-8392	6K8 = 950-8546
OR5 = 950-8058	12R = 950-8104	56R = 950-8481	560R = 950-8473	10K = 950-8504
OR68 = 950-8600	15R = 950-8120	68R = 950-8538	620R = 950-8511	16K = 950-8139
1R = 950-8180	18R = 950-8155	100R = 950-8066	680R = 950-8520	22K = 950-8228
1R5 = 950-8198	20R = 950-8201	120R = 950-8090	820R = 950-8562	33K = 950-8325
2R = 950-8287	22R = 950-8236	150R = 950-8112	1K = 950-8163	47K = 950-8406
2R2 = 950-8295	24R = 950-8244	180R = 950-8147	1K2 = 950-8171	50K = 950-8457
27R = 950-8260	27R = 950-8260			

Order Code	1+	20+	50+	100+	500+
All Values ●	3.12	2.97	2.79	2.66	2.59

### SH Series



**SH25:**  
H=15, W=14, L=28 (Body),  
Fixing centres=18.3 x 19.8,  
Termination L= 11.1

**SH50:**  
H=15, W=15.5, L=50 (Body),  
Fixing centres=39.7 x 21.4,  
Termination L= 11

#### 25 Watt - SH25 Series

Power rating @ 25°C	25W	Insulation resistance	30000MΩ
with heatsink	9W	Voltage rating	550V
without heatsink		Operating temperature	-55°C to +200°C
Resistance tolerance	±5%		

Stocked in the following OHMIC Values:

OR1 = 114-1216	4R7 = 114-1219	47R = 114-1222	220R = 114-1226	1K = 114-1228
1R = 114-1217	10R = 114-1220	56R = 114-1224	330R = 114-1227	4K7 = 114-1229
2R2 = 114-1218	22R = 114-1221	100R = 114-1225		



£ € **40,000 PRICES REDUCED**

Order Code	1+	20+	50+	100+	500+
All Values ●	1.75	1.71	1.59	1.28	1.19

50 Watt - SH50 Series

Power rating @ 25°C with heatsink	50W	Insulation resistance	30000MΩ
without heatsink	12W	Voltage Rating	1285V
Resistance tolerance	±5%	Operating temperature	-55°C to +200°C

Stocked in the following OHMIC Values:

OR1 = 114-1230	6R8 = 114-1236	47R = 114-1240	150R = 114-1244	1K = 114-1248
1R = 114-1231	10R = 114-1237	56R = 114-1241	220R = 114-1245	2K2 = 114-1249
2R2 = 114-1232	22R = 114-1238	68R = 114-1242	470R = 114-1246	4K7 = 114-1250
4R7 = 114-1233	33R = 114-1239	100R = 114-1243		

207322

Order Code	1+	20+	50+	100+	500+
All Values ●	2.38	2.23	2.14	1.79	1.67

HSC Series



HSC100



HSC300

Dimensions:

HSC100 H = 26.0, W = 47.5, L = 65.5. Fixing centres = 35.0 x 37.0, Termination L = 11  
 HSC200 H = 45.0, W = 73.0, L = 90.0. Fixing centres = 57.2 x 70.0, Termination M6 stud, nuts & washers  
 HSC300 H = 45.0, W = 73.0, L = 128.0. Fixing centres = 59.0 x 104.0, Termination M6 stud, nuts & washers

100 Watt - HSC100 Series

Power rating @ 20°C with heatsink	100W	Insulation resistance	10000MΩ
without heatsink	50W	Surface temperature rise (°C/Watt)	1.1
Resistance tolerance	±5%	Voltage rating	1900V a.c.
Temperature coefficient	±50ppm/°C	Operating temperature	-55°C to +250°C
	>100R ±50ppm/°C		

Stocked in the following OHMIC Values:

OR1 = 117-4279	1R5 = 117-4283	6R8 = 117-4287	33R = 117-4293	220R = 117-4297
OR22 = 117-4280	2R2 = 117-4284	10R = 117-4288	47R = 117-4294	470R = 117-4298
OR47 = 117-4281	3R3 = 117-4285	15R = 117-4291	68R = 117-4295	1K = 117-4299
1R = 117-4282	4R7 = 117-4286	22R = 117-4292	100R = 117-4296	

Order Code	1+	20+	50+	100+	500+
All Values ●	4.75	4.24	3.90	3.63	3.39

150 Watt - HSC150 Series NEW

Power rating @ 20°C with heatsink	150W	Insulation resistance	10000MΩ
without heatsink	55W	Voltage rating	1900V a.c.
Resistance tolerance	±5%	Operating temperature	-25°C to +250°C
Temperature coefficient	±50ppm/°C		
	>100R ±30ppm/°C		

Stocked in the following OHMIC Values:

OR47 = 161-9321	6R8 = 161-9325	47R = 161-9331	150R = 161-9334	470R = 161-9337
2R2 = 161-9322	10R = 161-9326	82R = 161-9332	220R = 161-9335	510R = 161-9338
3R3 = 161-9323	22R = 161-9327	100R = 161-9333	330R = 161-9336	680R = 161-9339
4R7 = 161-9324	33R = 161-9328			

207235

Order Code	1+	10+	25+	50+	100+
All Values ●	8.15	7.17	6.64	6.17	5.59

200 Watt - HSC200 Series

Power rating @ 20°C with heatsink	200W	Insulation resistance	10000MΩ
without heatsink	50W	Surface temperature rise (°C/Watt)	0.75
Resistance tolerance	±5%	Voltage rating	1900V ac
Temperature coefficient	±50ppm/°C	Operating temperature	-55°C to +250°C
	>100R ±30ppm/°C		

OR1 = 272-668	2R2 = 272-693	47R = 272-747	150R = 117-3990	470R = 117-3991
OR47 = 272-670	10R = 272-723	100R = 272-759	220R = 272-772	1K = 272-796
1R = 272-681	22R = 272-735			

Order Code	1+	10+	25+	50+	100+
All Values ●	15.03	13.57	12.44	11.52	10.74

250 Watt - HSC250 Series NEW

Power rating @ 20°C with heatsink	150W	Insulation resistance	10000MΩ
without heatsink	60W	Voltage rating	2500V a.c.
Resistance tolerance	±5%	Operating temperature	-25°C to +250°C
Temperature coefficient	±50ppm/°C		
	>100R ±30ppm/°C		

Order Code	1+	10+	25+	50+	100+
All Values ●	15.03	13.57	12.44	11.52	10.74

Stocked in the following OHMIC Values:

OR47 = 161-9340	6R8 = 161-9345	47R = 161-9349	150R = 161-9352	470R = 161-9356
2R2 = 161-9341	10R = 161-9346	82R = 161-9350	220R = 161-9353	510R = 161-9357
3R3 = 161-9343	22R = 161-9347	100R = 161-9351	330R = 161-9355	680R = 161-9358
4R7 = 161-9344	33R = 161-9348			

207197

Order Code	1+	10+	25+	50+	100+
All Values ●	19.77	17.97	16.37	15.27	14.10

300 Watt - HSC300 Series

Power rating @ 20°C with heatsink	300W	Resistance tolerance	±5%
without heatsink	75W	Temperature coefficient	±50ppm/°C
			>100R ±30ppm/°C

Stocked in the following OHMIC Values:

1R = 652-611	10R = 652-647	100R = 652-672	680R = 652-696
4R7 = 652-623	22R = 652-659	330R = 652-684	1K = 652-702
6R8 = 652-635	47R = 652-660		

207234

Order Code	1+	10+	25+	50+	100+
All Values ●	21.84	19.77	18.16	16.89	15.76

Thermistors

Thermistors are thermally sensitive resistors which display a change in resistance as their temperature changes. Available in two types NTC and PTC.



NTC - Negative temperature coefficient

As the temperature increases the Thermistors resistance decreases. Used mainly for inrush current limiting. They suppress high inrush current surges which can occur in many electrical items, such as power supplies, motors, transformers, amplifiers.

PTC - Positive temperature coefficient

As the temperature increases the Thermistor resistance increases. Used in many applications including:

- Overload Protection
- Temperature Sensing
- Heating
- Continuous Switching

388687

NTC, NTH5G Series - Surface Mount

0402 and 0603 Case Sizes



- Ultra compact and miniature NTC chip thermistors
- 0402 and 0603 case sizes
- High accuracy and high stability
- Suitable for most temperature compensation requirements

Operating Temperature: -40°C to +125°C  
 Power rating @ 25°C: 100mW

0402 size: L = 1.0, W = 0.5, H = 0.5  
 0603 size: L = 1.6, W = 0.8, H = 0.8  
 Supplied on 8mm tape (reel=4k pcs)

Resistance ±5% @ 25°C (Ω)	Beta Value 25°C to 50°C ±3%	Max. Continuous Current @ 25°C (mA)	Mfrs. List No.	Order Code
<b>0402 Case Size</b>				
10K	3380	0.31	NCP15XH103J03RC	952-8067
<b>0603 Case Size</b>				
1K	3650	1	NCP18XQ102J03RB	952-8121
4K7	3950	0.46	NCP18XM472J03RB	952-8113
10K	3380	0.31	NCP18XH103J03RB	952-8105
22K	3950	0.21	NCP18XW223J03RB	952-8130
47K	4050	0.14	NCP18WB473J03RB	952-8075
100K	4250	0.1	NCP18WF104J03RB	952-8083
470K	4500	0.04	NCP18WM474J03RB	952-8091

227222

Order Multiple=5	Order Code	5+	50+	100+	500+	1K+
0402 Case Size	All Values ● RL	0.290	0.250	0.195	0.136	0.118
0603 Case Size	All Values ● RL	0.240	0.196	0.157	0.112	0.095

NTC Thermistors - Nickel Barrier



0402 size: H = 1.0, W = 0.5, D = 0.6, Terminations W = 0.25 ± 0.15  
 0603 size: H = 1.6, W = 0.8, D = 0.9, Terminations W = 0.3 ± 0.2  
 0805 size: H = 2.0, W = 1.25, D = 1.25, Terminations W = 0.5 ± 0.25

- Multilayer SMD NTC with inner electrodes
- Excellent long-term ageing stability in high-temperature and high-humidity environment
- Superior resistance stability during soldering

Max. Power @ 25°C 150mW (0402 size), 180mW (0603 size), 210mW (0805 size)  
 Operating temperature -55 to +125°C  
 Terminations Nickel Barrier







NTC - Inrush Current Limiters



A range of disc NTC thermistors for limiting of in-rush currents in communications and industrial applications.

Resistance @ 25°C	Max. Cont. Current @ 25°C	Beta Value 25°C to 100°C ±3%	Mfrs. List No.	Order Code
<b>8.5mm Series</b>				
8.5mm Series	Dia. = 8.5mm max.,	Lead L = 36mm,	Lead spacing = 5.0mm	
9.5mm Series	Dia. = 9.5mm max.,	Lead L = 36mm,	Lead spacing = 5.0mm	
11.5mm Series	Dia. = 11.5mm max.,	Lead L = 36mm,	Lead spacing = 5.0mm	
15.0mm Series	Dia. = 15mm max.,	Lead L = 32mm,	Lead spacing = 7.5mm	
21mm Series	Dia. = 21mm max.,	Lead L = 32mm,	Lead spacing = 7.5mm	
<b>8.5mm Disc</b>				
4.7ohm	3A	2800	B57153S479M	168-8794
10ohm	2A	2800	B57153S100M	168-8795
15ohm	1.8A	2900	B57153S150M	168-8796
33ohm	1.3A	3000	B57153S330M	168-8797
<b>9.5mm Disc</b>				
5ohm	4.2A	2800	B57235S509M	975-1866
10ohm	3A	2900	B57235S100M	975-1874
<b>11.5mm Disc</b>				
2.5ohm	5.5A	2700	B57236S259M	168-8798
5ohm	4.5A	2800	B57236S509M	975-1882
20ohm	3.3A	3300	B57236S200M	975-1890
25ohm	3A	3300	B57236S250M	975-1904
50ohm	1.9A	3165	B57236S500M	168-8799
80ohm	1.6A	3300	B57236S800M	168-8800
<b>15mm Disc</b>				
1ohm	9A	2700	B57237S109M	168-8801
2.2ohm	7A	2800	B57237S229M	975-4148
2.5ohm	6.5A	2800	B57237S259M	975-4156
4.7ohm	5.1A	2900	B57237S479M	975-4164
5ohm	5A	2900	B57237S509M	975-4172
7ohm	4.2A	3060	B57237S709M	975-4180
10ohm	3.7A	3060	B57237S100M	975-4199
15ohm	3A	3000	B57237S150M	975-4202
22ohm	2.8A	3300	B57237S220M	975-4210
33ohm	2.5A	3300	B57237S330M	975-4229
<b>21mm Disc</b>				
2ohm	12A	2900	B57364S209M	168-8802

234990

B57863 Series - NTC



Dia.=2.41 max., L=6.5 max., Lead L=43.5  
Lead Dia. = 0.25

- Miniature NTC sensors with bendable wires
- High temperature accuracy
- Uni curve sensor
- Excellent long-term stability
- Fast response

Max Power @ 25°C 60mW Operating temperature -25 to +155°C

Resistance @ 25°C	Beta value 25°C to 100°C	PTFE Insulated Mfrs. List No.	Order Code
3KΩ ±1%	3988	B57863S302F40	129-9928
5KΩ ±1%	3988	B57863S502F40	129-9929
10KΩ ±1%	3988	B57863S103F40	129-9930
30KΩ ±1%	3964	B57863S303F40	129-9932

451465

Order Code	1+	10+	100+	250+	500+
All Values ●	3.52	3.00	2.66	2.38	1.96

NTC



B57861 Series  
Dia.=2.41 max., L=5 max., Lead L=45  
Lead Dia. = 0.25 (insulated)

Miniature NTC thermistors for high precision temperature measurement in measuring and control engineering.

Max Power @ 25°C 60mW

Resistance @ 25°C	25°C to 100°C	PTFE Insulated Mfrs. List No.	Order Code
10KΩ ±1%	3988 ±0.3%	B57861S0103F45	129-9926
30KΩ ±1%	3964 ±0.3%	B57861S0303F45	129-9927
3KΩ ±1%	3988 ±1%	B57861S302F40	679-422
5KΩ ±1%	3988 ±1%	B57861S502F40	679-434
10KΩ ±1%	3988 ±1%	B57861S103F40	679-446
30KΩ ±1%	3964 ±1%	B57861S303F40	679-458
100KΩ ±1%	4540 ±1%	B57861S104F40	387-8727

207339

Resistance @ 25°C	Order Code	1+	10+	100+	250+	500+
10KΩ	129-9926●	3.37	2.82	2.51	2.24	1.87
30KΩ	129-9927●	2.38	1.98	1.77	1.58	1.32
3KΩ	679-422●	1.96	1.58	1.27	0.93	0.92
5KΩ	679-434●	1.96	1.58	1.47	1.32	1.09
10KΩ	679-446●	1.96	1.58	1.27	0.93	0.92
30KΩ	679-458●	1.91	1.65	1.40	1.14	0.89
100KΩ	387-8727●	1.91	1.65	1.40	1.14	0.89

NTC



L = 19, W (O/D) = 8.5, H = 6.5, Hole dia. = 3.7, Lead L = 32

NTC thermistors for high accuracy surface temperature measurement, for example, on housings and pipes. Good thermal coupling through metal tag. PTFE insulated leads.

Max Power @ 25°C 150mW

Resistance @ 25°C	Beta Value 25°C to 100°C, ±3%	Mfrs. List No.	Order Code
5kohm ±2%	3988 ±1.5%	B57703M502G40	120-0455
10kohm ±2%	3988 ±1.5%	B57703M103G	120-0456
30kohm ±5%	3964 ±3%	B57703M303G40	111-2823

207341

Mfrs. List No.	Order Code	1+	50+	100+	250+	500+
B57703M502G40	120-0455●	4.03	3.45	2.57	2.02	2.01
B57703M103G	120-0456●	3.27	3.08	2.89	2.19	1.77
B57703M303G40	111-2823●	4.10	3.67	3.40	2.64	2.52

Max. Power	Resistance ±5% @ 25°C	Beta Value 25°C to 100°C, ±3%	Mfrs. List No.	Order Code
150mW	30Ω	3964	B57703M303G40	111-2823

423507

Resistance @ 25°C	Order Code	1+	50+	100+	250+	500+
30Ω	111-2823●	4.10	3.67	3.40	2.64	2.52

NTC



Dia. = 5.5 max, Lead L = 36, Lead spacing = 5.0

A range of disc NTC thermistors for temperature compensation, measurement and control.

Max Power @ 25°C 450mW



**Thermistors - continued**

**NTC - continued**

Resistance ±5% @ 25°C	Beta Value 25°C to 100°C, ±3%	Mfts. List No.	Order Code
100Ω	3200	B57164K101J	975-3400
1KΩ	3730	B57164K102J	975-3419
10KΩ	4300	B57164K103J	975-3435
470KΩ	5000	B57164K474J	975-3451

207343

Resistance @ 25°C	Order Code	1+	50+	100+	250+	500+
100Ω	975-3400	0.75	0.69	0.56	0.41	0.36
1KΩ	975-3419	0.75	0.69	0.56	0.41	0.36
10KΩ	975-3435	0.75	0.69	0.56	0.41	0.36
470KΩ	975-3451	0.75	0.69	0.56	0.41	0.36

**NTC Probe Assemblies**

**975-3460**  
L (overall) = 44,  
Dia. (body) = 10,  
Tabs = 2.8 x 0.8



**121-8958**  
5L = 42, Dia. = 9.8,  
2-core cable L = 2800



**120-0457**  
L = 14, Dia. = 5,  
Leads L = 380

Thermistor probe assemblies for temperature measurement.

**975-3460:** Thermistor in compact stainless steel case, suitable for use in corrosive environments, easy mounting through AMP connectors, for washing machines, water boilers etc.

**120-0457:** Coated thermistor disc with shrunk sleeve insulation and PTFE insulated leads, suitable for transformers and electric motors.

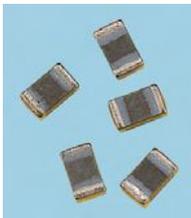
**121-8958:** Thermistor in aluminium case with PVC connecting cables, suitable for heating and air conditioning systems.

Resistance	Beta Value	Max. Power @ 25°C	Order Code
1704Ω @ 80°C, 11982Ω @ 25°C, ±2%	3760 ± 1.5%	500mW	975-3460
1800Ω @ 100°C, 32762Ω @ 25°C, ±10%	4300 ± 1.5%	200mW	120-0457
1704Ω @ 80°C, 886.2Ω @ 25°C, ±2%	3560 ± 1.5%	380W	121-8958

207344

Mfts. List No.	Order Code	1+	10+	50+	100+	250+
B57276K123A30	975-3460	3.34	2.97	2.67	2.45	2.29
B57831M871A3	121-8958	10.03	8.87	7.94	7.29	6.83
B57227K333A1	120-0457	5.48	4.84	4.34	3.99	3.72

**NTC**



Surface mount NTC thermistors suitable for temperature compensation, sensing and protection applications. Size 0805 chips supplied on 8mm blister tape, suitable for wave or reflow soldering (reel=4K pieces).

- High sensitivity
- High accuracy over wide temperature range

0805 size: H=2.0, W=1.25, D=1.25, Terminations W=0.5 ±0.25

Max. power @ 25°C	210mW	Operating temperature	-55°C to +150°C
Climatic category	40/125/56	Terminations	Silver palladium
Resistance ±5% @ 25°C	Beta Value (K) 25°C to 85°C	Mfts. List No.	Order Code
47KΩ	4090 ± 3%	238161513473	118-7093
100KΩ	3650 ± 1%	238161513104	118-7095
470KΩ	4130 ± 1%	238161513474	118-7097

207345

Order Multiple=5	Price Each				
5+	100+	300+	1K+	4K+	
All Order Codes ● RL	0.55	0.41	0.34	0.27	0.22

**NTC**



SOD80 package: L=3.7 max, Ø=1.7 max.  
SOD27 package: L=4.25 max, Ø=1.85 max,  
Leads L=25.4, Ø=0.56

- Small diameter, leaded and surface mount devices
- Quick response to temperature change
- Wide temperature range from -40°C to +300°C
- Resistant to corrosive atmosphere and harsh environments
- High stability over a long life

NTC thermistors in glass envelope suitable for high temperature measurement control, for industrial process control and domestic and automotive applications.

Package	Resistance @ 25°C	Beta Value to 25°C to 85°C	Mfts. List No.	Order Code
SOD-80(SMD)	100KΩ	3977K±1.3%	2381 633 53104	116-4821
SOD-27(lead)	10KΩ	3977K±1.3%	2381 633 83103	116-4822
SOD-27(lead)	100KΩ	3977K±1.3%	2381 633 83104	116-4823

207346

Resistance @ 25°C	Order Code	1+	10+	100+	300+	1K+
100KΩ	SMD 116-4821	0.63	0.58	0.46	0.35	0.30
10KΩ	116-4822	0.63	0.55	0.44	0.34	0.29
100KΩ	116-4823	0.51	0.44	0.35	0.27	0.22

**NTC**



5% tol. Series L=4 (typ.), W=3.5 (typ.), D=3 (max)  
Lead pitch=2.54, Lead=17 (min)

2% and 1% tol. Series L=4 (typ.), W=3.4 (max.), D=2.7 (max)  
Lead pitch=2.54, Lead L=38 (min)

NTC thermistors for temperature sensing and control, featuring accuracy over a wide temperature range and good stability.

Tolerance on R25 value	±5%, ±2%, ±1%
Rated dissipation	500mW (5% tol. Series), 100mW (2% and 1% tol. Series)
Operating temp. range	-40°C to +125°C (at zero power, continuously) 0°C to 55°C (at max. power)

Colour code on 2322-640-5xxx Series: 2.7KΩ=Red, 4.7KΩ=Green, 10KΩ=Blue, 100kΩ=Brown

Resistance @ 25°C	Beta Value 25°C to 85°C	Mfts. List No.	Order Code
2.2KΩ ±5%	3977K ±0.75%	238164063222	118-7025
3.3KΩ ±5%	3977K ±0.75%	238164063322	118-7026
4.7KΩ ±5%	3977K ±0.75%	238164063472	118-7027
10KΩ ±5%	3977K ±0.75%	238164063103	118-7031
33KΩ ±5%	4090K ±1.5%	238164063333	118-7032
100KΩ ±5%	4190K ±2%	238164063104	118-7033
330KΩ ±5%	4570K ±3%	238164063334	118-7034
4.7KΩ ±2%	3977K ±0.75%	238164054472	118-7035
10KΩ ±2%	3977K ±0.75%	238164054103	118-7036
100KΩ ±2%	4190K ±2%	238164054104	118-7037
2.7KΩ ±1%	3977K ±0.75%	238164055272	118-7038
10KΩ ±1%	3977K ±0.75%	238164055103	118-7039

207347

Tol.	Order Code	1+	10+	100+	300+	1K+
±5%	2.2	118-7025	0.510	0.390	0.290	0.230
	3.3	118-7026	0.510	0.390	0.290	0.230
	4.7	118-7027	0.490	0.440	0.350	0.290
	10	118-7031	0.510	0.390	0.290	0.230
	33	118-7032	0.510	0.390	0.290	0.230
	100	118-7033	0.510	0.390	0.290	0.230
±2%	330	118-7034	0.490	0.440	0.350	0.290
	4.7	118-7035	0.940	0.870	0.570	0.430
	10	118-7036	0.970	0.740	0.560	0.450
±1%	100	118-7037	0.940	0.870	0.570	0.430
	2.7	118-7038	1.490	1.390	1.100	0.830
	10	118-7039	1.610	1.240	0.930	0.740

**NTC Disc Thermistors ND Series**



- General purpose NTC disc thermistors
- Epoxy-phenolic resin coating
- Suitable for many applications including alarm and temperature measurement



Max. Operating Temperature +155°C



Resistance @ 25°C	Beta Value ±3% (* ±5%)	Mfts. List No.	Order Code
<b>ND03 - 3.5mm Disc</b>			
330ohm ±20%	3250*	ND03100331M--	167-2359
1kohm ±5%	3480	ND03J00102J--	167-2360
1kohm ±10%	3480	ND03J00102K--	167-2361
680ohm ±10%	3480	ND03J00681K--	167-2362
1.5kohm ±10%	3630	ND03K00152K--	167-2363
4.7kohm ±5%	3950	ND03M00472J--	167-2364
10kohm ±5%	4080	ND03N00103J--	167-2365
10kohm ±10%	4080	ND03N00103K--	167-2366
15kohm ±5%	4080	ND03N00153J--	167-2367
22kohm ±5%	4220	ND03P00223J--	167-2369
22kohm ±10%	4220	ND03P00223K--	167-2371
33kohm ±5%	4220	ND03P00333J--	167-2372
33kohm ±10%	4220	ND03P00333K--	167-2373
100kohm ±5%	4400	ND03R00104J--	167-2374
220kohm ±5%	4520	ND03S00224J--	167-2375
470kohm ±5%	4630	ND03T00474J--	167-2376
470kohm ±10%	4630	ND03T00474K--	167-2377
1000kohm ±5%	4840	ND03U00105J--	167-2378
1000kohm ±10%	4840	ND03U00105K--	167-2379



### Thermistors - continued

#### NTC, R-T Curve Matched

#### BETATHERM



Insulated: Dia=2.4 max, Leads L=200  
 Non-insulated: Dia=2.4 max, Leads L=76

- Small size
- High precision
- Offers advantages in circuit standardisation and replacement without calibration
- Interchangeable
- Exceptional ageing stability
- Available with either insulated or non-insulated leads

'BetaCURVE' matched NTC thermistors have a tight tolerance on their R-T (resistance-temperature) curve over a wide temperature range. Manufacturing and quality assurance techniques maintain tight control of materials and device thermal electrical properties.

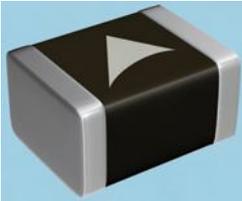
Temperature range: -55°C to +150°C  
 Tolerance over temp. range 0°C to +70°C: ±0.2°C  
 1.0mW/°C  
 Time Constant (max. in still air): 10s

Resistance @ 25°C	Beta Value	0 to 50°C Max. Deviation
1kΩ	3263	0.38%
2.252kΩ, 3kΩ, 5kΩ, 10kΩ	3892	0.32%
30kΩ, 100kΩ	4143	0.30%
1MΩ	4582	0.63%

207354

Resistance @ 25°C	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>Non-insulated 76mm Leads</b>						
1kohm	1K2A1B	970-7239	3.69	3.22	2.86	2.02
2.252kohm	2.2K3A1B	970-7174	3.69	3.22	2.86	2.02
3kohm	3K3A1B	970-7182	3.74	3.18	2.71	1.96
5kohm	5K3A1B	970-7190	3.74	3.18	2.71	1.96
10kohm	10K3A1B	970-7204	3.74	3.18	2.71	1.96
30kohm	30K6A1B	970-7212	3.69	3.22	2.86	2.02
100kohm	100K6A1B	970-7220	3.74	3.18	2.71	1.96
<b>Insulated 200mm Leads</b>						
2.252kohm	2.2K3A359I	970-7247	4.25	3.66	3.25	2.27
3kohm	3K3A340I	970-7255	4.25	3.66	3.25	2.27
5kohm	5K3A373I	970-7263	4.25	3.66	3.25	2.27
10kohm	10K3A542I	970-7271	4.25	3.66	3.25	2.27
30kohm	30K6A309I	970-7280	4.25	3.66	3.25	2.27
100kohm	100K6A372I	970-7298	4.25	3.66	3.25	2.27

#### PTC Mains Thermistor



- Thermistor chip with lead-free tinned terminations
- Short response times
- Small size
- Suitable for overcurrent and short-circuit protection

Operating Temperature -40°C to +125°C

H = 3.2, W = 2.5, D = 1.6,  
 Terminations W = 1.2

Current Rating	Current Tripping	Temperature Tripping	V ac or dc	Resistance	Tolerance	Mfrs. List No.	Order Code
15mA	40mA	90°C	265V	400ohm	25%	B59807A0090A062	133-7328

464135

Order Code	1+	100+	500+	1K+	2K+
SMD133-7328	1.39	1.18	0.99	0.79	0.64

#### Limit Temperature Sensors - 0603 Cases



- Features:
- Fast and reliable response
  - Suitable for reflow soldering
- Applications:
- DC/DC converters
  - Temperature management in automotive electronics
  - Over temperature protection of power transistors and power ICs (e.g. in battery pack, notebook)

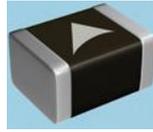
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Tripping Temp.	Mfrs. List No.	Order Code	5+	100+	250+	500+	1K+
<b>±5% Tolerance</b>							
75°C	B59601A0075A062	SMD111-2824	0.63	0.50	0.43	0.37	0.32
85°C	B59601A0085A062	SMD111-2825	0.46	0.37	0.31	0.28	0.24
95°C	B59601A0095A062	SMD111-2826	0.46	0.37	0.31	0.28	0.24
105°C	B59601A0105A062	SMD111-2827	0.46	0.37	0.31	0.28	0.24
115°C	B59601A0115A062	SMD111-2828	0.47	0.37	0.32	0.28	0.25
125°C	B59601A0125A062	SMD111-2829	0.46	0.37	0.31	0.28	0.24
135°C	B59601A0135A062	SMD111-2830	0.65	0.51	0.44	0.38	0.33

Over 480,000 products online



#### PTC thermistors - for overcurrent protection



- Can handle power line voltages - maximum voltage 265 V
- Overcurrent protection
- Short-circuit protection
- Compact 1210 package size
- Higher rated currents are achieved by parallel connection of several PTC thermistors

- Short response times
- Suitable for reflow soldering only
- Suitable for automatic placement

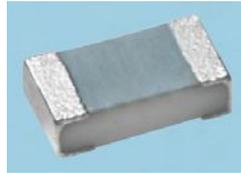
Resistance	400R	Voltage Rating, AC	265V
Operating Temperature	+125°C	Voltage Rating, DC	265V
Tripping Current	40mA		

480824

Tripping Temp.	Mfrs. List No.	Order Code	5+	100+	Price Each	250+	500+	1K+
<b>±25% Tolerance</b>								
90°C	B59807A0090A062	SMD133-7328	1.39	1.18	0.99	0.79	0.64	

#### SMD Temperature Sensors

##### PTS Series



PTS SMD Flat Chip Temperature sensors are the perfect choice for temperature control of electronics operating under varying environmental conditions. The highly controlled platinum thin film manufacturing process guarantees an outstanding stability of temperature characteristics

which ensures reliable operation even under harsh conditions. Typical applications include automotive, aviation and industrial electronics.

- Advanced thin film technology
- Outstanding stability of temperature characteristic
- Short reaction times down to  $t_{0.9} \leq 2$  s (in air)

Max. Operating Temperature	+155°C	Insulation Resistance	10Mohm	
Max. Operating Temperature	±0.04%	Temperature Coefficient	+385ppm/K	
Resistance	Response Time	Case Size	Mfrs. List No.	Order Code
100ohm	1s	0603	PTS060301B100RP100	156-0916
100ohm	1.5s	0805	PTS080501B100RP100	156-0917
100ohm	2s	1206	PTS120601B100RP100	156-0919
1kohm	2s	1206	PTS120601B1K00P100	156-0921

527100

Order Code	1+	50+	Price Each	100+	250+	500+
156-0916	1.49	1.23	1.06	0.93	0.80	
156-0917	2.45	2.00	1.60	1.46	1.34	
156-0919	3.30	2.87	2.35	2.10	1.86	
156-0921	3.30	2.87	2.35	2.10	1.86	

#### PTC



Surface mount PTC thermistors with silver terminations supplied on tape and reel, suitable for **reflow soldering** only. The very small 25V B59701 Series are for limit temperature sensing, and the 80V 120°C B59707 device is suitable for overcurrent protection, time delay and current stabilisation.

	B59701	B59607	B59707
Max. operating voltage	25V (T <sub>A</sub> = 0 to 40°C)	30V (T <sub>A</sub> = 60°C)	80V (T <sub>A</sub> = 60°C)
Rated resistance R <sub>N</sub>	≤1KΩ	55Ω	125Ω
Threshold temp. tol. ΔT	±5%	—	—
Resistance	≤5.5KΩ (T <sub>NAT</sub> - ΔT)	—	—
	≥13.3KΩ (T <sub>NAT</sub> + ΔT)	—	—
	≥40KΩ (T <sub>NAT</sub> + 15K)	—	—
Switching Current	—	90mA, 300mA max.	90mA, 300mA max.
Mfrs. List Nos:	B59701A70A62 = 387-6690	B59701A110A62 = 730-178	B59701A90A62 = 730-166
	B59701A90A62 = 387-6718	B59607A120A62 = 387-6767	B59707A120A62 = 730-245

207355

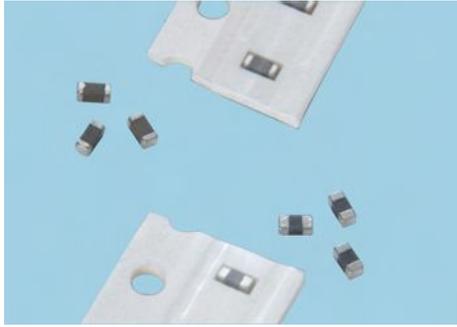
Voltage max.	T <sub>NAT</sub> Threshold Temp. (nom.)	Order Code	1+	100+	Price Each	250+	500+	1K+
25V	70°C	SMD387-6690	0.52	0.44	0.41	0.39	0.31	
25V	90°C	SMD730-166	0.60	0.50	0.48	0.39	0.31	
25V	100°C	SMD387-6718	0.55	0.46	0.43	0.41	0.32	
25V	110°C	SMD730-178	0.72	0.61	0.57	0.50	0.42	
30V	120°C	SMD387-6767	0.55	0.46	0.43	0.41	0.31	
80V	120°C	SMD730-245	0.82	0.70	0.66	0.56	0.43	



40,000 PRICES REDUCED



PRG Series



- Overcurrent Protection device with resettable function
  - Chip type PTC thermistor for overcurrent which is suitable for counter-measure for short circuit testing as well as current limiting resistors
- Features**
- Rapid operation protects the circuit in an overcurrent condition such as a short circuit
  - Stable resistance after operation due to ceramic PTC
  - Possible to use these products as current limiting resistors with overcurrent protection functions



Operating temperature -10°C to +60°C

Resistance	Voltage	Trip Current	Max. Current	Mftrs.			Order Code
Ω	V	mA	mA	Length	Width	Depth	List No.
15	20	140	1600	2	1.25	1.25	PRG21BB150MB1RK
33	24	85	900	1.6	0.8	0.8	PRG18BB330MB1RB
47	24	75	630	1.6	0.8	0.8	PRG18BB470MB1RB
100	24	55	300	1.6	0.8	0.8	PRG18BB101MB1RB
220	24	35	130	1.6	0.8	0.8	PRG18BB221MB1RB
470	24	25	60	1.6	0.8	0.8	PRG18BB471MB1RB

Order Code	5+	100+	250+	500+	1K+
All Values ● <b>RL</b>	0.53	0.39	0.35	0.32	0.27

PTC



A range of leaded disc PTC thermistors designed for over current and short-circuit protection applications, B/F recognised

Lead L=35 (min.), Lead spacing=5.08

Rated Current	Switching Current	R <sub>25</sub> ± 25%	d <sub>max</sub>	Mftrs. List No.	Order Code
I <sub>N</sub> (mA)	I <sub>S</sub> (mA)	Ω	(mm)		
<b>V Ref = 24V, V max. = 30V, T ref. = 120°C</b>					
1300	2600	0.45	17.5	B59945C120A70	975-3052
850	1700	0.8	13.5	B59955C120A70	975-3060
600	1200	1.2	11	B59965C120A70	975-3079
450	900	1.8	9	B59975C120A70	975-3087
250	500	4.6	6.5	B59985C120A70	975-3095
120	240	13	4	B59995C120A70	975-3109
<b>V Ref = 63V, V max. = 80V, T ref. = 120°C</b>					
700	1400	1.65	22	B59930C120A70	975-3117
450	900	2.3	17.5	B59940C120A70	975-3125
320	640	3.7	13.5	B59950C120A70	975-3133
250	500	5.6	11	B59960C120A70	975-3141
150	300	9.4	9	B59970C120A70	975-3150
85	170	25	6.5	B59980C120A70	975-3168
50	100	55	4	B59990C120A70	975-3176
<b>V Ref = 110V, V max. = 160V, T ref. = 160°C</b>					
525	1050	3.7	22	B59830C160A70	975-3192
400	800	6	17.5	B59840C160A70	975-3206
250	500	10	13.5	B59850C160A70	975-3214
125	250	25	9	B59870C160A70	975-3230
35	70	150	4	B59890C160A70	975-3257
<b>V Ref = 220V, V max. = 265V, T ref. = 120°C</b>					
650	1300	2.6	26	B59810C120A70	975-3265
200	400	10	13.5	B59850C120A70	975-3273
140	280	15	11	B59860C120A70	975-3281
100	200	25	9	B59870C120A70	975-3290
80	160	35	9	B59872C120A70	975-3303
55	110	65	9	B59875C120A70	975-3311
55	110	70	6.5	B59880C120A70	975-3320
30	60	150	4	B59890C120A70	975-3338

Rated Current	Order Code	1+	100+	250+	500+	1K+
I <sub>N</sub>						
1300mA	975-3052●	1.64	1.40	1.33	1.24	0.96
850mA	975-3060●	1.01	0.85	0.82	0.63	0.60
600mA	975-3079●	1.12	0.96	0.90	0.85	0.65
450mA	975-3087●	1.05	0.90	0.85	0.66	0.64
250mA	975-3095●	0.82	0.69	0.66	0.39	0.37
120mA	975-3109●	0.75	0.63	0.59	0.45	0.44
700mA	975-3117●	2.57	2.17	2.10	1.63	1.53
450mA	975-3125●	1.22	1.03	1.00	0.83	0.79
320mA	975-3133●	2.09	1.73	1.68	1.32	1.23
250mA	975-3141●	1.21	1.03	1.00	0.77	0.73
150mA	975-3150●	1.05	0.90	0.85	0.66	0.64
85mA	975-3168●	0.93	0.80	0.77	0.60	0.55
50mA	975-3176●	0.69	0.59	0.56	0.52	0.41

Rated Current	Order Code	1+	100+	250+	500+	1K+
I <sub>N</sub>						
525mA	975-3192●	2.80	2.39	2.29	1.75	1.68
400mA	975-3206●	2.09	1.73	1.69	1.32	1.23
250mA	975-3214●	1.56	1.33	1.29	1.01	0.94
125mA	975-3230●	1.20	1.03	0.99	0.77	0.72
35mA	975-3257●	1.08	0.92	0.88	0.75	0.69
650mA	975-3265●	2.55	2.17	2.05	1.92	1.81
200mA	975-3273●	1.46	1.23	1.16	1.09	1.03
140mA	975-3281●	1.19	1.02	0.96	0.90	0.85
100mA	975-3290●	1.08	0.93	0.87	0.81	0.76
80mA	975-3303●	1.24	1.06	1.02	0.79	0.75
55mA	975-3311●	1.47	1.23	1.18	1.02	0.94
55mA	975-3320●	0.90	0.71	0.60	0.49	0.48
30mA	975-3338●	0.81	0.69	0.61	0.50	0.49

Limit Temperature Sensor - PTC



B59801 Series



- Insulated screw-type metal case
- Thread M3
- Tinned leads
- Marked with nominal threshold temperature and type designation
- Characteristics for nominal threshold temperatures T<sub>NTT</sub> = 90 to 120 °C conform with DIN 44081
- Fast response due to small dimensions

L=15, W=8, D=8, Lead length = 32, Lead dia. = 0.5

Tripping Temperature °C	Resistance @ 25°C (Ω)	Voltage Rating (V)	Mftrs. List No.	Order Code
80	100	30	B59801D080A40	129-9935
90	100	30	B59801D090A40	129-9936
100	100	30	B59801D100A40	129-9937
120	100	30	B59801D120A40	129-9939

Order Code	1+	10+	100+	250+
All Values ●	2.37	1.95	1.74	1.56

PTC Series Thermistors



Self-Protecting Resistor for Capacitor Charging



- Self-protecting in case of malfunction or internal short-circuit of capacitor
- Applications include inrush current limiter (charging resistor) for smoothing and DC link capacitors, to replace high-power fixed resistors for charging capacitors

Resistance (Ω)	Operating Voltage (V)	Mftrs. List No.	Order Code
20	550	B59201J140B10	151-1740
56	650	B59202J135B10	151-1741
100	800	B59204J130B10	151-1742

H=24, W=19, D=12.5  
Lead length=3.25  
Lead pitch=7.62

Order Multiple=1	Order Code	1+	10+	25+	100+	500+
All Values ●		3.00	2.57	2.31	2.00	1.81

PTC



Positive temperature coefficient thermistors designed for temperature measurement and control applications in low voltage circuits. Mounted on tinned brass tags for ease of installation.

Overall length=50.0 min., Lead length=32.0 min. Body length=6.0, Lead diameter=0.5, Tab diameter=8.5, Hole diameter=3.7

Resistance	@ 25°C = 100Ω max.	Maximum operating voltage
	@ T <sub>NAT</sub> -5°C = 550Ω max.	@ 40°C ambient 30V dc
	@ T <sub>NAT</sub> +5°C = 1330Ω max.	Insulation test voltage 500V/5s
Maximum PTC voltage	2.5V dc	Operating temperature -25°C to +155°C
Mftrs. List Nos:	B59901D070A40 = 129-9933, B59901D90A40 = 218-832,	B59901D110A40 = 129-9934, B59901D130A40 = 218-870

Threshold Temp. T <sub>NAT</sub>	Order Code	1+	10+	100+	250+
70°C	129-9933●	1.66	1.40	1.23	1.09
90°C	218-832●	1.46	1.24	1.08	0.89
110°C	129-9934●	1.54	1.29	1.14	1.01
130°C	218-870●	1.55	1.33	1.16	0.87



Resistance	Order Code	1+	50+	100+	250+	500+
5.6	151-5948	3.880	3.100	2.330	1.740	1.400
8.2	151-5914	1.290	1.020	0.770	0.570	0.460
15	151-5924	1.490	1.190	0.900	0.670	0.540
18	151-5946	3.230	2.580	1.940	1.460	1.160
22	151-5905	1.110	0.890	0.660	0.500	0.400
27	151-5941	2.900	2.320	1.730	1.310	1.040
39	151-5928	1.560	1.240	0.940	0.700	0.560
56	151-5909	1.470	1.170	0.880	0.660	0.530
82	151-5912	1.650	1.320	0.990	0.750	0.590
120	151-5900	1.780	1.420	1.060	0.800	0.640
180	151-5903	1.830	1.460	1.090	0.820	0.650
PRF Series ±25%						
0.8	151-5943	1.910	1.520	1.140	0.860	0.680
1.2	151-5940	1.270	1.010	0.760	0.570	0.460
1.8	151-5926	1.120	0.900	0.670	0.510	0.410
3.7	151-5945	1.900	1.520	1.140	0.860	0.680
4.6	151-5908	1.010	0.810	0.600	0.450	0.360
5.6	151-5942	1.600	1.280	0.960	0.720	0.570
6.6	151-5951	3.490	2.790	2.090	1.570	1.260
10	151-5944	2.010	1.610	1.200	0.910	0.720
13	151-5899	0.850	0.680	0.510	0.390	0.310
15	151-5939	1.890	1.510	1.130	0.850	0.680
25	151-5906	1.060	0.850	0.630	0.480	0.380
45	151-5907	1.440	1.150	0.860	0.640	0.520
55	151-5904	0.980	0.790	0.580	0.440	0.350
65	151-5910	1.290	1.030	0.780	0.580	0.460
70	151-5911	1.340	1.070	0.810	0.600	0.480
25	151-5927	1.210	0.970	0.720	0.540	0.440
150	151-5902	1.190	0.950	0.710	0.530	0.430
904	151-5931	1.260	1.000	0.760	0.560	0.450
PRF Series ±30%						
2.2	151-5932	1.370	1.090	0.820	0.610	0.490
3.3	151-5933	1.370	1.090	0.820	0.610	0.490
4.7	151-5934	1.370	1.090	0.820	0.610	0.490
6.8	151-5923	1.240	1.000	0.750	0.560	0.450
10	151-5918	1.190	0.960	0.710	0.540	0.430
12	151-5938	1.380	1.100	0.830	0.620	0.500
15	151-5919	1.280	1.020	0.770	0.570	0.460
22	151-5920	1.280	1.020	0.770	0.570	0.460
22	151-5917	0.860	0.680	0.510	0.390	0.310
33	151-5921	1.280	1.020	0.770	0.570	0.460
39	151-5929	0.940	0.750	0.560	0.420	0.340
47	151-5922	1.290	1.030	0.780	0.580	0.460

Poistor® – PTF Series Overheat Sensing



**PTF Series (radial lead no lug)**

- PTC overheat sensing in power electronics applications

Resistance	330ohm	Voltage rating	16V		
Upper Limit Temperature (Beta Value)	Lower Limit Temperature (Beta Value)	Operating Temperature (max)	Mfrs. List No.	Order Code	
°C	°C	°C			
120	25	+130	PTFL04BB222Q2N34B0	151-5868	
120	25	+130	PTFL04BB471Q2N34B0	151-5869	
110	25	+120	PTFL04BC222Q2N34B0	151-5870	
110	25	+120	PTFL04BC471Q2N34B0	151-5872	
100	25	+110	PTFL04BD222Q2N34B0	151-5873	
100	25	+110	PTFL04BD471Q2N34B0	151-5874	
90	25	+100	PTFL04BE222Q2N34B0	151-5875	
90	25	+100	PTFL04BE471Q2N34B0	151-5876	
80	25	+90	PTFL04BF222Q2N34B0	151-5877	
80	25	+90	PTFL04BF471Q2N34B0	151-5878	
70	25	+80	PTFL04BG222Q2N34B0	151-5879	
70	25	+80	PTFL04BG471Q2N34B0	151-5880	
60	25	+70	PTFL04BH222Q2N34B0	151-5881	
60	25	+70	PTFL04BH471Q2N34B0	151-5882	

Order Code	1+	50+	100+	250+	500+
All Values	1.03	0.83	0.61	0.46	0.37

PTF Series (radial lead lug terminal)

Upper Limit Temperature (Beta Value)	Lower Limit Temperature (Beta Value)	Operating Temperature (max)	Mfrs. List No.	Order Code
°C	°C	°C		
120	25	+130	PTFM04BB222Q2N34B0	151-5884
120	25	+130	PTFM04BB471Q2N34B0	151-5885
110	25	+120	PTFM04BC222Q2N34B0	151-5886
110	25	+120	PTFM04BC471Q2N34B0	151-5887
100	25	+110	PTFM04BD222Q2N34B0	151-5888
100	25	+110	PTFM04BD471Q2N34B0	151-5889
90	25	+100	PTFM04BE222Q2N34B0	151-5890
90	25	+100	PTFM04BE471Q2N34B0	151-5891
80	25	+90	PTFM04BF222Q2N34B0	151-5892
80	25	+90	PTFM04BF471Q2N34B0	151-5893
70	25	+80	PTFM04BG222Q2N34B0	151-5894
70	25	+80	PTFM04BG471Q2N34B0	151-5896
60	25	+70	PTFM04BH222Q2N34B0	151-5897
60	25	+70	PTFM04BH471Q2N34B0	151-5898

Order Code	1+	50+	100+	250+	500+
All Values	1.61	1.30	0.97	0.72	0.58



Temperature Sensing Resistors

PTC Chip – LT73 Series



- Highly linear PTC response to temperature change
- Each part is individually value marked in black over orange
- Applications include temperature compensation and thermal protection
- TCRs at 3000 ppm and 3900 ppm meet internationally recognised standards

Linear PTC chip for thermal sensing. The tiny 0805 size thin film temperature sensor is manufactured by depositing a special alloy, ensuring long life stability. Supplied on 8mm tape.

Resistance tolerance	±5%	Temperature coefficient	3000 or 3900ppm/°C
Rated Power @ 70°C	0.1 watt to zero @ 120°C	TCR measurement range	+25°C to +75°C
Working voltage	50V max.	TCR tolerance	±10%
Overload voltage	100V max.	Insulation resistance	>10Mohm
Operating temperature	-40°C to ++125°C		

Resistance @ 25°C	Resistance @ 70°C	TCR	Order Code
680ohm	799ohm	±3900ppm/°C	117-4314
1kohm	1135ohm	±3000ppm/°C	117-4311
1kohm	1175ohm	±3900ppm/°C	117-4315
2kohm	2270ohm	±3000ppm/°C	117-4312
2kohm	2351ohm	±3900ppm/°C	117-4317
3kohm	3405ohm	±3000ppm/°C	117-4313
3kohm	3526ohm	±3900ppm/°C	117-4318

Order Multiple=5	Price Each				
Order Code	5+	25+	100+	500+	1K+
All Values	0.62	0.53	0.45	0.34	0.31

PTC, Axial Lead



9 mW/°C types: L=6.5, Dia=2.3, Leads L=30 5 mW/°C types: L=3.2, Dia=1.7, Leads L=30

- Resistance value increases linearly with temperature rise
- Applications include temperature compensation in sensitive electronic circuits
- Available ratings 0.25W and 0.17W

Heat dissipation	0.25W = 9mW/°C, 0.25W = 5mW/°C
Time constant	0.25W = 7.5s, 0.25W = 7.5s
Standard resistance @ 25°C	5.1kohm, 5.1kohm, ±5%
Temperature coefficient	0.3%/°C @ 25°C (3000ppm/°C) ± 10%
Resistance ratio	R25°C/R+125°C = 1.37
Operating temperature range	-40°C to ++125°C
High temperature stability	1000 hours@125°C, 0.5 @ 125°C, 0.5% ΔR
Insulation resistance	>10Gohm

Standard Resistance	Heat Dissipation mW/°C	Order Code	1+	25+	100+	250+
1K	9	117-4306	1.01	0.81	0.78	0.58
10K	9	117-4308	1.34	1.08	1.04	0.78
1K	5	117-4309	1.32	1.06	1.03	0.77
5K1	5	117-4310	1.32	1.06	1.03	0.77

Carbon Skeleton Trimmers

0.1 Watt – PV22 Series Ultra Small



- Ultra small SMD carbon trimmer compatible with automatic adjustment and reflow soldering
- Lead free construction with gold terminations, suitable for lead free applications/process
- Special resin substrate withstands reflow solder process
- Trimming tool (KMDR090) also available, see Order Code 353-1776

H = 0.9, W = 2.1, D = 2.7			
Power rating @ 50°C	10mW	Temperature coefficient	± 500ppm/°C
Resistance tolerance	±30%	Operating temperature	-25°C to +85°C
Maximum voltage	50V d.c.	Rotation angle mechanical	240°±30°

Stocked in the following OHMIC Values:

500R = 353-1454	5K = 353-1491	20K = 353-1510	100K = 353-1545	1M = 353-1582
1K = 353-1466	10K = 353-1508	50K = 353-1533		

Order Multiple=5	Price Each				
Order Code	5+	50+	100+	500+	1K+
All Values	0.200	0.158	0.148	0.102	0.099

**Carbon Skeleton Trimmers - continued**

**0.1 Watt – PVZ3 Series**



- Single turn carbon trimmer in 3.1 square SMD package
- Excellent solderability due to special plating technique used on terminators
- Substrate design prevents wicking of flux onto the top of the part
- Compatible with in-process automatic adjustment

H = 1.8, W = 3.1, D = 3.6

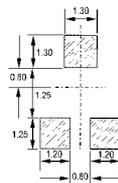
Power rating @ 50°C	10mW	Temperature coefficient	± 500ppm/°C
Resistance tolerance	±30%	Operating temperature	-25°C to +85°C
Maximum voltage	50V d.c.	Rotation angle mechanical	230°±10°

Stocked in the following OHMIC Values:

200R = 353-1594	1K = 353-1624	5K = 353-1650	50K = 353-1697	500K = 353-1739
500R = 353-1612	2K = 353-1636	10K = 353-1661	100K = 353-1703	1M = 353-1740

Order Multiple=5	Price Each				
Order Code	5+	50+	100+	500+	1K+
All Values	0.410	0.320	0.300	0.200	0.198

**0.05 Watt – 3103 3mm Carbon Trimmer**



- Carbon on polyester with end stops
- Sealed for washing (note the seal is broken when trimmed).

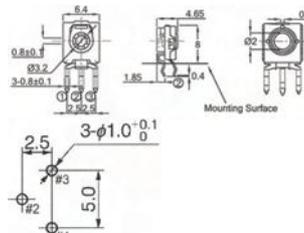
Power rating @ 50°C	50mW	Temperature coefficient	±500ppm/°C +25°C to +70°C
Resistance tolerance	±30%		±750ppm/°C -20°C to +25 °C
Maximum voltage	50V d.c	Rotation electrical	260° ±20%
Operating temperature	-20°C to +70°C		

Stocked in the following OHMIC Values:

1K = 117-4300	2K = 117-4301	10K = 117-4302	50K = 117-4303	100K = 117-4304
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Order Multiple=5	Price Each				
Order Code	5+	50+	100+	500+	1K+
All Values ●	0.59	0.53	0.43	0.29	

**CT6 Series**



- Economy miniature trimmers incorporating the latest technology developments
- Robust dust and flux proof enclosed construction
- Space saving device
- New resin moulded element

Power rating @ 50°C	10mW	Contact Resistance Variation	5% or 3% whichever is greater
Tolerance	±30%	Rotation (nominal)	210° Mechanical
Maximum Voltage	50V d.c	Operating temperature	-25°C to +70°C

Stocked in the following OHMIC Values:

CT6V Side Adjust	100R = 122-7551	1K = 122-7554	10K = 122-7558	100K = 122-7561	470K = 122-7563
	220R = 122-7552	2K2 = 122-7556	22K = 122-7559	220K = 122-7562	1M = 122-7564
	470R = 122-7553	4K7 = 122-7557	47K = 122-7560		

Order Multiple=5	Price Each				
Order Code	5+	50+	100+	500+	1K+
All Values ●	0.158	0.143	0.128	0.112	

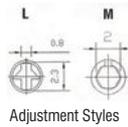
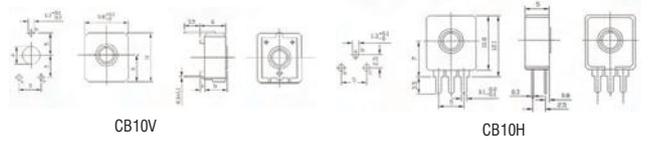
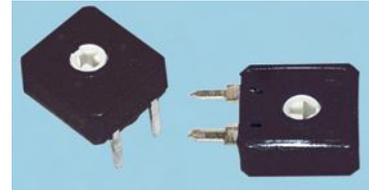
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**CB10 Series**



- Economy carbon trimmers
- Innovative carbon resistive element printed on film in a fully enclosed package
- Choice of horizontal and vertical adjustment with two adjustment styles
- Stable in High Humidity

Resistive element	Carbon on film	Resistance tolerance	±20% (>1MR = 30%)
Power rating @ 40°C	150mW	Rotation nominal	295° electrical 240° mechanical
Maximum voltage	200V dc	Rotational life	500 cycles, minimum
Slider current	50 mA	Operating temperature	-25°C to +70°C

**CB10LH - L Style, Side Adjust**

100R = 122-7515	1K = 122-7519	10K = 122-7524	100K = 122-7527	470K = 122-7530
220R = 122-7516	2K2 = 122-7521	22K = 122-7525	220K = 122-7528	1M = 122-7532
470R = 122-7517	4K7 = 122-7523	47K = 122-7526		

**CB10LV - L Style, Top Adjust**

100R = 122-7533	2K2 = 122-7537	22K = 122-7540	220K = 122-7544	2M2 = 122-7547
220R = 122-7534	4K7 = 122-7538	47K = 122-7541	470K = 122-7545	4M7 = 122-7549
470R = 122-7535	10K = 122-7539	100K = 122-7542	1M = 122-7546	10M = 122-7550
1K = 122-7536				

**CB10MH - M Style, Side Adjust**

1K = 122-7573	4K7 = 122-7575	10K = 122-7576	22K = 122-7577	100K = 122-7578
2K2 = 122-7574				

**CB10MV - M Style, Top Adjust**

1K = 122-7565	4K7 = 122-7568	10K = 122-7569	47K = 122-7570	1M = 122-7571
2K2 = 122-7566				

Order Multiple=5	Order Code	Price Each				
Style		5+	25+	100+	500+	
CB10LH	All Values ●	0.194	0.173	0.164	0.144	
CB10LV	All Values ●	0.210	0.191	0.181	0.159	
		5+	25+	50+	100+	500+
CB10MH	All Values ●	0.300	0.290	0.280	0.220	0.200
CB10MV	All Values ●	0.210	0.200	0.195	0.158	0.143
<b>Accessories</b>						
10mm Spindle, Black	122-7581●	0.064	0.063	0.061	0.048	0.042
10mm Spindle, White	122-7583●	0.085	0.084	0.081	0.064	0.056
18mm Thumbwheel, Black	122-7582●	0.450	0.420	0.410	0.310	0.270

**51 & 53 Series Pluggable Potentiometer**



51 Series top adjust H=8 W=12.6 D=16  
53 Series side adjust H=19 W=12.6 D=16

- Vertical or horizontal mounting
- Adjustable from both sides
- Integral support bracket
- Optional snap-in spindles and edge wheel

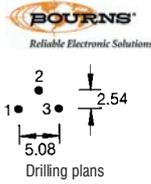
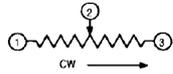
Resistive element	Resin Base technology	Mechanical rotation	300° nominal
Power rating @ 40°C	200mWatt	Rotational life	15000 operations
Maximum voltage	500Vdc	Operating temperature	-25°C to +70°C
Resistance tolerance	±20%		

	Order Code	Price Each				
51 Top adjust		5+	25+	50+	100+	500+
1K	117-4443●	0.69	0.59	0.51	0.48	0.41
4K7	117-4444●	0.69	0.59	0.51	0.48	0.41
10K	117-4445●	0.69	0.59	0.51	0.48	0.41
47K	117-4446●	0.69	0.59	0.51	0.48	0.41
100K	117-4448●	0.69	0.59	0.51	0.48	0.41

	Order Code	5+	25+	50+	100+	500+
<b>53 Side adjust</b>						
10K	117-4451●	0.66	0.56	0.49	0.46	0.39
47K	117-4452●	0.66	0.56	0.49	0.46	0.39
100K	117-4453●	0.51	0.47	0.41	0.39	0.37
<b>Accessories</b>						
30 x 6mm Spindle Black	748-316●	0.45	0.44	0.42	0.40	0.38
60 x 6mm Spindle Black	748-328●	0.45	0.40	0.39	0.38	0.37
25mm Black edge wheel	748-330●	0.45	0.34	0.32	0.31	0.27

**Cermet Skeleton Trimmers**

**0.3 Watt – 3306 Series**



3306P: H=7.8, Dia=6.8, Pin dia=1.0  
 3306W: H=8.5, W=6.8, D=7.6, Pin dia=1.0

- Miniature horizontal and vertical mounting
- Cermet trimmers, dust proof/splash proof covers
- Board retention feature and PCB stand offs.

Power rating @ 70°C	200mW	End resistance	2% (≤100Rohm = 30ohm)
Voltage rating	100V	Constant resistance variation	3% max
Resistance tolerance	±25%	Adjustment angle	215°
Temperature coefficient	±250ppm/°C	Operating temperature	-20°C to +100°C

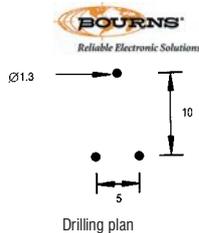
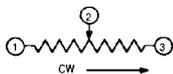
Stocked in the following OHMIC Values:

<b>3306P</b>	100R = 108-234	2K = 108-237	20K = 108-240	500K = 108-243
	500R = 108-235	5K = 108-238	50K = 108-241	1M = 108-244
	1K = 108-236	10K = 108-239	100K = 108-242	
<b>3306W</b>	100R = 108-245	2K = 108-248	10K = 108-250	50K = 108-252
	500R = 108-246	5K = 108-249	20K = 108-251	100K = 108-253
	1K = 108-247			

207393

Style	Order Code	1+	50+	100+	500+
3306P	All Values●	0.340	0.310	0.290	0.260
3306W	All Values●	0.260	0.240	0.210	0.189

**0.5 Watt – 3309P Series Horizontal**



H=6.3, Dia=9.0, Pin dia.=1.19

- Horizontal mounting cermet trimmer with dust proof/splash proof cover
- Adjustable via cross slot rotor
- Board retention feature and PCB stand-offs.

Power rating @ 70°C	500mW	End resistance	2% (≤2K = 30ohm)
Voltage rating	250V	Constant resistance variation	3%
Resistance tolerance	±25%	Adjustment angle	235°
Temperature coefficient	±250ppm/°C	Operating temperature	-25°C to +100°C

Stocked in the following OHMIC Values:

100R = 452-579	2K = 452-609	20K = 452-634	100K = 452-658
500R = 452-580	5K = 452-610	50K = 452-646	500K = 452-660
1K = 452-592	10K = 452-622		

207188

Order Code	1+	50+	100+	500+
All Values●	1.08	0.92	0.84	0.69

**Surface Mount Single Turn Cermet Trimmers**

**3312 Series**

**2mm SMD Trimming Potentiometer**



- Single turn, sealed 2mm surface mount trimmer
- Cermet element
- Miniature design for flexibility
- Compatible with surface mount manufacturing processes



Voltage rating	500V	Angle mechanical rotation	285°
Resistance tolerance	±20%	Operating temperature	-55°C to +125°C
Temperature coefficient	±100ppm/°C	Insulation resistance	500Mohm
Power rating	10mW		

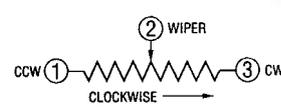
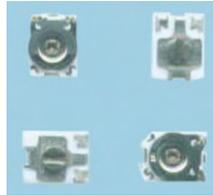
Stocked in the following OHMIC Values:

10R = 160-3156	200R = 160-3162	2K = 160-3163	20K = 160-3165	200K = 160-3166
20R = 160-3161	500R = 160-3169	5K = 160-3170	50K = 160-3171	500K = 160-3172
50R = 160-3168	1K = 160-3157	10K = 160-3158	100K = 160-3159	1M = 160-3160

527280

Order Code	1+	25+	100+	500+	1K+
All Values●	2.05	1.94	1.75	1.57	1.34

**0.1 Watt – TC33 Series – 3 mm SMD**



- Available as bottom adjust only
- Rotor design compatible with pick and place and automatic adjustment equipment
- Recommended for reflow soldering
- 3 mm size meets EIA / EIAJ standard trimmer footprint

Voltage rating	50V	Contact resistance variation	5%
Resistance tolerance	±25%	Operating temperature	-40°C to +100°C
Temperature coefficient	±250ppm/°C		

Stocked in the following OHMIC Values:

1K = 136-0923	10K = 136-0924	20K = 136-0925	50K = 136-0926	100K = 136-0927
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475035

Order Code	5+	50+	100+	500+	500+
All Values●	0.41	0.36	0.31	0.26	0.26

**35 Series 3mm Single Turn Open Frame Cermet Trimmers**



Tolerance	±25%
Input voltage	50V
Power rating	10mW
Insulation resistance	100Mohm
Temperature coefficient	±250ppm/°C
Operating temperature	-40°C to +125°C



H=3.5, W=1.55, D=3.0

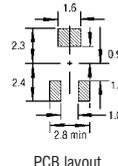
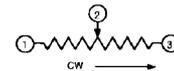
Stocked in the following OHMIC Values:

1K = 152-0615	5K = 152-0618	10K = 152-0616	50K = 152-0619	100K = 152-0617
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495960

Order Multiple=5	Order Code	5+	50+	100+	500+	1K+
All Values●		0.400	0.350	0.300	0.250	0.184

**0.05 Watt – 3203 Series Sealed – 3mm Square**



H=2.0, W=3.0, D=3.5

Supplied on 12mm embossed tape (reel=1K pcs)

- Ultra compact cermet trimmers
- Sealed to withstand industrial cleaning solvents and modern soldering processes

Voltage rating	15V	Adjustment angle (no end stop)	260° ±20°
Resistance tolerance	±25%	End resistance	15% max
Operating temperature	-20°C to +85°C	Contact resistance variation	5% max
Temperature coefficient	±250ppm/°C	Soldering temperature	260°C for 5 secs. max.

Stocked in the following OHMIC Values:

1K = 107-130	5K = 107-132	20K = 107-134	100K = 107-136
2K = 107-131	10K = 107-133	50K = 107-135	

Mfrs. List No. 3203+Value

207203

Order Multiple=5	Order Code	5+	25+	100+	500+	1K+
All Values●		1.20	0.99	0.79	0.55	0.53

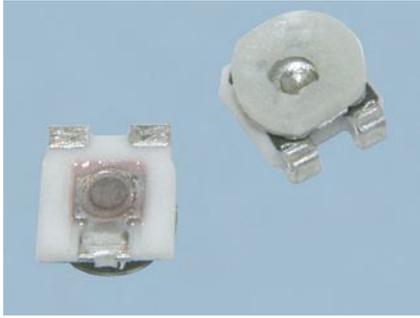
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### Surface Mount Single Turn Cermet Trimmers - continued

0.1 Watt – 3135 Series –  
3mm Square



H=2.0, W=3.0, D=3.5

Supplied on 12mm embossed tape (reel=1K pcs)

- Cermet Element
- Stocked in Standard 8mm Tape
- Components Marked with Value

Resistance tolerance ±25%  
Operating temperature -40°C +100°C  
Temperature coefficient ±250ppm/°C  
Electrical angle 270° ± 20°  
Voltage rating 50V DC max  
Weight 0.04 g

Stocked in the following OHMIC Values:

100R = 886-6813	1M = 886-6864	20K = 886-6899	5K = 886-6929
1K = 886-6830	200R = 886-6872	200K = 886-6902	500K = 886-6945
10K = 886-6848	2K = 886-6880	500R = 886-6910	

Mfrs. List No. 3135X+Value+P

386931

Order Multiple=5 Order Code	5+	25+	100+	500+	1K+
All Values ●	0.78	0.64	0.54	0.40	0.31

### 22 Series 3mm Single Turn Sealed Cermet Trimmers



H=3.51, W=3.20, D=2.21

Tolerance ±20%  
Input voltage 200V  
Power rating 125mW  
Dielectric strength 500V  
Insulation resistance 100Mohm  
Temperature coefficient ±100ppm/°C  
Operating temperature -55°C to +125°C  
Terminals J hook



Stocked in the following OHMIC Values:

5K = 152-0624	10K = 152-0620	20K = 152-0622	50K = 152-0625
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495903

Order Multiple=5 Order Code	5+	50+	100+	500+	1K+
All Values ●	1.28	1.02	0.87	0.72	0.63

### 0.1 Watt – 3142W Series 4mm Square



- Surface mount single turn cermet trimmer
- 3 terminal in delta configuration
- Continuous perimeter adjustment rotor for easy vacuum pick up
- Stable cermet element

Resistance tolerance ±25%  
Temperature coefficient ±250ppm/°C  
Operating voltage 50V d.c. or a.c. rms  
Temperature range -25°C to +85°C

H=2.2, W=4, D=4.8 Reel=800 pcs

Stocked in the following OHMIC Values:

200R = 117-4175	2K = 117-4178	20K = 117-4181	200K = 117-4184
500R = 117-4176	5K = 117-4179	50K = 117-4182	500K = 117-4185
1K = 117-4177	10K = 117-4180	100K = 117-4183	1M = 117-4187

207286

Order Multiple=5 Order Code	5+	25+	100+	250+	800+
All Values ●	0.79	0.64	0.54	0.38	0.26

### 23 Series 4mm Single Turn Sealed Cermet Trimmers



Tolerance ±20%  
Input voltage 200V  
Power rating 250mW  
Dielectric strength 500V  
Insulation resistance 100ohm  
Temperature coefficient ±100ppm/°C  
Operating temperature -55°C to +125°C



H=4.5, W=4.5, D=2.54

### 23A Series

Stocked in the following OHMIC Values:

5K = 152-0628	10K = 152-0626	20K = 152-0627	50K = 152-0629
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Order Multiple=5 Order Code	5+	50+	100+	500+	1K+
All Values ●	1.20	1.00	0.88	0.76	0.64

### 23B Series

Stocked in the following OHMIC Values:

5K = 152-0632	10K = 152-0630	20K = 152-0631	50K = 152-0634
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495966

Order Multiple=5 Order Code	5+	50+	100+	500+	1K+
All Values ●	1.20	1.00	0.88	0.76	0.64

### 0.1 Watt – 3204 Series – 4mm Square



- Cermet Element
- Stocked in Standard 12mm Tape
- Terminal Layout Stops Solder Bridging

H=2.0, W=3.0, D=3.5

Supplied on 12mm embossed tape (reel=1K pcs)

Resistance tolerance ±25%  
Operating temperature -20°C +85°C  
Temperature coefficient ±250ppm/°C

Electrical angle 250° ± 20°  
Voltage rating 50V DC max  
Weight 0.11 g

Stocked in the following OHMIC Values:

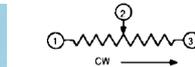
100R = 883-0681	100K = 883-0711	2K = 883-0746	500R = 883-0770
1K = 883-0690	1M = 883-0720	20K = 883-0754	50K = 883-0797
10K = 883-0703	200R = 883-0738	200K = 883-0762	

Mfrs. List No. 3204X+Value+P

386929

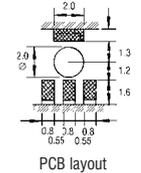
Order Multiple=5 Order Code	5+	25+	100+	500+	1K+
All Values ●	1.28	1.09	0.94	0.81	0.69

### 0.15 Watt – 3165W Series – 4mm Square



H=2.4, W=4, D=4.5

Supplied on 12mm embossed tape (reel=800 pcs)



PCB layout

Compact cermet trimmers featuring three in-line terminals. Cross slot adjustment head with unbroken perimeter for ease of vacuum pick up and auto adjustment. Suitable for all reflow and infra-red solder processes.

Voltage rating 20V  
Resistance tolerance ±25%  
Temperature coefficient ±250ppm/°C  
End resistance 3%  
Contact resistance variation 5%  
Adjustment angle (no end stop) 250° +10°  
Soldering temperature 250°C for max.  
Operating temperature -20°C to +85°C

Stocked in the following OHMIC Values:

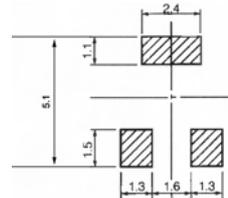
1K = 117-3880	5K = 117-3883	20K = 117-3885	100K = 117-3887
2K = 117-3882	10K = 117-3884	50K = 117-3886	

Mfrs. List No. 3165W+Value

207204

Order Multiple=5 Order Code	5+	25+	100+	250+	800+
All Values ●	0.79	0.64	0.54	0.43	0.34

### 0.2 Watt – 3150 Series 4mm Square



- Ultra compact cermet trimmers – 4mm square
- 1.5mm above board height

H = 1.5, W = 4.5, D = 3.8

Voltage rating 50V  
Resistance tolerance ±25%  
Operating temperature -20°C to +100°C  
Temperature coefficient ±250ppm/°C  
Adjustment angle (no end stop) 360°  
Contact resistance variation 5% max

Mfrs. List No. 3150W+Resistance Code + P

Stocked in the following OHMIC Values:

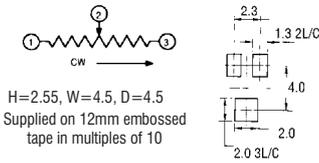
100R = 117-3850	2K = 117-3855	20K = 117-3857	100K = 117-3853
500R = 117-3859	5K = 117-4218	50K = 117-4219	200K = 117-3858
1K = 117-3851	10K = 117-3852		

312089

Order Multiple=5

Order Code	5+	25+	100+	500+	1K+
All Values ●	0.84	0.71	0.59	0.39	0.30

0.25 Watt – 3314 Series – 4mm Square Sealed



- Compact cermet trimmers
  - Sealed to withstand industrial cleaning solvents and modern soldering processes.
- |                         |            |                              |                 |
|-------------------------|------------|------------------------------|-----------------|
| Voltage rating          | 300V       | Contact resistance variation | 3%              |
| Resistance tolerance    | ±20%       | Adjustment angle             | 210°            |
| Temperature coefficient | ±100ppm/°C | Operating temperature        | -55°C to +125°C |

Stocked in the following OHMIC Values:

Case Style = G

500R = NEW 136-0933	2K = NEW 136-0935	10K = NEW 136-0937	50K = NEW 136-0939
1K = NEW 136-0934	5K = NEW 136-0936	20K = NEW 136-0938	100K = NEW 136-0940

Case Style = J

500R = NEW 136-0928	2K = NEW 136-0931	10K = 514-779	50K = 514-780
1K = 514-755	5K = 514-767	20K = NEW 136-0932	100K = 514-792

207205

Order Code	5+	50+	100+	500+
All Values ●	0.96	0.87	0.76	0.69

0.25 Watt – TS53Y Series  
4mm Square Sealed

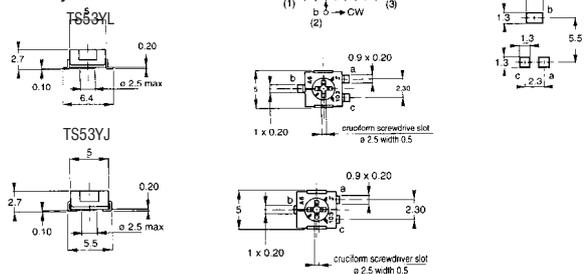


- Low contact resistance variation
- Fully sealed to IP67
- Wide operating temperature range

Voltage rating	200V
Resistance tolerance	±20%
Temperature coefficient	±100ppm/°C
End resistance	0.1% or 3Ω
Contact resistance variation	1% or 3Ω
Dielectric strength	1000V
Operating temperature	-55°C to 155°C

H = 2.7 W = 5.0 D = 5.0 Supplied on 12mm embossed tape (reel = 500pcs)

PCB Layouts



Stocked in the following OHMIC Values:

TS53YL

500R = 114-1470	2K = 114-1472	10K = 114-1474	50K = 114-1476	200K = 114-1479
1K = 114-1471	5K = 114-1473	20K = 114-1475	100K = 114-1477	

TS53YJ

500R = 114-1481	2K = 114-1483	10K = 114-1485	50K = 114-1487	1M = 114-1489
1K = 114-1482	5K = 114-1484	20K = 114-1486	100K = 114-1488	

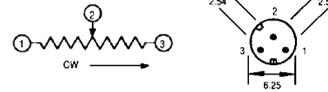
207321

Style	Order Code	1+	50+	100+	500+	1K+
TS53YL	All Values ●	1.23	1.12	1.02	0.80	0.74
TS53YJ	All Values ●	1.23	1.12	1.02	0.80	0.74

£ € 40,000 PRICES REDUCED

1/4" (6.35mm) Single Turn Cermet Trimmers

0.5 Watt – 3329H Series



H=4.6, Pin dia=0.5

Power rating @ 85°C	500mW	Contact resistance variation	3% or 3Ω whichever >
Resistance tolerance	±10%	Dielectric strength (sea level)	600V ac
Temperature coefficient	±100ppm/°C	Adjustment angle	240°
End resistance	2 Ω max	Operating temperature	-55°C to 150°C
Voltage rating	300V		

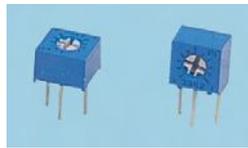
Stocked in the following OHMIC Values:

10R = 935-4050	100R = 935-4069	1K = 935-4077	10K = 935-4085	100K = 935-4093
20R = 935-4107	200R = 935-4115	2K = 935-4123	20K = 935-4140	200K = 935-4158
50R = 935-4166	500R = 935-4174	5K = 935-4182	50K = 935-4190	500K = 935-4204

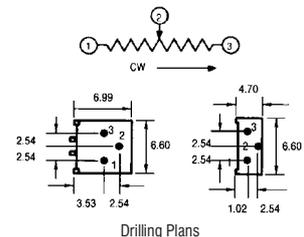
207394

Order Code	1+	50+	100+	500+	1K+
All Values ●	1.32	1.22	1.13	1.03	0.97

0.5 Watt – 3362 Series



3362P H=4.7, Pin Dia.=0.46  
3362W H=6.99 Pin Dia.=0.46



- Sealed to withstand harsh environments and immersion cleaning processes
- Featuring built-in 'stand-offs'
- Multi-wire wiper to minimise contact resistance variation

Power rating @ 70°C	500mW	Contact resistance variation	1% (100R=3Ω)
Voltage rating	300V	Dielectric strength (sea level)	900V ac
Resistance tolerance	±10%	Adjustment angle	240°
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +125°C
End resistance	1% (100R=2Ω)		

Stocked in the following OHMIC Values:

3362P

100R = 935-4280	2K = 935-4336	20K = 935-4344	100K = 935-4310	500K = 935-4395
500R = 935-4360	5K = 935-4379	50K = 935-4387	200K = 935-4352	1M = 935-4328
1K = 935-4298	10K = 935-4301			

3362W

100R = 935-4409	2K = 935-4450	20K = 935-4468	100K = 935-4433	500K = 935-4514
500R = 935-4484	5K = 935-4492	50K = 935-4506	200K = 935-4476	1M = 935-4441
1K = 935-4417	10K = 935-4425			

207186

Order Multiple=5	Style	Order Code	5+	50+	100+	500+	1K+	2K+
	3362P	All Values ●	0.68	0.61	0.54	0.52	0.48	0.44
	3362W	All Values ●	0.68	0.61	0.54	0.52	0.48	0.44

0.2 Watt – 416 Series – 6mm Square



- Stable High Resolution Cermet Element
- Stocked Taped for Auto Insertion
- Dust and Splash Proof
- Space-Saving Device

Supplied on 12mm embossed tape (reel=1K pcs)

H=2.0, W=3.0, D=3.5  
416M - Top adjust: 5mm x 5mm  
416PA - Top adjust: 2.5mm x 5mm

Resistance tolerance	±25%	Mechanical angle	260°
Operating temperature	-20°C +100°C	Voltage rating	100V DC max
Temperature coefficient	±250ppm/°C	Starting Torque	35 mNm max.

Mfrs. List No. 41PA+Value+P

100R = 886-6988	2K = 886-7054	20K = 886-7046	200K = 886-7020
500R = 886-7070	5K = 886-7097	50K = 886-7089	500K = 886-7062
1K = 886-7003	10K = 886-6996	100K = 886-6970	1M = 886-7011

Mfrs. List No. 416M+Value+P

100R = 886-7100	2K = 886-7143	20K = 886-7178	200K = 886-7208
200R = 886-7119	5K = 886-7151	50K = 886-7186	500K = 886-7216
500R = 886-7127	10K = 886-7160	100K = 886-7194	1M = 886-7224
1K = 886-7135			



1/4" (6.35mm) Single Turn Cermet Trimmers - continued

0.2 Watt - 416 Series - 6mm Square - continued

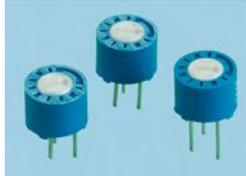
Stocked in the following OHMIC Values:

Order Multiple=5	5+	25+	100+	500+	1K+
Order Code	5+	25+	100+	500+	1K+
All Values ●	0.29	0.25	0.23	0.22	0.16

386933

7mm Single Turn Cermet Trimmers

0.5 Watt - T7 Series



- Miniature single turn cermet trimmers
- Clear scale reading on top
- Sealed to IP64

Dia. = 7, H = 6

Power rating @ 85°C	500mW	End resistance	1Ω max
Voltage rating	250V	Contact resistance variation	3% or 3Ω
Resistance tolerance	±20%	Dielectric strength (sea level)	1000 V
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to + 125°C

Stocked in the following OHMIC Values:

T7 YA

100R = 114-1642	1K = 114-1645	10K = 114-1649	100K = 114-1653	470K = 114-1655
220R = 114-1643	2K2 = 114-1646	22K = 114-1651	220K = 114-1654	1M = 114-1656
470R = 114-1644	4K7 = 114-1647	47K = 114-1652		

T7 YB

100R = 114-1657	1K = 114-1660	10K = 114-1664	100K = 114-1668	470K = 114-1671
220R = 114-1658	2K2 = 114-1662	22K = 114-1665	220K = 114-1669	1M = 114-1674
470R = 114-1659	4K7 = 114-1663	47K = 114-1666		

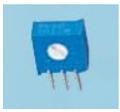
234800

Style	Order Code	1+	50+	100+	500+	1K+
T7 YA	All Values ●	0.48	0.46	0.39	0.38	0.34
T7 YB	All Values ●	0.58	0.55	0.48	0.46	0.41

3/8" (11.0mm) Single Turn Cermet Trimmers

0.5 Watt - 3386 Series



			
H = 4.8, Pin dia = 0.5	H = 4.8, Pin dia = 0.5	H = 9.5, Pin dia = 0.5	H = 9.5, Pin dia = 0.5
			
H = 10.41, Pin dia = 0.5	H = 9.5, Pin dia = 0.5	H = 4.8, Pin dia = 0.5	H = 9.5, Pin dia = 0.5

- Top and side adjusting cermet trimmers
- Sealed to withstand industrial cleaning solvents
- Moulded with built-in 'stand-offs'
- 3386G replaces VA05H
- 3386V replaces VA05V

Power rating @ 85°C	500mW	Contact resistance variation	1% or 1Ω whichever >
Voltage rating	300V	Dielectric strength (sea level)	900V ac
Resistance tolerance	±10%	Mechanical rotation	310°
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to + 125°C
End resistance	2Ωmax		

Stocked in the following OHMIC Values:

3386P

100R = 935-5014	1K = 935-5022	10K = 935-5030	100K = 935-5049	500K = 935-5138
200R = 935-5065	2K = 935-5073	20K = 935-5081	200K = 935-5090	1M = 935-5057
500R = 935-5103	5K = 935-5111	50K = 935-5120		

3386F

100R = 935-4522	1K = 935-4530	5K = 935-4697	50K = 935-4719	500K = 935-4735
200R = 935-4611	1K = 935-4549	10K = 935-4557	100K = 935-4573	1M = 935-4590
500R = 935-4689	2K = 935-4620	20K = 935-4646	200K = 935-4662	

3388FT

10K = 935-4565	1M = 935-4603	20K = 935-4654	5K = 935-4700	500K = 935-4743
100K = 935-4581	2K = 935-4638	200K = 935-4670	50K = 935-4727	

3386W

100R = 935-5260	1K = 935-5278	10K = 935-5286	100K = 935-5294	500K = 935-5383
200R = 935-5316	2K = 935-5324	20K = 935-5332	200K = 935-5340	1M = 935-5308
500R = 935-5359	5K = 935-5367	50K = 935-5375		

3386X

100R = 935-5391	1K = 935-5405	10K = 935-5413	100K = 935-5421	500K = 935-5510
200R = 935-5448	2K = 935-5456	20K = 935-5464	200K = 935-5472	1M = 935-5430
500R = 935-5480	5K = 935-5499	50K = 935-5502		

3386H

100R = 935-4883	1K = 935-4891	10K = 935-4905	100K = 935-4913	500K = 935-5006
200R = 935-4930	2K = 935-4948	20K = 935-4956	200K = 935-4964	1M = 935-4921
500R = 935-4972	5K = 935-4980	50K = 935-4999		

3386G

100R = 935-4751	1K = 935-4760	10K = 935-4778	100K = 935-4786	500K = 935-4875
200R = 935-4808	2K = 935-4816	20K = 935-4824	200K = 935-4832	1M = 935-4794
500R = 935-4840	5K = 935-4859	50K = 935-4867		

3386V

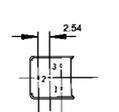
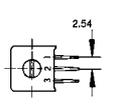
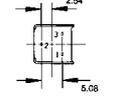
100R = 935-5146	1K = 935-5154	10K = 935-5162	50K = 935-5243	500K = 935-5251
200R = 935-5197	2K = 935-5200	20K = 935-5219	100K = 935-5170	1M = 935-5189
500R = 935-5227	5K = 935-5235			

207395

Style	Order Code	1+	50+	100+	500+	1K+
3386P	All Values ●	0.56	0.48	0.45	0.42	0.40
3386F	All Values ●	0.56	0.48	0.45	0.42	0.40
3386W	All Values ●	0.55	0.47	0.44	0.41	0.39
3386X	All Values ●	0.61	0.53	0.49	0.42	0.40
3386FT	All Values ●	2.14	1.92	1.69	1.63	1.23
3386H	All Values ●	0.53	0.46	0.43	0.40	0.33
3386G	All Values ●	0.55	0.47	0.44	0.41	0.39
3386V	All Values ●	0.60	0.50	0.47	0.41	0.39

0.5 Watt - 63 Series



			
63M H=4.83, Pins=0.81 x 0.25	63P H=4.83, Pins=0.81 x 0.25	63X H=10.03, Pins=0.81 x 0.25	63S H=10.03, Pins=0.81 x 0.25
			
63MT-607 H=10.4, Pins=0.81 x 0.25			

- Cermet element top and side adjusting
- Single turn sealed to withstand industrial cleaning solvents
- Manufactured to meet MIL-R-22097 specification

Power rating @ 70°C	500mW	Contact resistance variation	1% or 1Ω whichever >
Voltage rating	300V	Dielectric strength (sea level)	1000V ac
Resistance tolerance	±10%	Mechanical rotation	270°
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to + 125°C
End resistance	2% or 2Ω whichever is >		

Stocked in the following OHMIC Values:

**63M**

100R = 960-7781	1K = 960-7811	10K = 960-7846	100K = 960-7870	500K = 960-7897
200R = 960-7790	2K = 960-7820	20K = 960-7854	200K = 960-7889	1M = 960-7900
500R = 960-7803	5K = 960-7838	50K = 960-7862		

**63P**

100R = 960-7919	1K = 960-7943	10K = 960-7978	100K = 960-8001	500K = 960-8028
200R = 960-7927	2K = 960-7951	20K = 960-7986	200K = 960-8010	1M = 960-8036
500R = 960-7935	5K = 960-7960	50K = 960-7994		

**63X**

100R = 960-8044	1K = 960-8079	10K = 960-8109	100K = 960-8133	500K = 960-8150
200R = 960-8052	2K = 960-8087	20K = 960-8117	200K = 960-8141	1M = 960-8168
500R = 960-8060	5K = 960-8095	50K = 960-8125		

**63S**

100R = 960-9750	1K = 960-9784	10K = 960-9814	100K = 960-9849	500K = 960-9865
200R = 960-9768	2K = 960-9792	20K = 960-9822	200K = 960-9857	1M = 960-9873
500R = 960-9776	5K = 960-9806	50K = 960-9830		

**63MT-607**

100R = 960-8176	1K = 960-8206	10K = 960-8230	100K = 960-8265	500K = 960-8281
200R = 960-8184	2K = 960-8214	20K = 960-8249	200K = 960-8273	1M = 960-8290
500R = 960-8192	5K = 960-8222	50K = 960-8257		

207253

Order Multiple=5	Order Code	5+	25+	100+	250+	500+
Style						
63M	All Values ●	0.60	0.54	0.42	0.40	0.39
63P	All Values ●	0.53	0.46	0.43	0.40	0.38
63X	All Values ●	0.63	0.58	0.47	0.37	0.33
63S	All Values ●	0.60	0.54	0.42	0.40	0.39
63MT-607	All Values ●	0.96	0.81	0.76	0.71	0.67

**Surface Mount Multi Turn Cermet Trimmers**

**3222 Series**

3mm SMD Trimming Potentiometer



- 11 turn, sealed 2mm surface mount trimmer
- Cermet element
- Flush adjustment screw
- Miniature design for flexibility
- Sealed to withstand standard board wash processing

Voltage rating	200V
Resistance tolerance	±20%
Temperature coefficient	100ppm/°C
Power rating	125mW
Operating temperature	-65°C to +150°C



**3223J Series**

Stocked in the following OHMIC Values:

100R = 163-9294	1K = 163-9297	10K = 163-9301	100K = 163-9305	500K = 163-9307
200R = 163-9295	2K = 163-9299	20K = 163-9302	200K = 163-9306	1M = 163-9308
500R = 163-9296	5K = 163-9300	50K = 163-9303		

**3223G Series**

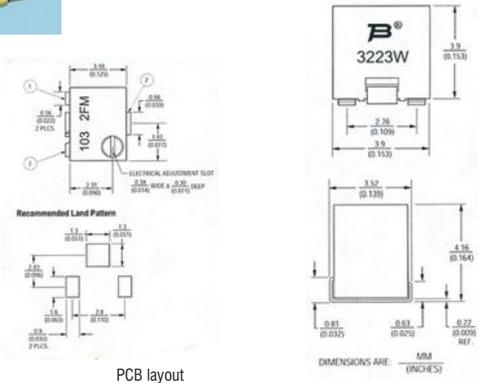
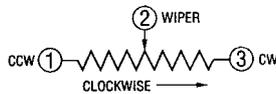
Stocked in the following OHMIC Values:

100R = 163-9309	1K = 163-9312	10K = 163-9315	100K = 163-9319	500K = 163-9321
200R = 163-9310	2K = 163-9313	20K = 163-9317	200K = 163-9320	1M = 163-9322
500R = 163-9311	5K = 163-9314	50K = 163-9318		

527286

Order Code	1+	25+	50+	100+	250+
All Values ●	3.05	2.94	2.82	2.55	2.29

**0.125 Watt – 3223 Series – 3mm 11 Turn Sealed**



PCB layout

- Miniature 11-turn 3mm surface mount cermet trimmer
- Sealed to withstand standard board wash processing
- Top flush adjustment for pick and place
- Standard trimmer footprint to EIA and EIAJ

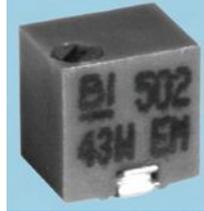
Stocked in the following OHMIC Values:

500R = 407-8721	10K = 407-8764	20K = 407-8772	
Voltage rating	500V	Contact resistance variation	3%
Resistance tolerance	±20%	Dielectric strength (sea level)	600V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-65°C to +150°C

343903

Order Code	1+	25+	50+	100+
All Values ●	3.54	3.47	3.30	3.14

**43 Series 3mm Multi-Turn Sealed Cermet Trimmers**



Tolerance	±20%
Input voltage	200V
Power rating	125mW
Dielectric strength	600V
Insulation resistance	100Mohm
Temperature coefficient	±100ppm/°C
Operating temperature	-65°C to +150°C
No. of turns	11

H=4.17, W=3.18, D=3.9

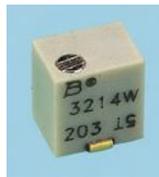
Stocked in the following OHMIC Values:

100R = 152-0636	1K = 152-0637	10K = 152-0638	100K = 152-0639	500K = 152-0649
200R = 152-0641	2K = 152-0642	20K = 152-0643	200K = 152-0644	1M = 152-0640
500R = 152-0645	5K = 152-0646	50K = 152-0648		

495975

Order Multiple=1	Order Code	1+	25+	50+	100+	250+
All Values ●		3.42	3.35	3.20	3.06	2.73

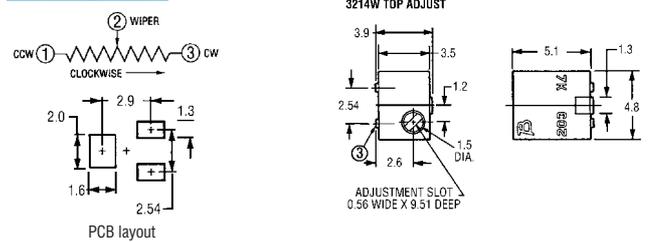
**0.25 Watt – 3214 Series – 4mm 5 Turn Sealed**



- 5-turn sealed 4mm surface mount trimmer.
- Top flush adjustment for pick and place.
- Standard trimmer footprint to EIA and EIAJ.

Supplied on 16mm embossed tape (reel=250pcs)

H=5.1, W=4.8, D=3.9



Voltage rating	300V	End resistance	1%
Resistance tolerance	±10%	Contact resistance variation	3%
Temperature coefficient	±100ppm/°C	Dielectric strength (sea level)	600V ac
		Operating temperature	-65°C to +150°C

Stocked in the following OHMIC Values:

**3214W**

1K = 988-248	5K = 988-261	20K = 988-285	100K = 988-303	500K = 988-327
2K = 988-250	10K = 988-273	50K = 988-297	200K = 988-315	1M = 988-339

207289

Order Code	5+	50+	100+	250+	500+	1K+
All Values ●	1.76	1.60	1.42	1.39	1.14	1.04

**44 Series 4mm Multi-Turn Cermet Trimmers**



Tolerance	±10%
Input voltage	300V
Power rating	250mW
Dielectric strength	600V
Insulation resistance	1000Mohm
Temperature coefficient	±100ppm/°C
Operating temperature	-65°C to +150°C
No. of turns	9

H=5.08, W=3.91, D=4.83

Stocked in the following OHMIC Values:

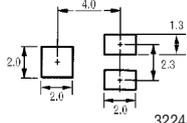
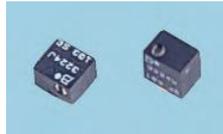
100R = 152-0650	1K = 152-0651	10K = 152-0652	100K = 152-0653	500K = 152-0664
200R = 152-0655	2K = 152-0656	20K = 152-0657	200K = 152-0658	1M = 152-0654
500R = 152-0661	5K = 152-0662	50K = 152-0663		

495977

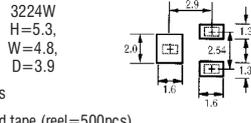
Order Multiple=1	Order Code	1+	50+	100+	500+	1K+
All Values ●		1.62	1.54	1.39	1.12	0.91

## Surface Mount Multi Turn Cermet Trimmers - continued

### 0.25 Watt – 3224 Series – 4mm Square Sealed



3224J  
H=3.7,  
W=4.8,  
D=5.0



3224W  
H=5.3,  
W=4.8,  
D=3.9

3224J supplied on 12mm embossed tape (reel=500pcs)  
3224W supplied on 16mm embossed tape (reel=250pcs)

- Compact 11 turn cermet trimmer
- Sealed to withstand industrial cleaning solvents

Voltage rating	300V	End resistance	1%
Resistance tolerance	±10%	Contact resistance variation	3%
Temperature coefficient	±100ppm/°C	Dielectric strength (sea level)	600V ac
		Operating temperature	-65°C to + 150°C

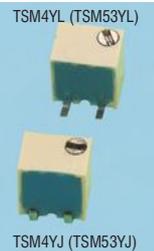
Stocked in the following OHMIC Values:

Style	Order Code	1+	50+	100+	250+	500+
3224J	All Values ●	2.39	2.19	1.86	1.81	1.81
3224W	All Values ●	2.21	2.03	1.88	1.85	1.81

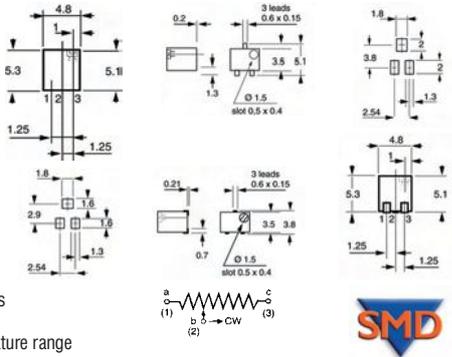
Style	Order Code	1+	50+	100+	250+	500+
3224J	All Values ●	2.39	2.19	1.86	1.81	1.81
3224W	All Values ●	2.21	2.03	1.88	1.85	1.81

207206

### 0.25 Watt - TSM4 Series - 4mm Square Sealed (Formerly TSM53 Series)



H = 5.3, W = 4.8, D = 3.5



- 13 turn cermet trimmers
- Fully sealed to IP67
- Wide operating temperature range

Voltage rating	200V	End resistance	1Ω
Resistance tolerance	±10%	Contact resistance variation	1% or 3%
Temperature coefficient	±100ppm/°C	Dielectric strength (sea level)	600V
		Operating temperature	-65°C to + 155°C

Stocked in the following OHMIC Values:

Style	Order Code	1+	50+	100+	250+	500+
TSM4YL	All Values ●	1.69	1.43	1.35	1.28	1.05
TSM4YJ	All Values ●	1.69	1.43	1.35	1.28	1.05

Style	Order Code	1+	50+	100+	250+	500+
TSM4YL	All Values ●	1.69	1.43	1.35	1.28	1.05
TSM4YJ	All Values ●	1.69	1.43	1.35	1.28	1.05

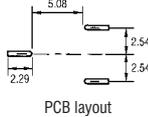
Style	Order Code	1+	50+	100+	250+	500+
TSM4YL	All Values ●	1.69	1.43	1.35	1.28	1.05
TSM4YJ	All Values ●	1.69	1.43	1.35	1.28	1.05

Style	Order Code	1+	50+	100+	250+	500+
TSM4YL	All Values ●	1.69	1.43	1.35	1.28	1.05
TSM4YJ	All Values ●	1.69	1.43	1.35	1.28	1.05

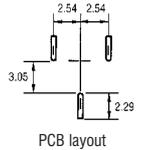
207319

Style	Order Code	1+	50+	100+	250+	500+
TSM4YL	All Values ●	1.69	1.43	1.35	1.28	1.05
TSM4YJ	All Values ●	1.69	1.43	1.35	1.28	1.05

### 0.25 Watt – 3269 Series – 6.35mm Square



3269P  
H=5.08,  
W=6.35,  
D=6.35



3269W  
H=7.11,  
W=4.32,  
D=6.35

- 12 turn cermet trimmers
- Surface mount version of the 3266 Series leaded 6.35mm multi-turn cermet trimmer
- Sealed to withstand industrial cleaning solvents.

Voltage rating	300V	End resistance	1%
Resistance tolerance	±10%	Contact resistance variation	3%
Temperature coefficient	±100ppm/°C	Dielectric strength (sea level)	600V ac
		Operating temperature	-65°C to + 150°C

Stocked in the following OHMIC Values:

Style	Order Code	1+	50+	100+	250+	500+
3269P	All Values ●	3.41	3.07	2.70	2.35	2.35
3269W	All Values ●	3.82	3.44	3.03	2.63	2.63

Style	Order Code	1+	50+	100+	250+	500+
3269P	All Values ●	3.41	3.07	2.70	2.35	2.35
3269W	All Values ●	3.82	3.44	3.03	2.63	2.63

207207

### Trimmer Design Kits



- Ideal for development and research (R&D)
- Each kit contains 5 pieces of 6 resistance values in both top and side adjust cases



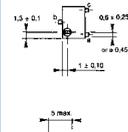
527065

Series	Order Code	1+	3+
3223	154-8101 ●	18.90	15.75
3224	154-8102 ●	18.90	15.75
3296	154-8103 ●	18.90	15.75
3314	154-8105 ●	18.90	15.75
3362	154-8106 ●	18.90	15.75
3386	154-8107 ●	18.90	15.75
3361	154-8108 ●	18.90	15.75

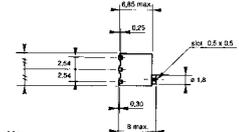
### 0.25 Watt - TS63Y Series - 6.35mm Square Sealed



PCB layout



H = 6.85 W = 5.0  
D = 6.85



- 13 (±2) turn cermet trimmers
- Fully sealed to IP67
- Low contact resistance variation

Voltage rating	250V	End resistance	1Ω
Resistance tolerance	±10%	Contact resistance variation	2% or 2%
Temperature coefficient	±100ppm/°C	Dielectric strength	1000V
		Operating temperature	-55°C to + 155°C

Stocked in the following OHMIC Values:

Style	Order Code	1+	50+	100+	250+	500+
TS63Y	All Values ●	2.34	2.06	1.87	1.54	1.36

207317

Style	Order Code	1+	50+	100+	250+	500+
TS63Y	All Values ●	2.34	2.06	1.87	1.54	1.36

## Help us to help the environment



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**1/4" (6.35mm) Multi Turn Cermet Trimmers**

**0.25 Watt – 3266 Series**



- 12 turn trimmers
- Sealed to withstand industrial cleaning solvents
- Moulded with built-in 'stand-offs'

Power rating @ 70°C	250mW	End resistance	5Ω max
Voltage rating	300V	Contact resistance variation	3% or 3Ω
Resistance tolerance	±10%	Dielectric strength (sea level)	600V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +150°C

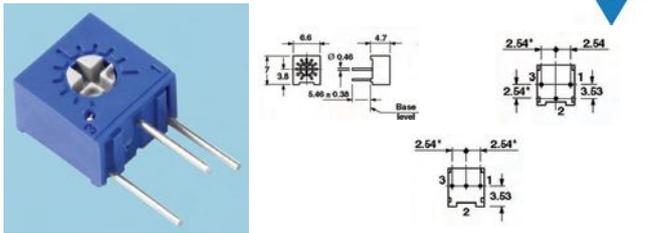
Stocked in the following OHMIC Values:

<b>3266W</b>	10R = 935-2627	20R = 935-2694	5K = 935-2759	100K = 935-2660
	20R = 935-2686	500R = 935-2740	10K = 935-2651	200K = 935-2724
	50R = 935-2732	1K = 935-2643	20K = 935-2716	500K = 935-2775
	100R = 935-2635	2K = 935-2708	50K = 935-2767	1M = 935-2678

<b>3266X</b>	100R = 935-2783	1K = 935-2791	10K = 935-2805	100K = 935-2813
	200R = 935-2821	2K = 935-2830	20K = 935-2848	200K = 935-2856
	500R = 935-2864	5K = 935-2872	50K = 935-2880	500K = 935-2899

Style	Order Code	1+	50+	100+	500+	1K+
3266W	All Values ●	1.64	1.51	1.39	1.21	1.15
3266X	All Values ●	1.52	1.40	1.28	1.21	1.15

**0.5 Watt – T73 Series**



- Industrial grade
- Rotor designed for automatic machine adjust interface
- Fully sealed mini-ature package
- Withstands harsh environments and immersion cleaning process

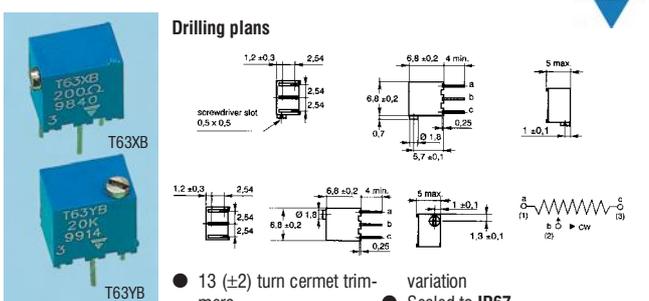
Power rating @ 70°C	500mW	Contact resistance variation	1% or 3Ω
Voltage rating	300V	Dielectric strength (sea level)	900 V
Resistance tolerance	±10%	Operating temperature	-55°C to +125°C
Temperature coefficient	±100ppm/°C		

Stocked in the following OHMIC Values:

<b>T73 YP</b>	1K = 135-7139	5K = 135-7142	20K = 135-7144	100K = 135-7146	1M = 135-7148
	2K = 135-7140	10K = 135-7143	50K = 135-7145	500K = 135-7147	
<b>T73 YU</b>	1K = 135-7149	5K = 135-7151	20K = 135-7154	100K = 135-7156	1M = 135-7158
	2K = 135-7150	10K = 135-7152	50K = 135-7155	500K = 135-7157	

Order Code	1+	50+	100+	250+	500+
All Values ●	0.64	0.58	0.55	0.50	0.46

**0.25 Watt – T63 Series**



- 13 (±2) turn cermet trimmers
- Low contact resistance
- variation
- Sealed to IP67
- Wide operating temperature range

Power rating @ 85°C	250mW	Resistance tolerance	±10%
End resistance	10hm	Dielectric strength	1000V
Voltage rating	250V	Temperature coefficient	±100ppm/°C
Contact resistance variation	2% or 2Ω	Operating temperature	-55°C to +155°C

Available in the following OHMIC Values:

<b>T63XB</b>	100K = 114-1426	1K = 114-1431	10K = 114-1434	100K = 114-1437	500K = 114-1439
	200R = 114-1427	2K = 114-1432	20K = 114-1435	200K = 114-1438	1M = 114-1440
	500R = 114-1428	5K = 114-1433	50K = 114-1436		
<b>T63YB</b>	100R = 114-1441	1K = 114-1445	10K = 114-1448	100K = 114-1451	500K = 114-1453
	200R = 114-1443	2K = 114-1446	20K = 114-1449	200K = 114-1452	1M = 114-1455
	500R = 114-1444	5K = 114-1447	50K = 114-1450		

Style	Order Code	1+	50+	100+	500+	1K+
T63XB	All Values ●	2.17	2.05	1.87	1.50	1.29
T63YB	All Values ●	2.23	2.11	1.93	1.54	1.32

**5/16" (7.62mm) Multi Turn Cermet Trimmers**

**0.5 Watt – 3339P Series**



H=6.35, Dia=7.62, Pin dia=0.43

- 4 turn top adjusting cermet trimmer
- Precise wiper setting

Power rating @ 85°C	500mW	End resistance	1% or 20hm whichever >
Voltage rating	300V	Contact resistance variation	3% or 3Ω whichever >
Resistance tolerance	±10%	Dielectric strength (sea level)	600V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +150°C

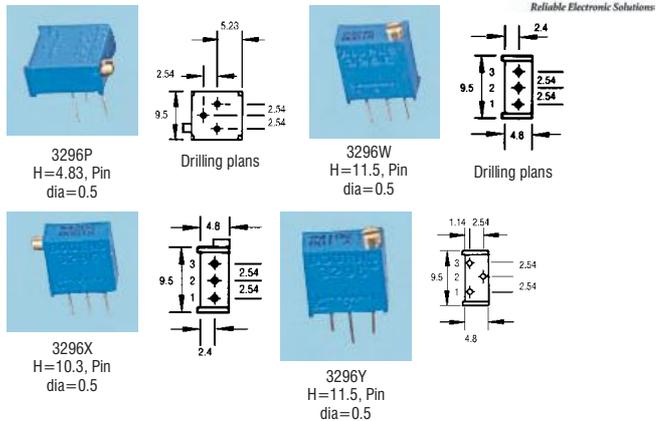
Stocked in the following OHMIC Values:

100R = 935-4212	1K = 935-4220	5K = 935-4271	10K = 935-4239	20K = 935-4255
500R = 935-4263	2K = 935-4247			

Order Code	1+	50+	100+	250+
All Values ●	4.46	4.06	3.47	2.91

**3/8" (11.0mm) Multi Turn Cermet Trimmers**

**0.5 Watt – 3296 Series**



- 25 turn trimmers
- Sealed to withstand industrial cleaning solvents
- Moulded with built-in 'stand-offs'

Power rating @ 70°C	500mW	End resistance	20hm max
Voltage rating	300V	Contact resistance variation	1% or 3Ω whichever >
Resistance tolerance	±10%	Dielectric strength (sea level)	900V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +150°C

Stocked in the following OHMIC Values:

<b>3296P</b>	100R = 935-3020	1K = 935-3038	10K = 935-3046	100K = 935-3054	500K = 935-3143
	200R = 935-3070	2K = 935-3089	20K = 935-3097	200K = 935-3100	1M = 935-3062
	500R = 935-3119	5K = 935-3127	50K = 935-3135		

<b>3296W</b>	10R = 935-3151	200R = 935-3224	5K = 935-3291	100K = 935-3194	1M = 935-3208
	20R = 935-3216	500R = 935-3283	10K = 935-3186	200K = 935-3259	2M = 935-3267
	50R = 935-3275	1K = 935-3178	20K = 935-3240	500K = 935-3313	5M = 935-3321
	100R = 935-3160	2K = 935-3232	50K = 935-3305		

<b>3296X</b>	10R = 935-3330	200R = 935-3402	2K = 935-3410	20K = 935-3429	200K = 935-3437
	20R = 935-3399	500R = 935-3453	5K = 935-3461	50K = 935-3470	500K = 935-3488
	50R = 935-3445	1K = 935-3356	10K = 935-3364	100K = 935-3372	1M = 935-3380
	100R = 935-3348				

<b>3296Y</b>	10R = 935-3496	50R = 935-3615	200R = 935-3569	1K = 935-3518	5K = 935-3631
	20R = 935-3550	100R = 935-3500	500R = 935-3623	2K = 935-3577	10K = 935-3526

**3/8" (11.0mm) Multi Turn Cermet Trimmers - continued**

**0.5 Watt – 3296 Series - continued**

20K = 935-3585 100K = 935-3534 500K = 935-3658 2M = 935-3607 5M = 935-3666  
 50K = 935-3640 200K = 935-3593 1M = 935-3542

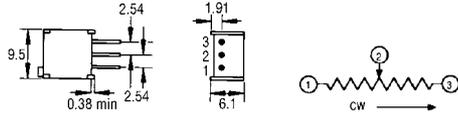
207398

Style	Order Code	1+	50+	100+	500+	1K+	2K5+
3296P	All values	1.38	1.26	1.09	0.94	0.80	0.70
3296W	All values	1.38	1.14	1.11	1.08	1.05	0.69
3296X	All values	1.10	0.92	0.89	0.87	0.84	0.55
3296Y	All values	1.38	1.14	1.11	1.08	1.05	0.69

**0.5 Watt – 3299W Series**



H=10.3, Pin dia=0.51



- 25 turn low noise high performance cermet trimmers
  - Sealed to withstand industrial cleaning solvents
  - Moulded with built in 'stand-off's'.
- Power rating @ 70°C 500mW End resistance 20hm max.  
 Voltage rating 300V Contact resistance variation 1% or 3Ω whichever >  
 Resistance tolerance ±10% Dielectric strength (sea level) 900V ac  
 Temperature coefficient ±100ppm/°C Operating temperature -55°C to +125°C

Stocked in the following OHMIC Values:

**3299W**

10R = 935-3674 200R = 935-3747 2K = 935-3755 20K = 935-3763 200K = 935-3771  
 20R = 935-3739 500R = 935-3798 5K = 935-3801 50K = 935-3810 500K = 935-3828  
 50R = 935-3780 1K = 935-3690 10K = 935-3704 100K = 935-3712 1M = 935-3720  
 100R = 935-3682

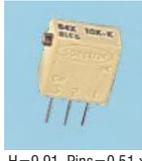
207173

Style	Order Code	1+	50+	100+	500+	1K+	2K5+
3299W	All Values	1.37	1.22	1.08	1.05	0.95	0.89

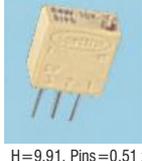
**0.5 Watt – 64 Series**



64P H=4.83, Pins=0.51 x 0.25



64X H=9.91, Pins=0.51 x 0.25



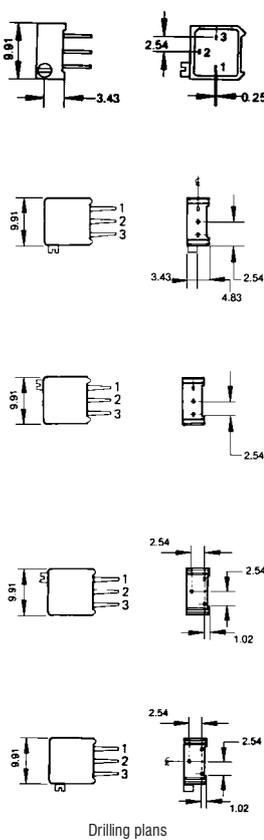
64W H=9.91, Pins=0.51 x 0.25



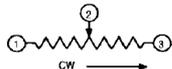
64Y H=9.91, Pins=0.51 x 0.25



64Z H=9.91, Pins=0.51 x 0.25



- 21 (±2) turn trimmer top and side adjusting
- Sealed to withstand industrial cleaning solvents
- Manufactured to meet MIL-R-22097 specification



Power rating @ 70°C 500mW Contact resistance variation 2Ω or 2% whichever >  
 Voltage rating 300V Dielectric strength 1000V ac  
 Resistance tolerance ±10% Resistance to solder heat 350°C for 3 seconds  
 Temperature coefficient ±100ppm/°C Operating temperature -55°C to +125°C  
 End resistance 10hm

Stocked in the following OHMIC Values:

**64P**

100R = 960-8303 1K = 960-8338 10K = 960-8362 100K = 960-8397 500K = 960-8419  
 200R = 960-8311 2K = 960-8346 20K = 960-8370 200K = 960-8400 1M = 960-8427  
 500R = 960-8320 5K = 960-8354 50K = 960-8389

**64X**

100R = 960-8435 1K = 960-8460 10K = 960-8494 100K = 960-8524 500K = 960-8540  
 200R = 960-8443 2K = 960-8478 20K = 960-8508 200K = 960-8532 1M = 960-8680  
 500R = 960-8451 5K = 960-8486 50K = 960-8516

**64W**

100R = 960-8567 1K = 960-8591 10K = 960-8621 100K = 960-8656 500K = 960-8672  
 200R = 960-8575 2K = 960-8605 20K = 960-8630 200K = 960-8664 1M = 960-8680  
 500R = 960-8583 5K = 960-8613 50K = 960-8648

**64Y**

100R = 960-8699 1K = 960-9610 10K = 960-8745 50K = 960-8761 200K = 960-8788  
 200R = 960-8702 2K = 960-8729 20K = 960-8753 100K = 960-8770 1M = 960-8796  
 500R = 960-8710 5K = 960-8737

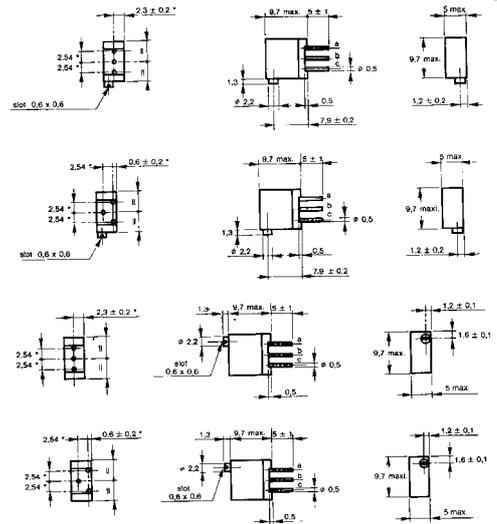
**64Z**

100R = 960-8800 1K = 960-8834 10K = 960-8869 100K = 960-8893 500K = 960-8915  
 200R = 960-8818 2K = 960-8842 20K = 960-8877 200K = 960-8907 1M = 960-8923  
 500R = 960-8826 5K = 960-8850 50K = 960-8885

207300

Style	Order Code	1+	50+	100+	500+	1K+
64P	All Values	1.23	1.05	0.93	0.80	0.70
64X	All Values	1.23	1.05	0.93	0.80	0.70
64W	All Values	1.26	1.08	0.96	0.82	0.72
64Y	All Values	1.26	1.08	0.96	0.82	0.72
64Z	All Values	1.27	0.93	0.77	0.67	0.59

**0.5 Watt - T93 Series**



- 22 turn cermet trimmers
- Wide operating temperature range
- Sealed to IP67

Power rating @ 85°C 500mW End resistance 10hm  
 Voltage rating 250V Contact resistance variation 2% or 2Ω  
 Resistance tolerance ±10% Dielectric strength 1000V  
 Temperature coefficient ±100ppm/°C Operating temperature -55°C to +155°C

Stocked in the following OHMIC Values

**T93XA**

100R = 114-1370 1K = 114-1373 10K = 114-1377 50K = 114-1379 200K = 114-1381  
 200R = 114-1371 2K = 114-1374 20K = 114-1378 100K = 114-1380 500K = 114-1382  
 500R = 114-1372 5K = 114-1376

**T93XB**

100R = 114-1383 1K = 114-1386 20K = 114-1391 100K = 114-1393 500K = 114-1395  
 200R = 114-1384 5K = 114-1389 50K = 114-1392 200K = 114-1394 1M = 114-1396  
 500R = 114-1385 10K = 114-1390

**T93YA**

100R = 114-1397 1K = 114-1401 10K = 114-1404 100K = 114-1408 500K = 114-1410  
 200R = 114-1398 2K = 114-1402 20K = 114-1406 200K = 114-1409 1M = 114-1411  
 500R = 114-1400 5K = 114-1403 50K = 114-1407

**T93YB**

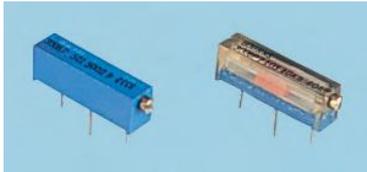
100R = 114-1412 1K = 114-1415 10K = 114-1419 100K = 114-1422 500K = 114-1424  
 200R = 114-1413 2K = 114-1416 20K = 114-1420 200K = 114-1423 1M = 114-1425  
 500R = 114-1414 5K = 114-1418 50K = 114-1421

207318

Style	Order Code	1+	50+	100+	500+	1K+
T93XA	All Values	1.02	0.70	0.57	0.48	0.42
T93XB	All Values	1.30	0.89	0.72	0.61	0.54
T93YA	All Values	1.30	0.89	0.72	0.61	0.54
T93YB	All Values	1.24	0.85	0.69	0.58	0.51

**3/4" (19.1mm) Multi Turn Cermet Trimmers**

**1.25 Watt – 3006 Series**



3006P (standard) 3006P-7 (transparent)  
H=6.35, Pin dia=0.5

- 15 turn cermet trimmers
- Sealed to withstand industrial cleaning solvents
- Version with transparent housing allows visual wiper setting

Power rating @ 25°C	1.25W (0.75W @ 70°C)	End resistance	2 Ω max
Voltage rating	400V	Contact resistance variation	1% or 1Ω whichever >
Resistance tolerance	±10%	Dielectric strength (sea level)	1000V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +125°C

**3006P (standard)**

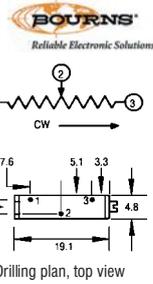
10R = 935-2260	500R = 935-2376	5K = 935-2384	20K = 935-2341	200K = 935-2350
50R = 935-2368	1K = 935-2287	10K = 935-2295	50K = 935-2392	500K = 935-2406
100R = 935-2279	2K = 935-2333	10K = 935-2295	100K = 935-2309	1M = 935-2317
200R = 935-2325				

**3006P-7 (transparent)**

10R = 935-2414	1K = 935-2422	5K = 935-2503	20K = 935-2473	100K = 935-2449
200R = 935-2457	2K = 935-2465	10K = 935-2430	50K = 935-2511	200K = 935-2481
500R = 935-2490				

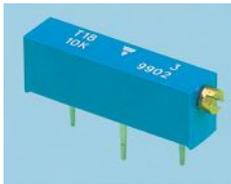
207399

Style	Order Code	Price Each					
		1+	50+	100+	500+	1K+	2K5+
3006P (standard)	All Values ●	1.04	0.94	0.81	0.66	0.63	0.53
3006P-7 (transparent)	All Values ●	1.18	1.02	0.91	0.74	0.72	0.62

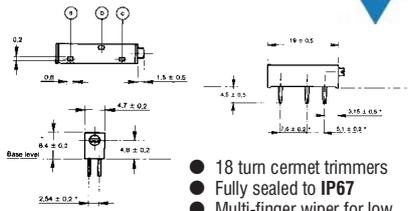


Drilling plan, top view

**0.75 Watt - T18 Series**



H = 6.4 W = 4.7 D = 19  
Pin size = 0.8 x 0.2



- 18 turn cermet trimmers
- Fully sealed to IP67
- Multi-finger wiper for low contact resistance

Power rating @ 70°C	750mW	End resistance	10hm
Voltage rating	250V	Contact resistance variation	2% or 2Ω
Resistance tolerance	±10%	Dielectric strength	1000V
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

100R = 114-1456	1K = 114-1459	10K = 114-1462	100K = 114-1465	500K = 114-1468
200R = 114-1457	2K = 114-1460	20K = 114-1463	200K = 114-1467	1M = 114-1469
500R = 114-1458	5K = 114-1461	50K = 114-1464		

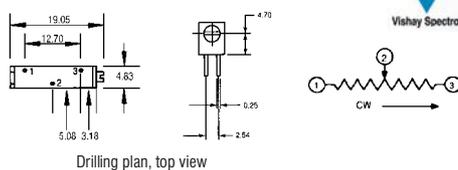
207320

Order Code	Price Each				
	1+	25+	50+	100+	250+
All Values ●	1.02	1.00	0.97	0.69	0.64

**0.5 Watt – 43P Series**



43P (standard)  
H=6.35, Pin dia=0.5



Drilling plan, top view

- 20 turn cermet trimmers completely sealed against dust and humidity
- Manufactured to meet MIL-R-22097 specifications.

Power rating @ 25°C	500mW	End resistance	1Ω max
Voltage rating	250V	Contact resistance variation	2% or 1Ω whichever >
Resistance tolerance	±10%	Dielectric strength	1000V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

**43P (Standard)**

20R = 960-8931	200R = 960-8966	2K = 960-8990	20K = 960-9024	200K = 960-9059
50R = 960-8940	500R = 960-8974	5K = 960-9008	50K = 960-9032	500K = 960-9067
100R = 960-8958	1K = 960-8982	10K = 960-9016	100K = 960-9040	1M = 960-9075

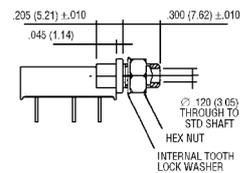
207311

Style	Order Code	Price Each				
		1+	25+	50+	100+	250+
43P (standard)	All Values ●	0.93	0.79	0.74	0.69	0.65

**0.5W-43P – Panel Mount**



Panel cut out 4.6



- Panel mounting version of the popular 43P
- Pin outs and specification are the same as the 43P

Stocked in the following OHMIC Values

5K = 960-9679	100K = 960-9717	500R = 960-9644	20K = 960-9695	500K = 960-9733
10K = 960-9687	100R = 960-9628	1K = 960-9652	200K = 960-9725	1M = 960-9741
50K = 960-9709	200R = 960-9636	2K = 960-9660		

Mfrs. List No. 43PT601 + value

207264

Order Code	Price Each				
	1+	25+	50+	100+	250+
All Values ●	1.36	1.32	1.28	1.04	0.92

**3/4" (19.1mm) Trimmer Panel Mounts**

**H-83P Adaptor**



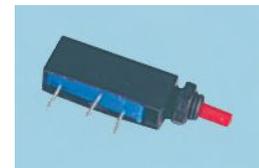
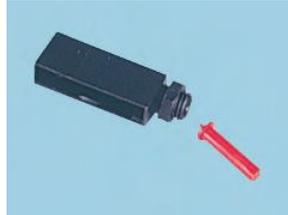
- Front panel mounting adaptor
- For use with Bourns 3006P Series multiturn trimmers and similar.

L=29.7, W=9.5, D=9.53

207412

Order Code	Price Each		
	1+	100+	250+
148-805	1.32	1.12	

**Low Cost Adaptor**



With trimmer and extension spindle fitted

Overall: L = 29.2, H = 9.3, W = 5 Thread: L = 6, Dia. = 6 Max panel thickness = 3

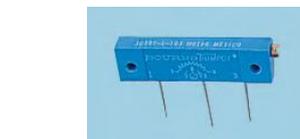
- Panel mount adaptor
- Moulded in black nylon 6
- For use with 19.1mm trimmer

207427

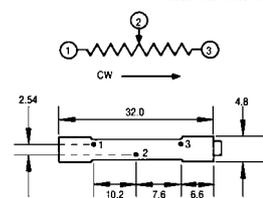
Order Code	Price Each			
	1+	25+	100+	500+
149-877	0.92	0.87	0.71	0.47

**1 1/4" (32.0mm) Multi Turn Cermet Trimmers**

**1.0 Watt – 3059Y Series**



H=8.0, Pin dia=0.8



Drilling plan, top view

2 x 3.4 holes, 25.4 Fixing centres

- 22 turn cermet trimmers
- To MIL-R-22097 requirements.

Power rating @ 70°C	1W	End resistance	2Ω max
Voltage rating	400V	Contact resistance variation	1% or 1Ω whichever >
Resistance tolerance	±10%	Dielectric strength (sea level)	900V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +150°C

Stocked in the following OHMIC Values:

100R = 935-2520	2K = 935-2562	20K = 935-2570	100K = 935-2554
500R = 935-2589	5K = 935-2597	50K = 935-2600	500K = 935-2619
1K = 935-2538	10K = 935-2546		

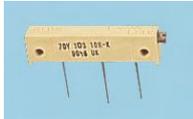
1 1/4" (32.0mm) Multi Turn Cermet Trimmers - continued

1.0 Watt – 3059Y Series - continued

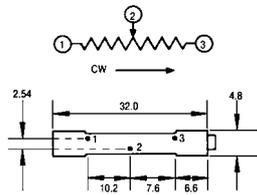
207400

Order Code	Price Each				
	1+	50+	100+	500+	1K+
All Values ●	5.14	4.72	4.25	3.47	3.33

1.0 Watt - 70Y Series



H=8.0, Pin dia=0.8



Drilling plan, top view



- 20 turn cermet trimmers
- To MIL-R-22097 requirements.

Power rating @ 85°C	500mW	End resistance	2Ω max
Voltage rating	400V	Contact resistance variation	3% or 3Ω whichever >
Resistance tolerance	±10%	Dielectric strength (sea level)	1000V ac
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +150°C

Stocked in the following OHMIC Values:

100R = 960-9083	2K = 960-9113	20K = 960-9148	200K = 960-9172
500R = 960-9091	5K = 960-9121	50K = 960-9156	500K = 960-9180
1K = 960-9105	10K = 960-9130	100K = 960-9164	1M = 960-9199

207415

Order Code	Price Each				
	1+	25+	100+	250+	1K+
All Values ●	4.02	3.77	3.17	3.06	2.79

Trimming Tools

Single

Spectrol



Bourns



Double ended tools suitable for adjusting most types of single and multi turn trimmers. H91 for use with 3224 SMD trimmer

207342

	Order Code	Price Each			
		1+	50+	250+	500+
Spectrol	145-507	1.40	--	--	--
Bourns H90	109-151	1.72	1.60	1.38	1.28
Bourns H91	869-144	1.72	1.60	1.38	1.28

Single Turn Potentiometers

Cermet vs Conductive Plastic (CP) Elements

Cermet Elements generally have:

- Higher power rating than CP
- Higher temperature stability than CP
- Higher temperature stability than CP
- Can be produced in a wider range of ohmic values than CP

Plus:

- They are very resistant to high humidity conditions
- Tighter tolerances are available on nominal resistance

Conductive Plastic Elements generally have a:

- Longer Life than Cermet
- Lower Electrical noise than Cermet

Please refer to individual product specifications for further information.

387202

9mm Snap-in



- Compact design horizontal or vertical mounting
- Integral bracket for direct PCB mounting.

Power rating	0.05W
Voltage rating	50V a.c.
Resistance tolerance	±20%
Mechanical rotation	280°

Please note the Alps taper designation is opposite to standard European versions, i.e. Linear is B taper, Logarithmic is A.

207240



	Order Code	Price Each			
		1+	10+	25+	50+
Vertical Logarithmic 10K single	119-1724●	0.97	0.82	0.75	0.52
Linear 10K single	119-1725●	0.97	0.82	0.75	0.52

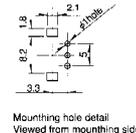
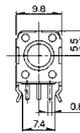
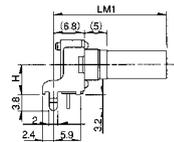
9mm Snap-In

With Collar



- Horizontal mounting snap in design
- Metal collar to support shaft and improve stability
- Enclosed and dust proof

Power rating	50mW (single) 0.03W (dual)
Voltage rating	50V a.c.
Resistance tolerance	±20%
Mechanical rotation	280°



Mounting hole detail Viewed from mounting side

Mfrs. List No. RK09D111 Series

207261

Value	Taper	Order Code	Price Each				
			1+	10+	50+	100+	250+
<b>6.5mm Mounting Height</b>							
10K	B (Lin)	119-1735●	0.76	0.71	0.67	0.48	0.47
10K	A (Log)	119-1736●	0.76	0.71	0.67	0.48	0.47
<b>10mm Mounting Height</b>							
10K	A (Log)	119-1738●	0.76	0.71	0.67	0.48	0.47

9 mm sq Metal Shaft



- Compact size PCB mounting
- Ideal for volume, tone and balance control in audio equipment.

Body size = 9.5 x 9.5 D = 7.05 (dual D = 9.55)  
Bush = M7 x 0.75 L = 20

Power rating	50mW	Resistance tolerance	±20%
Voltage rating	50V a.c.		RK09711110K = 119-1710

207231

	Order Code	Price Each			
		1+	10+	25+	50+
Linear Flatted shaft 10K single	119-1710●	2.69	2.27	2.03	1.53

9mm Snap-In

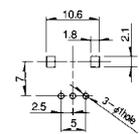
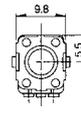
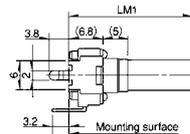
With Collar



- Vertical snap in design
- Metal collar to support shaft and improve stability
- Enclosed and dust proof

Power rating	50mW
Voltage rating	50V a.c.
Resistance tolerance	±20%
Mechanical rotation	300°

Mfrs. List No. RK09D Series



Mounting hole detail Viewed from mounting side

207258

Value	Taper	Order Code	Price Each				
			1+	10+	50+	100+	250+
10kohm	B (Lin)	119-1741●	0.76	0.71	0.67	0.48	0.47
100kohm	B (Lin)	119-1742●	0.54	0.51	0.48	0.35	0.34



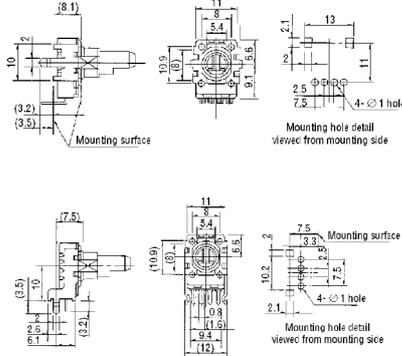
11mm Snap-In



- Horizontal and vertical mounting
- Sealed units ideal for flow soldering
- Available in two mounting heights
- Bush mounting for overall stability

Power rating 50mW  
 Voltage rating 50V a.c./20V d.c.  
 Resistance tolerance ±20%  
 Mechanical rotation 300°

Horizontal Vertical  
 Bush M9 x 0.75



Mfrs. List No. RKI/K Series

207260

Value	Taper	Order Code	1+	10+	50+	100+	250+
<b>Horizontal 10mm Mounting Height</b>							
10kohm A (Log)		119-1744	● 1.44	1.40	1.33	0.95	0.91
<b>Vertical Mounting</b>							
10kohm A (Log)		119-1745	● 1.44	1.40	1.33	0.95	0.91
10kohm B (Lin)		119-1746	● 1.44	1.40	1.33	0.95	0.91

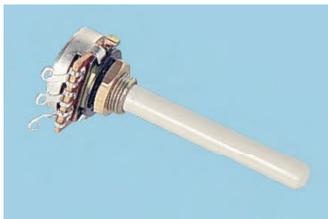
0.4 Watt (Linear), 0.2 Watt (Logarithmic) – 23 Series Carbon



Low cost high quality range of carbon logarithmic and linear potentiometers, having 5mm spacing between pins, suitable for panel mounting applications. The plastic spindle has a flat along its full length. Versions available with single carbon track, single track with DPST switch and double ganged carbon track.

Power rating @ 40°C 400mW (logarithmic) 400mW (linear)  
 Voltage rating 500V  
 Resistance tolerance ±20%  
 Electrical rotation 267° nom.  
 Mechanical rotation 300° nom.  
 Terminal resistance 5Ω max.  
 Dielectric strength 1000V ac peak  
 Operating temperature -10°C to +70°C

Carbon Track



L=10.7 (body), 50.0 (spindle, inc. bush)  
 Dia=20.4 (body), 6.35 (spindle)  
 Mounting bush=7.4 x M9.5  
 Panel cut-out=9.6 dia

Stocked in the following OHMIC Values:

**23 LIN**  
 1K = 117-4082 4K7 = 350-060 22K = 350-084 100K = 350-102 470K = 350-126  
 2K2 = 350-059 10K = 350-072 47K = 350-096 220K = 350-114 1M = 350-138

**23 LOG**  
 1K = 350-140 4K7 = 350-163 22K = 350-187 100K = 350-205 470K = 350-229  
 2K2 = 117-4084 10K = 350-175 47K = 350-199 220K = 350-217 1M = 350-230

207166

Style	Order Code	1+	25+	100+	250+	500+
23 LIN	All Values ●	1.01	0.90	0.79	0.73	0.70
23 LOG	All Values ●	1.37	1.28	1.09	0.91	0.86

With DPST Switch



L=23.0 (body), 51.0 (spindle, inc bush)  
 Dia=20.4 (body), 6.35 (spindle) Mounting bush=7.4 x M9.5 Spindle material=plastic  
 Switch rating 250V ac @ 4A  
 Electrical rotation 232°

Stocked in the following OHMIC Values:

RoHS Compliant Non-compliant

08447 11 11 11

Fax: 08447 11 11 12 1403

Linear

2K2 = 776-221 4K7 = 106-476 10K = 106-477 100K = 106-478 1M = 106-479

Logarithmic

4K7 = 106-480 10K = 106-481

Mfrs. List No. Linear Track 23ESAxxxMMF50AF, Logarithmic Track 23ESBxxxMMF50AF where xxx = resistance and multiplier

207414

Style	Order Code	Price Each				
		1+	25+	100+	250+	500+
Linear	All Values ●	2.05	1.87	1.75	1.42	1.38
Logarithmic	All Values ●	2.97	2.69	2.39	1.99	1.94

Double Ganged



L=21.0 (body), 50.0 (spindle inc bush)  
 Dia=20.4 (body), 6.35 (spindle)  
 Mounting bush=7.4 x M9.5  
 Spindle material = plastic

Stocked in the following OHMIC Values:

Linear

4K7 = 117-3888 10K = 117-3890 47K = 117-3986 100K = 117-3987

Logarithmic

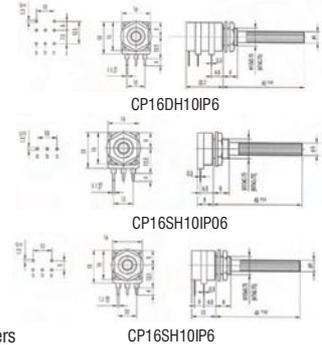
4K7 = 117-3891 10K = 117-3892 47K = 117-3988 100K = 117-3989

Mfrs List No. Linear Track 27ESAxxxMMF43NF, Logarithmic Track 27ESBxxxMMF43NF where xxx = resistance and multiplier

207185

Style	Order Code	Price Each				
		1+	25+	100+	250+	500+
Linear	All Values ●	2.55	2.36	2.17	1.80	1.77
Logarithmic	All Values ●	2.12	1.95	1.81	1.47	1.41

CP16 Series



- Spindle operated carbon potentiometers
- High reliability
- Linear or logarithmic track
- Single, single switched or dual gang options
- For applications where high insulation resistance and voltage proof are key requirements
- Ideal component for domestic appliances and control systems where safety is of prime importance

Power rating @ 50°C 200mW (linear) 10mW (logarithmic)  
 Resistance tolerance ±20%  
 Voltage rating 125V  
 Mechanical rotation 300° ± 5°  
 Operating temperature -25°C to 70°C

Stocked in the following OHMIC Values:

**Single Gang - Linear**  
 100R = 122-7584 10K = 122-7586 47K = 122-7588 220K = 122-7590 1M = 122-7591  
 1K = 122-7585 22K = 122-7587 100K = 122-7589

Single Gang - Logarithmic

4K7 = 122-7593 10K = 122-7594 470K = 122-7595

Single Gang Switched - Linear

4K7 = 122-7596 10K = 122-7597 470K = 122-7598

Single Gang Switched - Logarithmic

10K = 122-7599

Dual Gang - Linear

4K7 = 122-7600 10K = 122-7601 470K = 122-7602

Dual Gang - Logarithmic

10K = 122-7603 100K = 122-7604 470K = 122-7605

451828

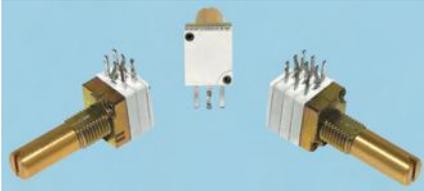
Style	Order Code	Price Each			
		1+	10+	50+	200+
Single gang - linear	All Values ●	0.81	0.69	0.60	0.53
Single gang - logarithmic	All Values ●	1.04	0.90	0.82	0.64
Single gang switched - linear	All Values ●	2.26	1.94	1.68	1.50
Single gang switched - logarithmic	All Values ●	1.77	1.54	1.37	1.25
Dual gang - linear	All Values ●	1.54	1.18	1.00	0.94
Dual gang - logarithmic	All Values ●	1.69	1.55	1.45	1.36



Single Turn Potentiometers - continued

P9A Series

0.1W (Linear) & 0.05W (Logarithmic)



Body H = 12.5, W = 12.5, D = 7.1 (Single Gang), 9.6 (Dual Gang)  
 Shaft L = 20, Dia = 6, Bush (metal) = M7 x 0.75  
 Pin thickness = 3

- Panel & PCB mounting conductive plastic potentiometers
- Single or Dual gang versions
- Ultra compact
- Ideal for professional audio applications

Dielectric Strength - sea level	300VAC	Temperature coefficient	±500ppm/°C
Electrical rotation	270° ±10°	Power rating	10mW (Linear) @ 70°C
End Resistance	3ohm		50mW (Log) @ 70°C
Mechanical rotation	300°±5°		50mW (Dual Linear) per module
Operating temperature	-55°C to 100°C		25mW (Dual Log) per module
Resistance tolerance	±20%		

Stocked in the following OHMIC Values:

<b>Single Linear</b>	<b>Single Logarithmic</b>
1K = 879-1287 10K = 879-1295 50K = 879-1309	1K = 879-1317 10K = 879-1325 50K = 879-1333
<b>Dual Linear</b>	<b>Dual Logarithmic</b>
1K = 879-1341 10K = 879-1350 50K = 879-1368	1K = 879-1376 10K = 879-1384 50K = 879-1392

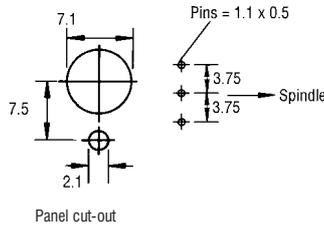
Style	Order Code	Price Each			
		1+	10+	50+	100+
Single Linear	All Values ●	3.03	2.58	2.42	2.28
Single Log	All Values ●	3.36	3.20	2.96	2.77
Dual Linear	All Values ●	5.36	5.02	4.78	4.54
Dual Log	All Values ●	5.13	4.81	4.57	4.33

54 Series PCB Mounting

Carbon Linear – 0.2 Watt



Body H=15.8, W=12.5, D=8.2  
 Spindle=30 (inc bush) 6 dia  
 Bush=8 x M7 thread  
 Mounting height above board=12.5



- Miniature carbon linear potentiometers
- Suitable for either PCB or panel mounting
- Ideal for use in applications where space is at a premium
- Carbon element contained within a sealed housing

Power rating @ 40°C	200mW	Mechanical rotation	300° nom.
Voltage rating	350V ac or 500V dc	Temperature coefficient	±500ppm/°C
Resistance tolerance	±20%	Operating temperature	-25°C to ±70°C

Subject to design change

1K = 117-4085	4K7 = 117-4087	22K = 117-4089	100K = 117-4091	470K = 117-4093
2K2 = 117-4086	10K = 117-4088	47K = 117-4090	220K = 117-4092	

Style	Order Code	Price Each			
		1+	50+	100+	500+
PP54LIN	All Values ●	2.25	1.84	1.54	1.09

0.25 Watt – 3310 Series



3310C



3310Y



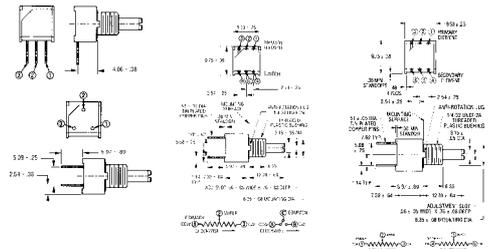
3310H-003



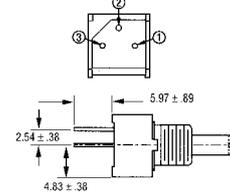
3310H-001



3310P



Body H = 9.53, W = 9.53, D = 4.83  
 Shaft = 12.7 (inc bush) 3.18  
 Bush = /4-32 UNEF-2A



- Linear potentiometer for PCB mounting
- Compact size saving valuable board space
- Withstands industrial washing.

Power rating @ 70°C	250mW	End resistance	2Ω
Voltage rating	200V	Contact resistance Variation	1% or 1Ω
Resistance tolerance	±20%	Dielectric strength (sealed)	900V
Temperature coefficient	1000ppm/°C	Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

<b>3310C</b>	1K = 935-3836	5K = 935-3895	20K = 935-3879	100K = 935-3852	500K = 935-3917
	2K = 935-3860	10K = 935-3844	50K = 935-3909	200K = 935-3887	

3310Y Single gang vertical

1K = 115-6139	5K = 115-6141	20K = 935-3992	100K = 935-3984	500K = 115-6142
2K = 115-6140	10K = 935-3976	50K = 935-4000		

3310H-001 Dual gang vertical

1K = 115-6143	10K = 935-3925	20K = 115-6144	100K = 935-3933	1M = 935-3941
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3310H-003 Single gang with switch vertical

10K = 935-3950	100K = 935-3968
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3310P

1K = 115-6132	10K = 115-6134	50K = 115-6136	100K = 115-6137	500K = 115-6138
5K = 115-6133				

207210

Style	Order Code	Price Each			
		1+	100+	500+	1K+
3310C	All Values ●	1.27	1.07	0.95	0.90
3310P	All Values ●	1.37	1.16	1.05	0.92
3310Y	All Values ●	1.45	1.23	1.10	1.03
3310H-001	All Values ●	3.36	2.80	2.38	2.06
3310H-003	All Values ●	2.82	2.65	2.49	2.35

P160 Series

16mm Rotary Potentiometer - Audio Applications



- Conductive plastic element
- 100,000 cycle life
- Metal shaft / bushing
- Specifically designed for audio applications



Voltage Rating 200V ac  
 Operating Temperature -20°C to +70°C

0.1 Watt

Resistance	Order Code	Price Each			
		1+	10+	50+	250+
10kohm	168-4812●	1.19	1.10	1.03	0.94
25kohm	168-4815●	1.19	1.10	1.03	0.94
100kohm	168-4817●	1.19	1.10	1.03	0.94
250kohm	168-4819●	1.19	1.10	1.03	0.94
500kohm	168-4821●	1.19	1.10	1.03	0.94
1Mohm	168-4823●	1.19	1.10	1.03	0.94

0.2 Watt

Resistance	Order Code	Price Each			
		1+	10+	50+	250+
10kohm	168-4813●	1.19	1.10	1.03	0.94
25kohm	168-4816●	1.19	1.10	1.03	0.94
100kohm	168-4818●	1.19	1.10	1.03	0.94
250kohm	168-4820●	1.19	1.10	1.03	0.94
500kohm	168-4822●	1.19	1.10	1.03	0.94

FREE technical support

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 www.farnell.co.uk



**Model 95**

**Premium Guitar Potentiometer**



- Single-turn conductive polymer potentiometer
- Very low noise
- Knurled or plain metal shaft
- Audio taper

Power rating	250mW
Voltage rating	350V
Electrical rotation	225° (±5°)
Mechanical rotation	300° (±5°)
Resistance tolerance	±20%
Operating temperature	-40°C to +125°C
IP rating	IP 40
Rotational life	100000 cycles

527023

Logarithmic	Order Code	Price Each				
		1+	10+	50+	100+	250+
<b>Knurled Shaft</b>						
250kohm	154-6724	7.96	7.40	6.92	6.29	6.02
500kohm	154-6725	7.96	7.40	6.92	6.29	6.02
<b>Plain Shaft</b>						
500kohm	154-6726	4.72	4.40	4.10	3.73	3.57
<b>Knurled Shaft - Long Bushing</b>						
250kohm	154-6728	12.81	11.91	11.13	10.14	9.70
500kohm	154-6729	12.81	11.91	11.13	10.14	9.70

**0.25 Watt - (Linear)**

**With Push-Push SPDT Switch**



- Polymer thick film element
- Plastic body and spindle
- Electrical rotation angle 232°

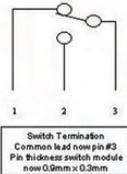
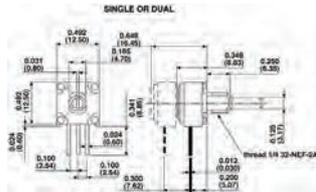
Resistance tolerance	±20%
Limiting element voltage	350V dc/ac
Terminal resistance (max)	5Ω
Insulation resistance	4GΩ min
Climatic category	25/70/04
Switch rating	10A @ 250V ac
Switch life	25000 cycles min
Dimensions W = 17mm, D = 17mm, H = 17mm	
Bush M10 x 0.75 x 8mm, Spindle length = 19	

Mfrs List No. 17PCSAXxxMC19P where xx = resistance and the third x = the number of zeroes

234786

Resistance	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
10K	17PCSXA103MC19P	117-4114	2.18	1.85	1.64	1.53

**0.5 Watt - 148 Series - Panel & PCB Mounted Conductive Plastic Linear, Single, Double Gang & Single Switched Potentiometers**



Body H = 12.5, W, = 12.5, D = 8.83 (Double Gang & Single Switched 16.45)  
 Switch module pin thickness = 0.9 x 0.3  
 Shaft = 1/4" (inc bush) x 1/8" dia., Bush = 1/4" x 32 UNEF  
 Shaft = 1/8" (inc bush) x 1/4" dia., Bush = 1/8" x 32 UNEF

148 series are suitable for applications requiring frequent adjustment, which include: Volume control in Audio Applications, Voltage Adjustment in Power Supplies, Instrumentation Adjustment, Industrial Equipment; including brightness control in illuminated display panels & Medical Equipment.

- New Switch Contact - Common lead is now Pin 3
- Choice of shaft sizes
- High Rotational Life of 50,000 cycles
- Quiet Electrical output
- Robust Construction
- Tin leads (previously gold)
- Supplied with metal lock washer & Nut

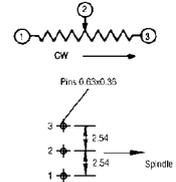
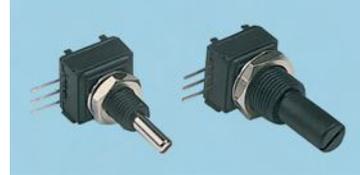
Power rating @ 70°C	500mW	Operating temperature	-40°C to +120°C
Resistance tolerance	±10%	Temperature Coefficient	±1000ppm/°C
Mechanical rotation	300° ± 5°	End resistance	40hm max.
Electrical rotation	240° ± 10° (with rotary switch) 270° ± 10° (without rotary switch)	Dielectric Strength - sea level	750VAC

Stocked in the following OHMIC Values:

<b>148-SXN 1/8" dia. shaft single gang</b>	<b>148-SXG 1/4" dia. shaft single gang</b>
10K = 855-7292    50K = 855-7306	5K = 855-7284    10K = 855-7276
<b>148-DXG 1/4" dia. shaft double gang</b>	<b>148-SSG 1/4" dia. shaft single gang switched</b>
1K = 855-7225    5K = 855-7233	1K = 855-7241    5K = 855-7268    10K = 855-7250

Style	Order Code	Price Each				
		1+	25+	50+	100+	250+
1/8" single gang	All Values	4.62	4.05	3.66	3.35	2.85
1/4" single gang	All Values	7.22	6.64	6.35	6.07	5.81
1/4" double gang	All Values	7.22	6.64	6.35	6.07	5.81
1/4" single gang switched	All Values	11.27	9.87	9.23	8.19	7.33

**0.5W - 248 Series PCB Mounted Conductive Plastic**



Body H=12.7, W=12.7, D=7.6  
 Spindle = 1/4" (inc. bush) x 1/8" dia., Bush = 1/4" x 32 UNEF  
 Spindle = 1/8" (inc. bush) x 1/4" dia., Bush = 1/8" x 32 UNEF

- Panel and PCB mounting conductive plastic
- Space saving short body
- Metal or plastic shafts, 1/8" (3.17mm) or 1/4" (6.35mm) diameter.

Power rating @ 70°C	500mW	Mechanical rotation	295° ± 5°
Resistance tolerance	±20%	Dielectric strength	750V rms
Temperature coefficient	±1000ppm/°C	Operating temperature	-55°C to +125°C
Electrical rotation	265° ± 5°		

Stocked in the following OHMIC Values:

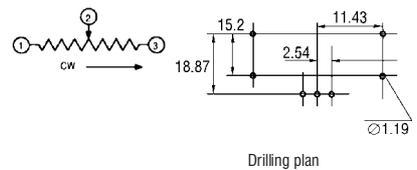
<b>248-8-08 1/8" dia. metal shaft linear</b>				
500R = 960-9393	2K5 = 960-9415	10K = 960-9431	50K = 960-9458	
1K = 960-9407	5K = 960-9423	25K = 960-9440	100K = 960-9466	
<b>248J-8-08 1/8" dia. metal shaft logarithmic</b>				
10K = 960-9474	50K = 960-9482	100K = 960-9490		
<b>248J-7-10 1/4" dia. Plastic shaft linear</b>				
500R = 960-9504	2K5 = 960-9520	10K = 960-9547	50K = 960-9563	
1K = 960-9512	5K = 960-9539	25K = 960-9555	100K = 960-9571	
<b>248J-7-10 1/4" dia plastic shaft logarithmic</b>				
10K = 960-9580	50K = 960-9598	100K = 960-9601		

Mfrs. List No. 248-8-08 + value, 248J-8-08 + value, 248-7-10 + value, 248J-7-10 + value

207225

Style	Order Code	Price Each				
		1+	25+	50+	100+	500+
1/8" Linear	All Values	3.23	2.91	2.76	2.55	2.41
1/8" Logarithmic	All Values	4.79	4.65	4.53	4.41	4.29
1/4" Linear	All Values	2.83	2.52	2.38	2.35	2.29
1/4" Logarithmic	All Values	4.86	4.74	4.61	4.49	4.39

**0.75 Watt - PC Series - PCB Mounted Conductive Plastic Linear**



H=8.31, W=23.4, D=22.2,  
 Spindle = 1/4" (inc bush) x 1/4" dia  
 Bush=6.35 x M9

- Slimline conductive plastic potentiometers
- With or without central reference position

Power rating @ 70°C	750mW	Linearity	±5%
Voltage rating	350V (or limited by power dissipation whichever<)	Terminal resistance	5Ω
Resistance tolerance	±20%	Dielectric strength (sea level)	1000V ac
Electrical rotation	270° ± 5°	Operating temperature	+1°C to +125°C
Mechanical rotation	300° ± 5°		

Stocked in the following OHMIC Values:

<b>Standard</b>	1K = 935-8285	5K = 935-8307	10K = 935-8293
<b>Central Reference position</b>	10K = 935-8323		

Mfrs. List No. PCW1JB24KAB + Value (Standard), PCW1JB24KCB + Value (Central reference position)

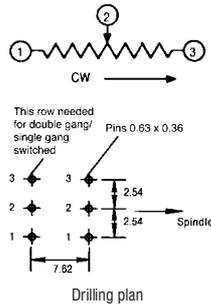
207181

Style	Order Code	Price Each			
		1+	25+	50+	100+
Standard	All Values	3.33	3.06	2.70	2.18
Central reference position	All Values	3.60	3.30	2.93	2.39

Over 480,000 products online

Single Turn Potentiometers - continued

1W (Linear), 0.5W (Logarithmic) – 91 Series  
PCB Mounted Conductive Plastic Single & Double Gang



H=17.5, W=15.9, D=12.7  
(Double gang=22.8)  
Spindle=22.2 (inc bush x 6.35 dia)  
Bush= 1/8 x 32 UNEF

Power rating @ 70°C	Linear 1W Logarithmic 0.5W	Contact resistance variation	1% or 3Ω whichever >
Voltage rating	350V ac (or limited by power dissipation whichever <)	Dielectric strength (sea level)	1000V ac
Resistance tolerance	±20%	Electrical rotation	240°
Temperature coefficient	±1000ppm/°C	Mechanical rotation	300° ± 5°
Terminal resistance	2Ω	Operating temperature	+1°C to +125°C

Stocked in the following OHMIC Values:

**Linear**

2K5 = 935-7742	5K = 935-7750	25K = 935-7777	100K = 935-7793
1K = 935-7734	10K = 935-7769	50K = 935-7785	250K = 935-7807

**Logarithmic**

1K = 935-7815	10K = 935-7823	100K = 935-7831
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**Double Gang**

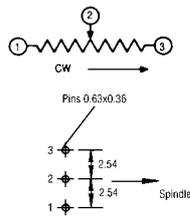
10K Linear = 935-7840	10K Logarithmic = 935-7858
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Mfrs. List No. Single Gang: 91A1A-B28-B + Value (Linear), 91A1A-B28-D - Value (logarithmic)  
Double Gang: 91A2A-B28-B + Value (Linear), 91A2A-B28-D - Value (logarithmic)

207402

Style	Order Code	Price Each				
		1+	10+	50+	100+	500+
Linear	All Values ●	4.39	3.57	2.79	2.26	2.07
Logarithmic	All Values ●	4.97	4.11	3.32	2.60	2.48
Double Gang	All Values ●	9.55	7.95	6.42	5.06	4.80

1W – 249 Series – PCB Mounted Cermet  
Linear



Body H=12.7, W=12.7, D=7.6  
Spindle= 1/4" (inc. bush) x 1/8" dia. Bush= 1/8" x 32 UNEF  
Spindle= 1/8" (inc. bush) x 1/4" dia. Bush= 1/8" x 32 UNEF

- Panel and PCB mounting cermet
- Metal or plastic shafts, 1/8" (3.17mm) or 1/4" (6.35mm) diameter.
- 1 watt rating with space saving design

Power rating @ 70°C	1W	Mechanical rotation	295°±5°
Resistance tolerance	±20%	Dielectric strength	750V rms
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +125°C
Electrical rotation	265°±5°		

Stocked in the following OHMIC Values:

**249-8-08 1/8" dia. metal shaft**

500R = 960-9202	2K5 = 960-9229	10K = 960-9245	50K = 960-9261	500K = 960-9288
1K = 960-9210	5K = 960-9237	25K = 960-9253	100K = 960-9270	

**249-7-10 1/4" dia. plastic shaft**

500R = 960-9296	2K5 = 960-9318	10K = 960-9342	50K = 960-9369	500K = 960-9385
1K = 960-9300	5K = 960-9326	25K = 960-9350	100K = 960-9377	

Mfrs. List No. 249-8-08 + value, 249-7-10 + value

207226

Order Code	Price Each				
	1+	25+	50+	100+	500+
All Values ●	3.35	2.96	2.83	2.63	2.45

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Visit [www.farnell.co.uk](http://www.farnell.co.uk) and look for the Tech Info heading in your search results.

PRV4 Series

Linear 2W & Logarithmic 1W



- Full sealing
- Robust nickel plated brass shaft
- Use of faston 2.86 connections
- Cermet element

Electrical travel	270°	End resistance	4Ω
Mechanical travel	300°	Contact resistance variation	1% or 3Ω
Resistance tolerance	±±20%	Dielectric strength (sea level)	1500V
Temperature coefficient	±±200ppm/°C	Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

**Linear**

1K = 151-7320	5K = 151-7321	10K = 151-7322	50K = 151-7323	100K = 151-7324
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**Logarithmic**

1K = 151-7325	5K = 151-7327
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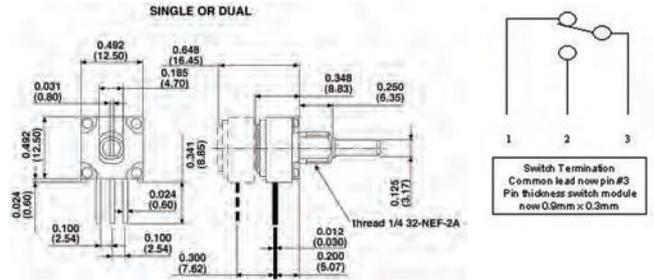
496923

Style	Order Code	Price Each				
		1+	5+	10+	25+	50+
Linear	All Values ●	17.05	15.60	14.61	13.02	12.54
Logarithmic	All Values ●	17.05	15.60	14.61	13.02	12.54

1W – 149 Series – PCB Mounting Cermet Linear  
Single, Double Gang & Single Switched



Body H = 12.5, W = 12.5, D = 8.83  
(Double Gang & Single Switched 16.45),  
Switch module pin thickness = 0.9 x 0.3, Shaft = 1/4" (inc bush) x 1/8" dia.,  
Bush = 1/8" x 32 UNEF, Shaft = 1/8" (inc bush) x 1/4" dia., Bush = 1/8" x 32 UNEF



- New Switch Contact - Common lead is now Pin 3
- Linear cermet PCB or wire terminating
- Square design with metal shafts
- Rotational Life of 25,000 cycles
- Smooth feel
- Temperature stable
- Tin leads (previously gold)
- Supplied with metal lock washer & Nut

149 series are ideal for applications similar to 148 series requiring frequent adjustment.

Power rating @ 70°C	1W
Resistance tolerance	±10%
Temperature coefficient	±150ppm/°C
Electrical rotation	270° ±10° (without rotary switch) 240° ±10° (with rotary switch)
Dielectric Strength - sea level	750VAC
Mechanical rotation	300°±5°
End Resistance	40hm max.
Operating temperature	40°C to +150°C

Stocked in the following OHMIC Values:

**149-SXN 1/8" shaft single gang**

100R = 855-7519	100K = 855-7543	2K5 = 855-7578	500R = 855-7608	50K = 855-7624
1K = 855-7527	1M = 855-7551	25K = 855-7586	5K = 855-7616	500K = 855-7632
10K = 855-7535	250R = 855-7560	250K = 855-7594		

**149-SXG 1/4" shaft single gang**

100R = 855-7373	100K = 855-7403	2K5 = 855-7438	5K = 855-7462	500K = 855-7497
1K = 855-7381	1M = 855-7411	25K = 855-7446	50K = 855-7470	500R = 855-7500
10K = 855-7390	250R = 855-7420	250K = 855-7454		

**149-DXG 1/4" dia. shaft double gang**

1K = 855-7314	10K = 855-7322	5K = 855-7330
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**149-SSG 1/4" dia. shaft single gang switch**

1K = 855-7349	10K = 855-7357	5K = 855-7365
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386689

Style	Order Code	Price Each				
		1+	25+	50+	100+	250+
1/8" SXN	All Values ●	3.54	3.15	2.71	2.61	2.49
1/4" SXG	All Values ●	3.60	3.24	3.06	2.88	2.74
1/4" double gang	All Values ●	6.60	5.94	5.61	5.28	5.02
1/8" single gang switched	All Values ●	6.44	5.80	5.47	5.15	4.89

**MDSP Series**

**Push Button Dimmer Switches**



- Push-Push switches with rotary potentiometer in common housing
- Printed circuit terminals
- Used in domestic lighting dimmer controls
- Moulded components are in UL 94V-0 rated materials

Body H=20.7, W=16, D=17

Power rating @ 70°C	200mW	Dielectric strength	2500V
Switch function type	1-pole changeover	Operating temperature	-25°C to +100°C
Rotational angle	270°		

Stocked in the following OHMIC Values:

<b>Without detent</b>				
10K = <b>130-7054</b>	220K = <b>130-7055</b>	500K = <b>130-7056</b>	1M = <b>130-7057</b>	
<b>With detent</b>				
10K = <b>130-7059</b>	220K = <b>130-7061</b>	500K = <b>130-7062</b>	1M = <b>130-7063</b>	

452199

Order Code	1+	10+	Price Each	50+	100+
Values without detent ●	2.37	2.20	1.93	1.73	1.55
Values with detent ●	2.44	2.28	2.01	1.80	1.64

**MDST Series**

**Rotary Dimmer Switches**



- Rotary Switch with rotary potentiometer in common housing
- Switch Approved to EN61058 by VDE
- Applications include lighting dimmer controls, speed and instrument controllers



Body: H=20.7, W=16, D=17  
Shaft: Dia=6, L=20

Track Rating	200mW	Rotational Angle	270°
Switch Rating (AC)	10A / 250V Resistive	Dielectric Strength	2500V
Switch Function Type	1-pole OFF/ON	Operating Temperature	-25°C to +85°C

Stocked in the following OHMIC Values:

10K = <b>163-7184</b>	100K = <b>163-7185</b>	220K = <b>163-7187</b>	470K = <b>163-7188</b>	1M = <b>163-7189</b>
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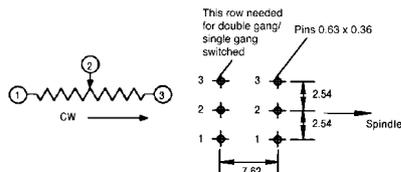
521724

Order Code	1+	10+	Price Each	50+	100+
All Values	2.02	1.86	1.63	1.47	1.35

**1Watt (Cermet Linear), 0.5 Watt (Double Gang Conductive Plastic Linear) – 50 Series PCB Mounting**



Body H = 13.25, W = 12.5, D = 8.9 (219-125 = 16.5)  
Bush 107-661, 107-662 = 8 x 6 dia; spindle = 25 (inc bush) x 3 dia  
107-663, 107-664, 219-125 = 1/8" x 1/8" dia; spindle = 1/8" (inc bush) x 1/4" dia



Drilling plan

- Linear cermet PCB mounting
- Choice of bush and shaft size
- Double gang version in conductive plastic

Power rating @ 70°C	1W (219-125 = 0.5W)	Mechanical rotation	295°±5°
Voltage rating	350V ac (or limited by power dissipation whichever <)	Linearity	5%
Resistance tolerance	±10%	Terminal resistance	2Ω
Temperature coefficient	±150ppm/°C (219-125 = ±1000ppm/°C)	Contact resistance variation	4% (219-125=2%)
Electrical rotation	270°±5°	Dielectric strength (sea level)	1000V ac
		Operating temperature	+1°C to +125°C

Stocked in the following OHMIC Values:

**RoHS** Compliant / Non-compliant



08447 11 11 11

8 x 6 Bush	1K = <b>935-7688</b>	10K = <b>935-7661</b>	1/8 x 1/8" Bush	10K = <b>935-7696</b>	10K (double gang) = <b>935-7670</b>
	51AAD-B28-A15L = 935-7661			51ABD-B28-B15/B15L = 935-7670	
	51SAD-U25-A10L = 935-7688			51SAD-U25-A15L = 935-7696	

207182

Bush Style	Order Code	1+	Price Each	25+	50+	100+
8 x 6	All Values ●	5.73	5.23	4.41	3.49	

**P11 Series Single and Double Gang**



Body H = 13, W = 12.5, D = 11.1 (single), 16.18 (double gang)

Shaft (inc bush) = 25 x 6 dia. (cermet), 50 x 6 dia. (conductive plastic)  
Bush = M10 x 9.5

- P11 linear or logarithmic cermet
- PA11 logarithmic conductive plastic
- Solder lug terminations

Power rating @ 70°C	500mW (Linear)	Electrical rotation	270°±5°
	500mW (Logarithmic)	Mechanical rotation	300°±5°
	500mW (PA11)	End resistance	2ohm
Resistance tolerance	±10%(Cermet)	Contact resistance variation	2% or +3Ω whichever > (linear)
	±10%(Cond. Plastic)	Dielectric strength	1500Vrms (PA11 = 1%)
Temperature coefficient	±500ppm/°C (Cermet)	Operating temperature	-55°C to +125°C
	±500ppm/°C (Cond. Plastic)		

Stocked in the following OHMIC Values:

<b>P11 Cermet - Single Gang Linear</b>				
100R = <b>114-1595</b>	1K = <b>114-1597</b>	10K = <b>114-1599</b>	100K = <b>114-1602</b>	1M = <b>114-1605</b>
500R = <b>114-1596</b>	5K = <b>114-1598</b>	50K = <b>114-1601</b>	500K = <b>114-1604</b>	

**P11 Cermet - Double Gang Linear**

5K = <b>114-1606</b>	10K = <b>114-1607</b>
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**P11 Cermet - Single Gang Logarithmic**

1K = <b>114-1608</b>	5K = <b>114-1609</b>	10K = <b>114-1610</b>	50K = <b>114-1611</b>
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**PA11 Conductive Plastic - Double Gang Logarithmic**

10K = <b>114-1613</b>
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207316

Style	Order Code	1+	10+	Price Each	50+	100+	500+
<b>P11 Cermet</b>							
Single Gang Linear	All Values ●	4.56	4.38	4.08	3.38	2.91	
Double Gang Linear	All Values ●	7.10	6.80	6.36	4.62	4.24	
Single Gang Logarithmic	All Values ●	5.34	5.09	4.76	3.78	3.42	
<b>PA11 Conductive Plastic</b>							
Double Gang Logarithmic	Values 10K ●	15.34	14.66	13.70	9.86	9.18	

**SP12B Series**

**PCB Mounted Conductive Plastic**



Power rating	200mW
Resistance tolerance	±15%
Temperature coefficient	±400ppm/°C
Angle rotation (electrical)	300°
Linearity	±2%
Life expectancy	5000000 turns
Operating temperature	-55°C to +105°C

Stocked in the following OHMIC Values:

1K = <b>153-5836</b>	5K = <b>153-5838</b>	10K = <b>153-5837</b>
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1/4" - 32 UNEF thread

500833

Order Code	1+	Price Each	5+	10+	+
All Values ●	60.48	59.43	52.59	--	--

**P11S Series**

**Cermet**



Body H = 13, W = 12.5, D = 11.1 (single), 16.18 (double gang)

Shaft (inc bush) = 25 x 6 dia. (cermet), 50 x 6 dia. (conductive plastic)  
Bush = M10 x 9.5

- Miniature module size : 12.5 mm square - low current compatibility
- Multiple assemblies - up to seven modules
- Up to twenty-one indent positions

Power rating @ 70°C	1W (Linear)	Mechanical rotation	300°±5°
	500W (Logarithmic)	End resistance	2ohm
Resistance tolerance	±±20%	Contact resistance variation	2% or +3Ω whichever > (linear)
Temperature coefficient	±±100ppm/°C	Dielectric strength	1500Vrms
Electrical rotation	270°±5°	Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

<b>P11S Cermet - Single Gang Linear</b>				
100R = <b>151-7293</b>	1K = <b>151-7294</b>	50K = <b>151-7306</b>	500K = <b>151-7304</b>	1M = <b>151-7301</b>
500R = <b>151-7308</b>	10K = <b>151-7298</b>	100K = <b>151-7300</b>		



## Single Turn Potentiometers - continued

## P11S Series - continued

Cermet - continued

## P11S Cermet - Double Gang Linear

5K = 151-7303

## P11S Cermet - Single Gang Logarithmic

1K = 151-7295 5K = 151-7307 10K = 151-7299 50K = 151-7305

496762

Style	Order Code	Price Each				
		1+	10+	50+	100+	500+
Single Gang Linear	All Values ●	4.43	4.23	3.96	3.09	2.58
Double Gang Linear	All Values ●	5.33	5.11	4.78	3.73	3.11
Single Gang Logarithmic	All Values ●	4.43	4.23	3.96	3.09	2.58

## 27 mm sq - Dual Logarithmic



Bush=M8 x 0.75

- High quality audio potentiometers for volume control in amplifiers and associated audio equipment
- Available with d.c. motor for remote control applications.

Mfrs. List No: RK27111220K = 119-1722  
RK27111250K = 119-1723Power rating 50mW  
Voltage rating 30V a.c.  
Resistance tolerance ±20%  
Motor tolerance to d.c.  
Motor current at end slip @ d.c.

207238

Logarithmic	Order Code	Price Each			
		1+	10+	25+	50+
20K dual	119-1722●	18.44	15.47	13.87	10.57
50K dual with centre detent	119-1723●	18.44	15.47	13.87	10.57

ALPS

## P231 Series

24mm Rotary Potentiometer - Audio Applications



- Conductive plastic element
- 100,000 cycle life
- Metal shaft / bushing
- Specifically designed for audio applications

Voltage Rating 500V ac  
Operating Temperature -20°C to +70°CTR electronics  
BI Technologies

New

207385

Logarithmic	Order Code	Price Each				
		1+	10+	50+	100+	250+
Knurled Shaft	250kohm 154-6730●	1.48	1.38	1.30	1.17	1.13
	500kohm 154-6731●	1.48	1.38	1.30	1.17	1.13
Plain Shaft	250kohm 154-6732●	1.35	1.26	1.17	1.07	1.03
	500kohm 154-6733●	1.35	1.26	1.17	1.07	1.03

1Watt - P16 Series Cermet  
Integrated Potentiometer and Knob

- Compact linear cermet potentiometer, uniquely integrated into the knob
- Single turn potentiometer
- Hermetically sealed and fitted with a panel seal to IP67
- Supplied with nut and washer

L=23.0 (overall)  
Dia=16.0 (knob)  
Panel cut-out=10.1 dia with 8mm double flatPower rating @ 40°C 1W  
Voltage rating 350V ac  
Electrical rotation 270° ±10°  
Mechanical rotation 300° ±5°  
Limiting element voltage 750V RMS  
Dielectric strength 2500V RMS  
Operating temperature -40°C to +85°C (plastic knob)  
-40°C to +125°C (metal knob)

Stocked in the following OHMIC Values:

P16 NP (plastic knob) 20%		P16 N (metal knob) 20%		P16 NP (plastic knob) 10%		P16 N (metal knob) 10%	
470R = 114-1614	470R = 114-1616	470K = 135-7135	470K = 135-7122	1K = 135-7126	1K = 135-7114	2K2 = 135-7132	2K2 = 135-7119
1K = 114-1617	1K = 114-1618	1K = 135-7136	1K = 135-7123	4K7 = 135-7137	4K7 = 135-7125	10K = 135-7127	10K = 135-7115
22K = 114-1621	22K = 114-1683	22K = 135-7133	22K = 135-7120	47K = 135-7137	47K = 135-7124	100K = 135-7129	100K = 135-7117
100K = 114-1623	100K = 114-1686	100K = 135-7134	100K = 135-7121	220K = 135-7138	220K = 135-7121	470K = 135-7138	470K = 135-7125
220K = 114-1625	220K = 114-1687	1M = 135-7131	1M = 135-7118				
470K = 114-1626	470K = 114-1688						
1M = 114-1627	1M = 114-1689						

Mfrs. List No. P16N or P16NP + Value

207385

Order Code	Price Each			
	1+	10+	25+	100+
Plastic Knob (P16NP) 20%				
All Values ●	5.05	4.89	4.54	3.88
Metal Knob (P16N) 20%				
All Values ●	6.84	6.27	5.59	5.40
Plastic Knob (P16NP) 10%				
NEW All Values ●	5.91	5.57	5.35	5.12
Metal Knob (P16N) 10%				
NEW All Values ●	8.86	8.62	8.23	7.59

## 0.25 Watt

Resistance	Order Code	Price Each				
		1+	10+	50+	100+	250+
10kohm	168-4824●	1.32	1.23	1.15	1.05	0.99
25kohm	168-4827●	1.32	1.23	1.15	1.05	0.99
100kohm	168-4829●	1.32	1.23	1.15	1.05	0.99
250kohm	168-4831●	1.32	1.23	1.15	1.05	0.99
500kohm	168-4833●	1.32	1.23	1.15	1.05	0.99
1Mohm	168-4835●	1.32	1.23	1.15	1.05	0.99

## 0.5 Watt

Resistance	Order Code	Price Each				
		1+	10+	50+	100+	250+
10kohm	168-4825●	1.32	1.23	1.15	1.05	0.99
25kohm	168-4828●	1.32	1.23	1.15	1.05	0.99
100kohm	168-4830●	1.32	1.23	1.15	1.05	0.99
250kohm	168-4832●	1.32	1.23	1.15	1.05	0.99
500kohm	168-4834●	1.32	1.23	1.15	1.05	0.99

528629

## PDB241-GTR Series

24 mm Guitar Potentiometer



- Carbon potentiometer
- Low torque
- Knurled or plain metal shaft
- Audio taper

Power rating 250mW  
Voltage rating 250V  
Mechanical rotation 300° (±5°)  
Resistance tolerance ±20%  
Operating temperature -10°C to +70°C  
Rotational life 15000 cyclesBOURNS  
Reliable Electronic Solutions

New

527054

VISHAY

VISHAY

0.5Watt - PA16 Series Conductive Plastic  
Integrated Potentiometer and Knob

A revolutionary concept in panel mounted potentiometers. This unique design consists of a knob driving and incorporating a cermet potentiometer. Only the mounting hardware and terminals are situated on the back side of the panel reducing to a minimum the required clearance.

- Version for professional audio applications
- Compact (integrated)
- Fully sealed and panel sealed

L=23.0 (overall)  
Dia=16.0 (knob)  
Panel cut-out=10.1 dia with 8mm double flatPower rating @ 40°C 500mW  
Voltage rating 350 ac  
Electrical rotation 270° ±10°  
Mechanical rotation 300° ±5°  
Dielectric strength 2500V RMS  
Operating temperature -40°C to +85°C

Stocked in the following OHMIC Values:

PA16 NP (plastic knob)	4K7 = 151-7316	22K = 151-7313	100K = 151-7311
	1K = 151-7309	10K = 151-7310	47K = 151-7317
	2K2 = 151-7312		220K = 151-7315

496772

Order Code	Price Each			
	1+	10+	25+	100+
All Values ●	4.29	4.17	3.87	3.31

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**Model 157**  
Bush Mount



- High quality conductive plastic precision industrial potentiometer
- Rugged one piece metal housing
- Long rotational life

L = 13.1, (body), 11.13 (spindle)  
Dia = 22.22, (body) 19.05 (recess), 3.17 (spindle)

Power rating @ 40°C	1W	Mechanical rotation	360° continuous
Dielectric strength	1000V ac	Rotational life	10000000 cycles
Resistance tolerance	±20%	Output smoothness	0.1% max.
Linearity (independent)	±2% (standard)	Insulation resistance	100MΩ
Temperature coefficient	±60ppm/°C	Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

1K = 135-7039 2K = 135-7041 5K = 135-7042 10K = 135-7040 20K = 135-7043

492823

Order Code	1+	10+	25+	50+	100+
All Values ●	16.67	14.38	13.38	12.44	11.55

**1 Watt – 6639 Series Conductive Plastic**



- High quality conductive plastic potentiometers
- Essentially infinite resolution and excellent rotational life

L=11.3 (body), 22.2 (spindle, inc bush)  
Dia.=22.2 (body), 6.35 (spindle) Mounting bush= 3/8"x32 UNEF

Power rating @ 70°C	1W	Mechanical rotation	360° continuous
Voltage rating	300V ac (or limited by power dissipation whichever <)	Rotational life	10000000 cycles
Resistance tolerance	±15%	Output smoothness	0.1% max.
Linearity	±2%	Insulation resistance	500MΩ
Electrical rotation	340° ±3°	Operating temperature	-65°C to +125°C

Stocked in the following OHMIC Values:

1K = 935-7700 5K = 935-7726 10K = 935-7718

Mfrs. List No. 66395-001+Value

207183

Order Code	1+	10+	25+	50+	100+
All Values ●	8.44	7.78	7.29	6.47	6.30

**6180 Series 7/8" Diameter Single Turn Conductive Plastic Precision Potentiometer**



Tolerance	±10%
Input voltage	400V
Power rating	1W
Dielectric strength	750V
Insulation resistance	1000Mohm
Operating temperature	-65°C to +125°C

L = 11.6 (body), 12.67 (spindle), 9.53 (bush)  
Dia.=22.2 (body), 6.3424 (spindle)  
Mounting bush = 3/8-32 UNEF Thread

Stocked in the following OHMIC Values:

1K = 152-0665 5K = 152-0667 10K = 152-0666

495961

Order Multiple=1	Order Code	1+	5+	10+	25+	100+
All Values ●		8.98	7.24	5.81	4.90	4.78

**1 Watt – 357-Blue Series Conductive Plastic**



- Single turn conductive plastic potentiometers
- Continuous 360° rotation or 340° with stops
- Glass filled thermoplastic housing

L = 8.77 (body), 22.22 (spindle inc bush)  
Dia = 22.22 (body), 6.34 (spindle)  
Mounting bush = 3/8" x 32 UNEF

Power rating @ 70°C	1W	Electrical rotation	340° ±3°
Linearity	±2%	Mechanical rotation	360° continuous
Output smoothness	0.1% max		340° with stops
Rotational life	5000000 cycles	Shaft material	Stainless steel
Resistance tolerance	±20%		

Stocked in the following OHMIC Values:

**Continuous rotation - slotted shaft**  
2K = 114-4766 10K = 114-4764 50K = 114-4769  
5K = 114-4768 20K = 114-4767

**With Rotation stops - slotted shaft**  
1K = 114-4770 5K = 114-4774 20K = 114-4773  
2K = 114-4772 10K = 114-4771 50K = 114-4775

**Continuous rotation - plain shaft**  
1K = 135-7044 5K = 135-7048 20K = 135-7047  
2K = 135-7046 10K = 135-7045 50K = 135-7051

**With Rotation stops - plain shaft**  
1K = 135-7052 5K = 135-7056 20K = 135-7055  
2K = 135-7054 10K = 135-7053 50K = 135-7057

333661

Rotation	1+	5+	10+	25+	50+
<b>Slotted shaft</b>					
Continuous	All Values ●	10.67	8.33	6.85	5.81
With stops	All Values ●	11.39	9.22	8.30	6.93
<b>Plain shaft</b>					
Continuous	All Values ●	11.77	9.40	8.02	6.66
With stops	All Values ●	10.98	9.17	8.07	6.95

**1 Watt – CP1601 Series Conductive Plastic**



L=15 (body),  
Spindle L (inc bush) = 15.9 slotted (CP1601/9S),  
38.1 (CP1601/22)  
Dia = 24 (body), 6.35 (spindle)  
Mounting bush = 2" x 32 UNEF

Power rating @ 70°C	1W	Rotational life	300000 cycles
Resistance tolerance	±20%	Output smoothness	0.1% max
Linearity	±2%	Temperature coefficient	(+20°C to +70°C)
Electrical rotation	340° max	Operating temperature	1% max -25°C to +70°C
Mechanical rotation	340°		

Stocked in the following OHMIC Values:

**CP16019S**  
1K = 350-795 5K = 350-801

**CP160122**  
2K = 350-825 10K = 350-837

Mfrs List No. CP1601/9S + Value CP1601/22 + Value

207390

Style	Order Code	1+	25+	50+	100+	250+
CP1601/9S	All Values	11.40	10.57	10.10	7.72	7.03
CP1601/22	All Values ●	11.40	10.57	10.10	7.72	7.03

**1.5 Watt - Cermet (PRV6), 0.75 Watt**



- Mechanical Life 50,000 cycles
- IP67 Fully Sealed & Panel Sealed
- Linear & Logarithmic

Electrical travel	270°	End resistance	1Ω
Mechanical travel	300°	Contact resistance variation	2% or 3Ω
Resistance tolerance	±10%	Dielectric strength (sea level)	1750V
Temperature coefficient	±100ppm/°C (PRV6)	Operating temperature	-55°C to +125°C

(Delivered with nut & crinkled washer)

Stocked in the following OHMIC Values:

**Linear**  
1K = 879-5690 5K = 879-5703 10K = 879-5711 50K = 879-5720 100K = 879-5738

**Logarithmic**  
5K = 879-5754 10K = 879-5762 50K = 879-5770

386031

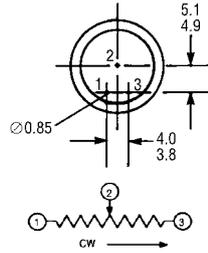
Style	Order Code	1+	5+	10+	25+	50+
Linear	All Values ●	5.39	4.92	4.61	4.41	3.96
Logarithmic	All Values ●	5.40	4.93	4.62	4.41	3.96

£ € **40,000 PRICES REDUCED**



Single Turn Potentiometers - continued

2 Watt – MCU Series Cermet



L = 12.7 (body), 25 (spindle, inc bush)  
Dia = 19 (body), 6.35 (spindle)  
Mounting bush = 1/8" x 32 UNEF

Power rating @ 70°C	2W	Terminal resistance	<3Ω
Voltage rating	315V dc	Insulation resistance	>1000MΩ
Resistance tolerance	±10%	Operating temperature	-55°C to +125°C
Mechanical rotation	270°		

Stocked in the following OHMIC Values:

10R = 117-4096	220R = 117-4100	4K7 = 117-4105	100K = 117-4109
22R = 117-4097	470R = 117-4102	10K = 117-4106	220K = 117-4110
47R = 117-4098	1K = 117-4103	22K = 117-4107	470K = 117-4111
100R = 117-4099	2K2 = 117-4104	47K = 117-4108	1M = 117-4112

Mftrs List No. MCU + Value

207387

Order Code	1+	25+	Price Each	100+	500+
All Values ●	8.67	7.85	7.40	6.08	5.67

3 Watt - PE30 Series Cermet



- High power rating
- Low temperature coefficient

L = 11.5 (body), Spindle L = 25 slotted (inc bush)  
Dia. = 19.7 (body), 6.0 (spindle)

Power rating @ 70°C	3W	Mechanical rotation	300° ±5°
Resistance tolerance	±10%	Dielectric strength	2500V
Temperature coefficient	±100ppm/°C	Operating temperature	-55°C to +125°C
Electrical rotation	270° ±10°		

Stock in the following OHMIC Values:

PE30 AM - Spindle length = 25mm (from mounting surface) slotted

100R = 114-1579	2K2 = 114-1585	22K = 114-1588	220K = 114-1591
220R = 114-1580	4K7 = 114-1586	47K = 114-1589	470K = 114-1592
470R = 114-1581	10K = 114-1587	100K = 114-1590	1M = 114-1593
1K = 114-1584			

PE30 AL - Spindle length = 50mm (from mounting surface) plain round

1K = 114-1631	4K7 = 114-1633	22K = 114-1635	220K = 114-1639
2K2 = 114-1632	10K = 114-1634	100K = 114-1638	

Mftrs. List No. PE30AM + Value, PE30AL + Value

207323

Order Code	1+	10+	Price Each	50+	100+
All Values ●	11.64	9.89	9.31	8.15	7.45

16mm Shaft Version

PE30 FG - Spindle length = 16mm (from mounting surface) plain round

100R = 151-7279	2K2 = 151-7286	22K = 151-7287	220K = 151-7288
220R = 151-7285	4K7 = 151-7290	47K = 151-7291	470K = 151-7292
470R = 151-7289	10K = 151-7281	100K = 151-7282	1M = 151-7283
1K = 151-7280			

496789

Order Code	1+	10+	Price Each	50+	100+
All Values ●	12.44	11.71	11.24	9.31	8.51

1 Watt – RW Series Wirewound



Power rating @ 20°C 1W Mechanical rotation 275° ±10°  
Voltage rating 250V Terminal resistance 0.2Ω  
Resistance tolerance ±10% Isolation voltage 630V ac  
Electrical rotation 275° ±5° Operating temperature -40°C to +70°C  
L = 17 (body), Dia = 23.5 (body), 6.35 (spindle)  
Mounting bush = 1/8" x 32 UNEF

Stocked in the following OHMIC Values:

Spindle – 6.3 x 19 mm (inc bush) slotted	2K = 117-4211	5K = 117-4212	10K = 117-4213	25K = 117-4214
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Spindle – 6.3 x 16 mm (inc bush) slotted

50R = 117-4215

333868

Order Code	1+	25+	Price Each	100+	250+
All Values ●	11.14	10.34	9.48	7.10	6.11

SP22E and SW22E Series

General Purpose Single Turn Potentiometer



- Conductive plastic (SP22E) and wirewound (SW22E) elements
- Gold plated terminals
- High temperature thermoplastic housing
- Stainless steel shaft

L = 12.19, Shaft length = 20.32 (SP22E) 20.62 (SW22E), Dia. = 21.84, Shaft dia. = 6.35

Power rating	SP22E Series 1W	SW22E Series 500mW
Resistance tolerance	±10%	±3%
Temperature coefficient	±400ppm/°C	± 20ppm/°C
Linearity	±1%	±0.5%
Angle rotation (mechanical and electrical)	320°	320°
Life expectancy	10000000 turns	500000 turns
Operating temperature	-55°C to +105°C	-55°C to +105°C

SP22E Series

Stocked in the following OHMIC Values:

1K = 130-7134	2K = 130-7136	5K = 130-7138	10K = 130-7135
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SW22E Series

Stocked in the following OHMIC Values:

1K = 130-7146	10K = 130-7147	100R = 153-5839
5K = 130-7148		

452156

Order Code	1+	10+	Price Each	25+	50+
SP22E Series All Values ●	12.04	9.81	9.06	8.24	
SW22E Series All Values ●	19.42	15.84	14.62	13.29	

1 Watt – CLR1106 Series Wirewound



L = 17.5 (body)  
Spindle L (inc bush) = 15.9 slotted (CLR1106/9S), 19.1 slotted (CLR1106/11S)  
Dia = 23.1 (body), 6.35 (spindle)  
Mounting bush = 1/8" x 32 UNEF

Power rating @ 20°C	1W	Mechanical rotation	290° ±10°
Voltage rating	250V dc	Terminal resistance	0.2Ω or 0.01% whichever >
Resistance tolerance	±10%	Isolation voltage	1000Vdc
Electrical rotation	265° ±15°	Operating temperature	-25°C to +70°C

Stocked in the following OHMIC Values:

CLR1106 9S

50R = 351-003	500R = 351-039	2K5 = 351-064	25K = 351-090
100R = 351-015	1K = 351-040	5K = 351-076	50K = 351-106
250R = 351-027	2K = 351-052	10K = 351-088	

CLR1106 11S

100R = 351-118	500R = 351-131	2K = 351-155	10K = 351-180
250R = 351-120	1K = 351-143	5K = 351-179	

Mftrs List No. CLR1106/9S + Value CLR1106/11S + Value

207391

Style	Order Code	1+	25+	Price Each	100+	250+
CLR1106 9S	All Values ●	11.28	10.55	9.94	7.13	6.51
CLR1106 11S	All Values ●	11.28	10.55	9.94	7.13	6.51

1 Watt – ABW1 Series Wirewound



L = 17.45 (body), Spindle = 25.4 (inc bush)  
Dia = 23.0 (body), 6.35 (spindle)  
Mounting bush = 1/8" x 32 TPI

Power rating @ 40°C	1W	Mechanical rotation	285° ±5°
Voltage rating	300V dc	Terminal resistance	0.2ohm or 0.01% whichever > 2Ω
Resistance tolerance	±10%	Insulation resistance	1000Mohm
Spindle length	25.4mm from face	Isolation voltage	1000Vac
Electrical rotation	265° ±5°	Operating temperature	-40°C to +90°C

Stocked in the following OHMIC Values:

50R = 121-9016	250R = 121-9019	1K = 121-9021	5K = 121-9023	25K = 121-9025
100R = 121-9018	500R = 121-9020	2K5 = 121-9022	10K = 121-9024	50K = 121-9026

Mftrs List No. ABW1 + Value

207422

Order Code	Price Each			
	1+	25+	50+	100+
Values 50R to 10K ●	5.47	4.99	4.71	3.81
Values 25K to 50K ●	5.47	4.99	4.71	3.81

3 Watt – RW Series Wirewound



L=19.5 (body), Dia = 40 (body),  
6.35 (spindle)  
Mounting bush = 3/8" x 32 UNEF  
Power rating @ 20°C 3W  
Voltage rating 500V dc  
Resistance tolerance ±10%  
Electrical rotation 275°±5°  
Mechanical rotation 295°±10°  
Terminal resistance 100Ω  
Isolation voltage 630V ac  
Operating temperature -40°C to +70°C

Stocked in the following OHMIC Values:

**Spindle – 6.3 x 19 mm (inc bush) slotted**

50R = 117-4194	500R = 117-4196	2K = 117-4199	5K = 117-4201	25K = 117-4205
100R = 117-4195	1K = 117-4197	2K5 = 117-4200	10K = 117-4203	50K = 117-4207

**Spindle – 6.3 x 38 mm (inc bush) slotted**

2K = 117-4208	5K = 117-4209	10K = 117-4210
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312085

Order Code	Price Each				
	1+	25+	50+	100+	250+
All Values ●	11.30	10.48	9.84	7.70	7.37

3 Watt – CLR4001 Series Wirewound



L=19.2 (body),  
Spindle L (inc bush) = 19.1 slotted  
(CLR4001/11S), 38.1 (CLR4001/22)  
Dia = 40 (body), 6.35 (spindle)  
Mounting bush = 3/8" x 32 UNEF

Power rating @ 20°C 3W  
Voltage rating 500V  
Resistance tolerance ±10%  
Electrical rotation 275°±5°  
Mechanical rotation 295°±5°  
Terminal resistance variation 0.2Ω or 0.01% whichever >  
Isolation voltage 750V dc  
Operating temperature -40°C to +70°C

Stocked in the following OHMIC Values:

**CLR4001/11S**

50R = 121-0913	500R = 121-0917	2K = 121-0921	5K = 121-0923	25K = 121-0925
100R = 121-0914	1K = 121-0918	2K5 = 121-0922	10K = 121-0924	50K = 121-0926
250R = 121-0916				

**CLR4001/22**

1K = 121-0927	2K5 = 121-0929	10K = 121-0931	50K = 121-0933	100K = 121-0934
2K = 121-0928	5K = 121-0930			

Mfrs. List No. CLR4001/11S + Value CLR4001/22 + Value

207392

Style	Order Code	Price Each				
		1+	25+	50+	100+	250+
CLR4001/11S	Values 50R to 10K ●	15.14	14.15	13.87	11.11	10.35
CLR4001/11S	Values 25K to 50K ●	11.36	10.62	10.40	8.33	7.77
CLR4001/22	Values 1K to 10K ●	12.11	11.32	11.10	8.89	8.28
CLR4001/22	Values 50K to 100K ●	11.03	10.31	10.10	8.09	7.54

Rheostats

12 to 500 Watt - RT Series



- Ceramic core vitreous enamel coated wirewound rheostats
- High power rating up to 500 Watts
- Compact size per rating
- Wide temperature range
- Dial and knob supplied separately

Power rating	Body L	Dia.	Shaft L	Dia.
12 Watt	18	22	22 (inc bush)	3.0
25 Watt	28	38	22 (inc bush)	6.0
55 Watt	39	60	25 (inc bush)	6.0
100 Watt	56	85	25 (inc bush)	6.0

Power rating measured at 25°C  
Resistance tolerance ±10%  
Mechanical rotation 300°±5°  
Operating temperature -55°C to +320°C

Dielectric strength 12, 25 & 55W  
100W  
200V rms  
250W  
500W  
1000Vrms  
1500V rms  
2000V rms  
3500V rms

207325

Value	Order Code	Price Each				
		1+	5+	10+	25+	50+
<b>12 Watt</b>						
100R	114-1308●	40.08	37.18	33.40	32.38	28.61
150R	114-1309●	38.99	36.15	32.49	31.50	27.83
220R	114-1310●	43.32	40.17	36.10	35.00	30.93
1K	114-1312●	43.32	40.17	36.10	35.00	33.98
20JF Knob	121-3369●	16.78	15.76	15.43	13.20	12.39
<b>25 Watt</b>						
2R2	114-1313●	29.39	28.58	27.81	27.07	26.38
4R7	114-1315●	29.39	28.58	27.81	27.07	26.38
10R	114-1316●	25.62	24.91	24.23	23.60	22.99
15R	114-1317●	26.91	22.87	19.57	18.98	18.41
22R	114-1318●	24.46	20.79	19.57	18.43	17.34
47R	114-1319●	25.42	24.71	24.05	23.41	22.81
100R	114-1320●	26.27	25.54	24.85	24.19	23.57
150R	114-1321●	24.22	22.04	21.38	20.74	20.12
220R	114-1322●	26.67	25.93	25.23	24.57	23.94
470R	114-1323●	22.02	20.04	19.16	18.31	17.51
1K	114-1324●	22.02	19.00	18.48	18.00	17.53
1K5	114-1325●	30.24	27.81	27.21	26.67	25.26
2K2	114-1327●	22.35	21.73	21.14	20.59	20.06
4K7	114-1328●	26.67	25.93	25.23	24.57	23.94
29JF Knob	121-3363●	14.53	14.05	13.61	13.21	12.82
CG58 Dial	121-3366●	5.28	5.14	4.99	4.87	4.75
<b>55 Watt</b>						
10R	114-1329●	48.40	47.05	45.78	44.58	43.44
22R	114-1330●	43.12	41.92	40.79	39.71	38.70
100R	114-1331●	51.01	49.49	48.05	45.87	43.63
330R	114-1332●	34.10	31.03	29.67	28.37	27.57
1K	114-1333●	42.45	41.27	40.16	39.10	38.10
2K2	114-1334●	44.16	42.94	41.77	40.68	39.63
4K7	114-1335●	37.50	31.87	30.75	29.72	28.96
10K	114-1336●	48.49	47.14	45.87	44.66	43.52
41JF Knob	121-3364●	16.50	15.96	15.44	14.97	14.50
CG78 Dial	121-3367●	9.72	9.45	9.20	8.96	8.73
<b>100 Watt</b>						
22R	114-1337●	84.17	81.83	79.62	77.52	75.54
100R	114-1339●	75.61	73.51	71.53	69.64	67.86
1K	114-1341●	89.15	86.68	84.33	82.11	80.01
41JF Knob	121-3364●	16.50	15.96	15.44	14.97	14.50
CG78 Dial	121-3367●	9.72	9.45	9.20	8.96	8.73

High Power Rheostat



H = 153. W = 94. L = 450

- High power variable rheostat for laboratory use
- Pressed steel cover with ceramic adjustment handle
- 4mm socket connections to wire wound element

Resistance (Ω)	Max. Cont Power (W)	Max Current (A)	Internal Element Size	Mfrs List No.	Order Code
5.6	560	10	400 x 60	BFA 10 5R6	157-454
22	550	5	400 x 60	BFA 5 22R	157-466
33	428	4	400 x 60	BFA 4 33R	157-478
120	480	2	400 x 60	BFA 2 120R	157-480
560	560	1	400 x 40	BFA 1 560R	157-491

Wire material CuNi44 Resistance tolerance ±10%

207275

Resistance	Order Code	Price Each	
		1+	5+
5R6	157-454●	179.70	167.68
22R	157-466●	179.70	167.68
33R	157-478●	179.70	167.68
120R	157-480●	179.70	167.68
560R	157-491●	179.70	167.68

MW10B Series  
10 Turn Wirewound



Power rating 1W  
Resistance tolerance ±3%  
Temperature coefficient ±20ppm/°C  
Angle rotation (electrical and mechanical) 3600°  
Linearity ±0.25%  
Life expectancy 1000000 turns  
Operating temperature -55°C to +105°C



Stocked in the following OHMIC Values:

1K = 153-5846	5K = 153-5848	10K = 153-5847
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500862

Order Code	Price Each			
	1+	5+	10+	+
All Values ●	116.64	114.61	101.43	--



Rheostats - continued

MW12B Series  
10 Turn Wirewound



Power rating 1W  
Resistance tolerance ±3%  
Temperature coefficient ±20ppm/°C  
Angle rotation (electrical and mechanical) 360°  
Linearity ±0.25%  
Life expectancy 1000000 turns  
Operating temperature -55°C to +105°C



1/4" - 32 NEF thread

MW10B-10L (bottom terminations)

Stocked in the following OHMIC Values:

1K = 153-5849      10K = 153-5850      5K = 153-5851

Order Code	Price Each			
	1+	5+	10+	+
All Values ●	69.11	67.91	60.10	--

MW10B-10R (end terminations - opposite shaft)

Stocked in the following OHMIC Values:

1K = 153-5852      5K = 153-5854      10K = 153-5853

Order Code	Price Each			
	1+	5+	10+	+
All Values ●	69.11	67.91	60.10	--

Multi Turn Potentiometers

TW Series - 1 Watt ±10%



- High power wirewound potentiometer
- Proven reliability and excellent linearity
- Robust construction

Voltage rating 200V  
Temperature coefficient ±100ppm/°C  
Operating temperature -55°C to +125°C  
Power rating at 40°C 1W  
Mechanical life 10000 operations



L=17.5, Dia=22.6

Stocked in the following OHMIC Values:

10R = 150-2910    100R = 150-2911    500R = 150-2921    2K5 = 150-2916    10K = 150-2913  
25R = 150-2914    250R = 150-2915    1K = 150-2912    5K = 150-2922    25K = 150-2917  
50R = 150-2919

Order Multiple=1	Price Each			
	1+	10+	25+	50+
All Values ●	4.53	3.89	3.62	3.17

91 Series Panel Controls



- Virtually infinite electrical circuit isolation
- Conductive plastic element

H=22.86, W=15.88, D=15.88

Power rating @ 70°C 0.5W  
Resistance 10kohm  
Temperature Coefficient 1000ppm/°C  
Tolerance ±20%  
Electrical rotation 240° ±5°

Linearity ±0.05%  
Contact variation resistance ±0.01Ω  
Operating temperature -40°C to +125°C  
Voltage rating 1500V

Shaft Type	Shaft Length	Shaft Diameter	Order Code
Slotted	19.05	6.35	168-8404
Slotted	22	6.35	168-8405
Flatted	22	6.35	168-8407
Slotted	22	6	168-8408

Order Code	Price Each				
	1+	25+	50+	100+	250+
168-8404●	3.33	3.06	2.70	2.18	--
168-8405●	7.11	5.53	4.51	3.82	3.55
168-8407●	7.91	6.15	4.99	4.25	3.95
168-8408●	7.11	5.53	4.51	3.82	3.55

1Watt, 3 Turn - 533 - Series



- Three turn precision wirewound potentiometers
- Glass filled thermoplastic housing
- Gold plated terminals

L = 19.1, (body), 20.6 (spindle, inc bush)  
Dia = 22.2, (body) 6.35 (spindle)  
Mounting bush = 1/8"x32 UNEF

Power rating @ 70°C 1W  
Resistance tolerance ±5%  
Effective rotation 1080° (+10%)  
Mechanical rotation 1080° (+10%)  
Temperature coefficient ±20ppm/°C  
Linearity ±0.25%  
Terminal resistance 1Ω  
Dielectric strength 1000V ac  
Operating temperature -55°C to +125°C

Stocked in the following OHMIC Values:

Value	Resolution	Order Code
1K	0.06%	114-4776
5K	0.04%	114-4779
10K	0.03%	114-4778

333662

Order Code	Price Each				
	1+	5+	10+	25+	50+
All Values ●	11.40	9.68	9.12	8.58	8.07

1.5 Watt, 5 Turn - 535 - Series



- Five turn precision wirewound potentiometers
- Glass filled thermoplastic housing
- Gold plated terminals

L = 19.1, (body), 20.6 (spindle, inc bush)  
Dia = 22.2, (body) 6.35 (spindle)  
Mounting bush = 1/8" x 32 UNEF

Power rating @ 70°C 1.5W  
Resistance tolerance ±5%  
Effective rotation 1800° (±10°)  
Mechanical rotation 1800° (±10°)  
Temperature coefficient ±20ppm/°C  
Linearity ±0.25%  
Terminal resistance 1Ω  
Dielectric strength 1000V ac  
Operating temperature -55°C to +125°C

Stocked in the following OHMIC Values:

Value	Resolution	Order Code	Value	Resolution	Order Code
1K	0.04%	114-4780	10K	0.03%	114-4781
5K	0.03%	114-4782	50K	0.02%	114-4783

333663

Order Code	Price Each				
	1+	5+	10+	25+	50+
All Values ●	11.37	9.35	8.28	7.96	7.68

2 Watt, 10 Turn - 3590S Series



L = 18.6 (body), 20.6 (spindle, inc bush)  
Dia = 22.2 (body), 6.35 (spindle)  
Mounting bush = 1/8" x 32 UNEF

Power rating @ 40°C 2W  
Voltage rating 450V ac (or limited by power dissipation whichever <)  
Resistance tolerance ±5%  
Temperature coefficient 50ppm/°C max

Electrical rotation (3600° + 10° -10°)  
Mechanical rotation (3600° + 10° -0°)  
Linearity ±0.25%  
Terminal resistance 0.1Ω or 1Ω whichever >  
Dielectric strength (sea level) 1500V ac  
Operating temperature -55°C to +125°C

Stocked in the following OHMIC Values:

Rotational life (no load) 1 million revolutions

Ohmic Value	Resolution	Order Code	Ohmic Value	Resolution	Order Code	Ohmic Value	Resolution	Order Code
500R	0.033%	935-5596	5K	0.025%	935-5600	20K	0.019%	935-5588

Mfrs. List No. 3590S + Value

207416

Order Code	Price Each					
	1+	10+	25+	50+	100+	250+
Values 200R to 20K	10.79	10.22	9.31	7.52	7.10	5.93
Value 50K	13.04	12.36	11.26	9.10	8.59	7.17

3 Watt, 10 Turn – 3540S Series



L = 19.0 (body), 20.6 (spindle, inc bush)  
Dia = 22.2 (body), 6.35 (spindle)  
Mounting bush = 1/8" x 32 UNEF

Power rating @ 40°C 3W (2W @ 70°C)  
Voltage rating 447V ac (or limited by power dissipation whichever <)  
Resistance tolerance ±5%  
Temperature coefficient ±50ppm/°Cmax  
Rotational life (no load) 1 million revolutions

Electrical rotation (3600° +10°-0°)  
Mechanical rotation (3600° +10°-0°)  
Linearity ±0.25%  
Terminal resistance 1ohm or 1Ω whichever >  
Dielectric strength (sea level) 1000V ac  
Operating temperature -55°C to +125°C

Stocked in the following OHMIC Values:

Ohmic Value	Resolution	Order Code	Ohmic Value	Resolution	Order Code	Ohmic Value	Resolution	Order Code
100R	0.055%	935-5529	500R	0.031%	935-5561	5K	0.021%	935-5570
200R	0.042%	935-5553	1K	0.027%	935-5537	100K	0.008%	935-5545

Mfrs. List No. 3540S + Value

207401

Order Code	Price Each					
	1+	10+	25+	50+	100+	250+
Values 100R to 20K	14.59	13.66	12.45	10.05	9.50	7.93
Value 100K	18.23	17.07	15.56	12.57	11.87	9.89

2 Watt, 10 Turn – 534 - Series



Metric



Imperial

- 10 turn precision wirewound potentiometers
- Glass filled thermoplastic housing
- Gold plated terminals

L = 19.1, (body), 20.6 (spindle, inc bush)  
Dia = 22.2, (body) 6.0 or 6.35 (spindle)  
Mounting bush = 1/8" x 32 UNEF imperial  
M9 x 0.75 metric

Power rating @ 70°C 2W  
Resistance tolerance ±5%  
Effective rotation 3600° (+10%)  
Mechanical rotation 3600° (+10%)  
Temperature coefficient ±20ppm/°C

Linearity ±0.2%  
Terminal resistance 1Ω  
Dielectric strength 1000V ac  
Operating temperature -55°C to +125°C

Stocked in the following OHMIC Values:

Imperial – 1/4" dia. shaft

Ohmic value	Resolution	Order Code	Ohmic value	Resolution	Order Code
100R	0.06%	114-4784	5K	0.02%	114-4793
200R	0.04%	114-4787	10K	0.02%	114-4786
500R	0.03%	114-4792	20K	0.02%	114-4791
1K	0.03%	114-4785	50K	0.01%	114-4794
2K	0.02%	114-4788	100K	0.01%	114-4795

Metric – 6mm dia. shaft

Ohmic value	Resolution	Order Code	Ohmic value	Resolution	Order Code
100R	0.06%	114-4796	5K	0.02%	114-4803
200R	0.04%	114-4799	10K	0.02%	114-4798
500R	0.03%	114-4802	20K	0.02%	114-4801
1K	0.03%	114-4797	50K	0.01%	114-4804
2K	0.02%	114-4800	100K	0.01%	114-4805

333665.343091

Order Code	Price Each				
	1+	5+	10+	25+	50+
Imperial – 1/4" dia. shaft					
Values 100R to 20K ●	7.35	6.25	5.88	5.14	4.88
Value 50K ●	8.73	7.42	6.98	6.11	5.80
Value 100K ●	10.35	8.80	8.48	8.26	8.05
Metric – 6mm dia. shaft					
Values 100R to 20K ●	8.15	6.93	6.52	6.13	5.37
Value 50K ●	10.02	8.52	8.02	7.55	7.31
Value 100K ●	11.98	10.18	9.58	9.02	8.75

1 Watt, 3 Turn – 3547 Series



Diameter, body 22.479mm  
Length, body 19.812mm  
Diameter, shaft 6.34mm  
Length, shaft 11.173mm  
Thread size 3/8" 32-UNEF  
Length, bush thread 6.396mm

- 3 turn precision wirewound potentiometers
- High rotational life

Power rating @ 70°C 1W  
Resistance tolerance ±±3%  
Temperature coefficient ±±50ppm/°C  
Operating temperature -55°C to +125°C

Bush Mount

Stocked in the following OHMIC Values:

Wirewound - Single Gang

1K = 147-0237 5K = 147-0238 10K = 147-0239

494210

Order Code	Price Each		
	1+	5+	10+
All Values ●	17.56	15.81	14.93

1.5 Watt, 5 Turn – 3548 Series



Diameter, body 22.479mm  
Length, body 19.812mm  
Diameter, shaft 6.34mm  
Length, shaft 11.173mm  
Thread size 3/8" 32-UNEF  
Length, bush thread 6.396mm

- 5 turn precision wirewound potentiometers
- High rotational life

Power rating @ 70°C 1.5W  
Resistance tolerance ±±3%  
Temperature coefficient ±±50ppm/°C  
Operating temperature -55°C to +125°C

Bush Mount

Stocked in the following OHMIC Values:

Wirewound - Single Gang

1K = 147-0240 5K = 147-0241 10K = 147-0242

494208

Order Code	Price Each		
	1+	5+	10+
All Values ●	17.56	15.81	14.93

2 Watt, 10 Turn – 3549 Series



Power rating @ 70°C 2W  
Resistance tolerance ±±3%  
Temperature coefficient ±±50ppm/°C  
Operating temperature -55°C to +125°C

Wirewound 2W  
Hibritron® 2W

Temperature coefficient ±±10%  
±±100ppm/°C  
Operating temperature -55°C to +125°C

- 10 turn precision wirewound and Hibritron® element potentiometers
- High rotational life
- Servo mounting and dual gang options

	Bush Mount - Single Gang	Bush Mount - Dual Gang	Servo Mount - Single Gang
Diameter, body	22.479mm	22.479mm	22.225mm
Length, body	19.812mm	40.259mm	25.22mm
Diameter, shaft	6.34mm	6.34mm	3.1699mm
Length, shaft	12.697mm	12.697mm	7.95mm
Thread size	3/8" 32-UNEF	3/8" 32-UNEF	-
Length, bush thread	6.396mm	6.396mm	-

Bush Mount

Wirewound - Single Gang

Stocked in the following OHMIC Values:

100R = 147-0217 10K = 147-0221 200R = 147-0223 20K = 147-0225 5K = 147-0227  
1K = 147-0219 100K = 147-0222 2K = 147-0224 500R = 147-0226 50K = 147-0228

Order Code	Price Each		
	1+	5+	10+
All Values ●	14.06	12.65	11.94

Wirewound - Dual Gang

Stocked in the following OHMIC Values:

5K = 147-0244

Order Code	Price Each		
	1+	5+	10+
All Values ●	22.26	20.02	18.91

Hibritron® - Single Gang

Stocked in the following OHMIC Values:

1K = 147-0230 5K = 147-0232 10K = 147-0233

Order Code	Price Each		
	1+	5+	10+
All Values ●	29.73	26.76	25.28

Servo Mount

Wirewound - Single Gang

Stocked in the following OHMIC Values:

1K = 147-0234 5K = 147-0235 10K = 147-0236

494163

Order Code	Price Each		
	1+	5+	10+
All Values ●	17.78	16.00	15.11

£ € 40,000 PRICES REDUCED



Multi Turn Potentiometers - continued

PE60 Series



- Power panel potentiometer
- High power rating
- Cermet element
- Mechanical strength



Body length = 18mm, Shaft = 6mm dia.  
 Mechanical rotation 300° ±5°  
 Dielectric strength 2500V  
 Operating temperature -25°C to +125°C

Power rating @ 70°C 6W  
 Resistance tolerance ±20%  
 Temperature coefficient ±50ppm/°C  
 Electrical rotation 270° ±10°

Stock in the following OHMIC Values:

<b>PE60 FG - Spindle length = 16mm slotted</b>			
4K7 = 156-0936	10K = 156-0937	100K = 156-0938	470K = 156-0939
<b>PE60 FL - Spindle length = 25mm slotted</b>			
4K7 = 156-0940	10K = 156-0941	100K = 156-0942	470K = 156-0944

527113

Order Code	Price Each				
	1+	10+	25+	50+	100+
All Values ●	32.67	30.09	29.31	24.33	20.88

8 Watt, 10 Turn – 860 Series



- 10 turn wirewound potentiometer
- Moulded glass filled thermoplastic case
- Stainless steel non-magnetic shaft



L=50.8 (body), 20.62 (spindle inc bush)  
 Dia.=46.02 (body), 6.34 (spindle)  
 Mounting Bush= 1/8" x 32 UNEF-2A

Power rating 8W @ 40°C ambient derated linearly to zero @ 125°C  
 Temperature range -55°C to +125°C  
 Tolerance ±3%  
 Dielectric strength 1000 Volts RMS @ 60 Hz  
 Rotational life 500000 shaft revolutions  
 Mechanical rotation 3600°+ 4°C -0°C

224003

Value	Order Code	Price Each			
		1+	5+	10+	20+
100R	157-685▲	58.94	57.76	55.83	51.25
1K	157-703▲	60.60	59.38	57.40	52.68
2K	157-715▲	58.94	57.76	55.83	51.25
5K	157-727▲	58.94	57.76	55.83	51.25

AR Series

10 Turn Wirewound – Precision Potentiometer



- Precision wirewound Potentiometer
- 3 gangs (max)
- Resistance range from 10 ohms to 500K Ohms
- Wide range of standard values
- Rotational Load: Life 2 mil. shaft rev. + 900 hrs. at rated wattage at 40°C



Power Rating 5W  
 Resistance Tolerance (min) ±1%  
 Dielectric Strength 1000V rms  
 Temperature range -65°C to 85°C (Static)  
 -40°C to 85°C (Dynamic)

Resistance (Ω)	Mfrs. List No.	Order Code	Resistance (Ω)	Mfrs. List No.	Order Code
500ohm	AR500L.25LF	943-1810	50kohm	AR50KL.25LF	943-1888
1kohm	AR1KL.25LF	943-1837	100kohm	AR100KL.25LF	943-1896
2kohm	AR2KL.25LF	943-1845	200kohm	AR200KL.25LF	943-1900
5kohm	AR5KL.25LF	943-1853	300kohm	AR300KL.25LF	943-1918
10kohm	AR10KL.25LF	943-1861	500kohm	AR500KL.25LF	943-1926
20kohm	AR20KL.25LF	943-1870			

411614

Order Code	Price Each				
	1+	5+	10+	25+	50+
All Values ●	40.61	36.61	32.49	30.45	27.12

MW22 Series

Multi Turn Wirewound Precision Potentiometer



- 3, 5 and 10 turn versions available
- Wirewound element in a high temperature thermo plastic housing
- Recommended for medical equipment (non-life support), test and lab equipment, industrial applications
- Bushing mount standard

	3	5	10
Power rating	700mW	1W	3W
Resistance tolerance	±5%	±5%	±5%
Temperature coefficient	±80ppm/°C	±20ppm/°C	±80ppm/°C
Linearity	±0.25%	±0.25%	±0.25%
Angle rotation*	1080°	1800°	360°
Life expectancy	1,000,000 turns		
Operating temperature	-55°C to +105°C		
* Mechanical and electrical			

L. = 19.05, Shaft length = 20.83,  
 Dia. = 22.35, Shaft dia. = 6.35

3 Turn

Stocked in the following OHMIC Values:

100R = 130-7126	500R = 130-7131	2K = 130-7127	10K = 130-7124
200R = 130-7129	1K = 130-7123	5K = 130-7130	20K = 130-7128

5 Turn

Stocked in the following OHMIC Values:

1K = 153-5855	5K = 130-7133	10K = 130-7132	20K = 153-5856
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10 Turn

Stocked in the following OHMIC Values:

100R = 130-7116	1K = 130-7114	5K = 130-7120	20K = 130-7119	100K = 130-7117
500R = 130-7122	2K = 130-7118	10K = 130-7115	50K = 130-7121	

452154

	Order Code	Price Each			
		1+	10+	25+	50+
3 Turn	All Values ●	8.33	6.79	6.27	5.70
5 Turn	All Values ●	8.33	6.79	6.27	5.70
10 Turn	Values 100R - 20K ●	7.72	6.30	5.80	5.29
	Values 50K - 100K ●	10.30	8.39	7.75	7.05

8140 Series 7/8" Diameter Multi-Turn Hybrid Precision Potentiometer



Tolerance ±10%  
 Power rating 2W  
 Dielectric strength 1000V  
 Insulation resistance 1000Mohm  
 Temperature coefficient 100 to 150ppm/°C  
 Operating temperature -40°C to +125°C  
 No. of turns 10

L=11.6 (body), 12.67 (spindle), 9.53 (bush)  
 Dia.=22.2 (body), 6.35 (spindle)  
 Mounting bush=3/8-32 UNEF Thread

Stocked in the following OHMIC Values:

1K = 152-0676	2K = 152-0678	5K = 152-0679	10K = 152-0677
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495990

Order Multiple=1	Order Code	Price Each				
		1+	5+	25+	50+	100+
All Values ●		15.81	12.90	10.25	9.28	8.93

7280 Series 7/8" Diameter Multi-Turn Wirewound Precision Potentiometer



Tolerance ±5%  
 Power rating 2W  
 Dielectric strength 1000V  
 Insulation resistance 1000Mohm  
 Operating temperature -55°C to +125°C  
 No. of turns 10

L=11.6 (body), 12.67 (spindle), 9.53 (bush)  
 Dia.=22.2 (body), 6.35 (spindle)  
 Mounting bush=3/8-32 UNEF Thread

Stocked in the following OHMIC Values:

1K = 152-0668	5K = 152-0675	10K = 152-0669	20K = 152-0674	100K = 152-0670
2K = 152-0673				

495984

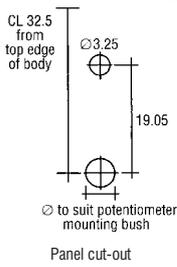
Order Multiple=1	Order Code	Price Each				
		1+	5+	10+	25+	50+
All Values ●		7.13	6.88	6.47	5.96	5.38

### Counting Dials

#### 10 Turn Digital



H=44.5, W=25.4, D=22



- 10 turn digital counter dial
- Three black dials with white markings

- Supplied with key for tightening the locking set screws

Operating temperature -20°C to +50°C

Mfrs. List No.	Finish	Protective Window	Order Code
15-1-11	Satin chrome	No	121-9775
15-1-31	Satin chrome	Yes	121-9780
15-1-33	Black chrome	Yes	121-9781

207384

Finish	Order Code	Price Each				
		1+	10+	25+	50+	100+
<b>Without window</b>						
Satin	121-9775	18.87	18.12	16.91	13.30	13.02
<b>With window</b>						
Satin	121-9780	18.47	17.74	16.52	15.18	14.88
Black	121-9781	22.03	21.15	19.73	15.52	15.21

#### 10 Turn



- 10 turn digital counting dial
- Accurate to 1/500th per revolution
- White markings on a black background
- Recessed mounting reducing front panel projection
- Supplied with lock nut and allen key

Body dia=28 max, D=33, Shaft dia=6.35  
Projection from front panel=17  
Panel cut-out max=28.9 dia, Panel thickness=3.5

Operating temperature -10°C to +60°C

207169

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
CT-26-6A	107-3849	23.14	21.68	21.02	19.35	17.45

#### Model 21

##### 15 Turn



- Round vernier scale
- 1499 turns total
- Satin chrome finish with black markings
- 1/4" bore shaft adapter

Body dia=46.02, D=25.4



494084

Order Code	1+	10+	Price Each		
			25+	50+	100+
135-7058	17.35	15.33	13.80	11.32	10.91

#### 7/8" (22mm) Dia – 10 Turn



- Precision 10 turn analogue counting dial
- Dial finish has white numerals in black matte
- Black markings on aluminium finish
- Housing finish is a satin chrome

Body dia = 46.0, D = 24.6



416093

Mfrs. List No.	Order Code	Price Each				
		1+	5+	10+	50+	100+
2696	943-1942	13.41	12.29	11.04	10.60	8.80

#### 7/8" (22mm) Dia – 15 Turn



- Precision 15 turn analogue counting dial
- Housing comes in a satin chrome finish
- The dial comes in black numerals on satin chrome
- Positive action locking mechanism

Body dia = 46.0, D = 24.6



416094

Mfrs. List No.	Order Code	1+	5+	10+	50+	100+
RB	943-1950	13.41	12.99	12.72	12.38	11.80

#### 7/8" (22mm) Dia – 20 TURN 2606 Series



- Precision 20 turn analogue counting dial
- Locking Mechanism is a positive action with detent
- Knob material is a black plastic
- Black numerals on satin chrome

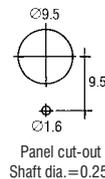
Body dia = 46.0, D = 24.6



411615

Mfrs. List No.	Order Code	1+	5+	10+	50+	100+
2606	943-1934	15.70	14.65	13.65	12.25	10.89

#### 11 Turn



- 11 turn analogue counting dial
- Available in satin chrome or black chrome finish

- Suitable for potentiometers with 0.375" dia. 32 TPI UNF-2A bush
- Supplied with allen key

Operating temperature -20°C to +85°C

Mfrs. List No.	Finish	Order code
11-1-11	Satin chrome, black markings	114-4732
11-1-21	Black chrome, white markings	114-4811
11-1-41	Satin chrome, white markings	114-4812

207382

Finish	Order Code	Price Each				
		1+	10+	25+	50+	100+
Chrome/Black	114-4732	14.42	13.87	12.92	10.18	9.98
Black/White	114-4811	15.65	15.01	14.01	11.01	10.79
Chrome/White	114-4812	12.37	11.89	11.08	10.18	9.98

#### 15 Turn



- Full metal precision counting dial
- Excellent legibility black marking on chrome background
- High quality cast and hard chrome housing
- High force click brake
- Replaces the popular H-507-6

Body dia=22.2, D=24, Shaft dia =6.35

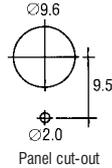
Mfrs. List No. H22-6A

207265

Order Code	1+	Price Each		
		25+	50+	100+
868-887	11.12	10.49	10.03	8.08

Counting Dials - continued

15 Turn



Body dia=46.0, D=25.4  
Body dia=22.2, D=22.2

- No backlash
- Compact-requires minimal panel space
- For use with precision potentiometers or other rotating devices, up to 15 turns
- Designed for metal shaft
- High force 'Click Brake'

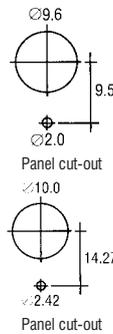
Operating temperature -20°C to 85°C

Dia.	Mftrs. List No.	Finish	Order Code
22.2	18-1-11	Satin chrome, black markings	122-4957
22.2	18-1-21	Black chrome, white markings	122-4958

443569

Finish	Order Code	1+	10+	25+	50+	100+
Chrome/Black	122-4957	7.59	7.26	6.76	6.19	6.07
Black/White	122-4958	8.06	7.58	6.79	6.38	6.18

15 Turn



Body dia=22.2, D=22.2      Body dia=46.0, D=25.4

- 15 turn analogue counting dial
- Available in satin chrome or black chrome finish
- Suitable for potentiometer with 0.375" dia. 32 TPI UNF-2A bush
- Supplied with allen key

Operating temperature -20°C to +85°C

Dia.	Mftrs. List No.	Finish	Order Code
46	21-1-11	Satin chrome, black markings	114-4734

207383

Finish	Order Code	1+	10+	25+	50+	100+
Chrome/Black	114-4734	17.49	15.79	14.13	12.26	11.93

11 Turn



- Precision 11 turn analogue counting dial
- Manufactured from ABS plastic
- Black markings on aluminium finish
- Suitable for potentiometers with 0.375" dia. 32 TPI UNF-2A bush
- Supplied with allen key

Mftrs. List No. 21P-1-11  
Body dia = 46.0, D = 24.6

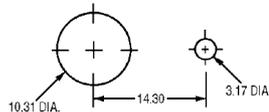
333667

Finish	Order Code	1+	10+	25+	50+	100+
Aluminium/Black	114-4810	14.50	13.10	11.71	10.82	10.29

20 Turn



- Full metal precision counting dial
- Excellent legibility, black marking on chrome background
- High quality cast and hard chrome housing
- High force click brake



Body Dia=46, D=25,  
Shaft dia=6.35

Mftrs. List No. H46-6A

207263

Finish	Order Code	1+	10+	25+	50+	100+
Aluminium/Black	H46-6A	14.50	13.10	11.71	10.82	10.29

Order Code	Price Each			
	1+	25+	50+	100+
868-899	20.84	19.76	18.85	15.18

Slider Potentiometers

Thin & Standard Slide Potentiometers



- Slide potentiometers available in three lengths
- Low profile PCB mounting for volume, tone and balance control in audio equipment and graphic equalizers
- Light operating force and excellent operation
- Thin & Standard type faders available for audio mixers
- Low noise, high operating life, high operating attenuation

Series	Operating life	Operating force	Resistance tolerance
EVA(B)	50000 (cycles min)	0.1N to 1.0N	±20%
EWA	30000 (cycles min)	0.1N to 1.5N	±20%
TAPER A	TAPER B	TAPER D	TAPER Y
Logarithmic taper	Linear taper	Non-linear curve	Non-linear curve

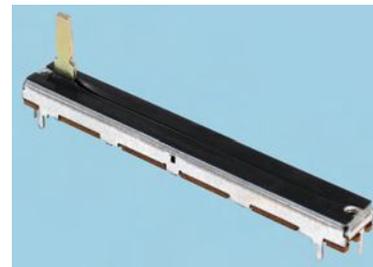
Knobs available for sliders including other styles. Short styles: 766-732; Long styles: 892-129

386789/405630

Travel (mm)	Value	Taper	Order Code	Price Each			
				1+	10+	25+	50+
<b>Single (EVA Series)</b>							
100	10kohm	Y	879-5924	6.53	6.11	5.68	4.61
100	10kohm	A	879-5932	6.53	6.11	5.68	4.61
100	10kohm	D	879-5940	6.53	6.11	5.68	4.61
100	10kohm	B	879-5959	7.59	5.17	4.10	3.71
60	10kohm	Y	879-5991	6.14	5.74	5.32	3.95
60	10kohm	A	879-6009	6.02	5.63	5.22	3.87
60	10kohm	D	879-6017	6.02	5.63	5.22	3.87
60	10kohm	B	879-6025	6.41	4.36	3.50	3.19
100	10kohm	Y	879-6076	5.81	5.47	5.14	4.03
100	10kohm	A	879-6084	6.33	4.32	3.43	3.10
100	10kohm	D	879-6092	6.33	4.32	3.43	3.10
100	10kohm	B	879-6106	6.32	4.31	3.44	3.09
60	10kohm	Y	879-6114	4.63	4.37	4.10	3.21
60	10kohm	A	879-6122	4.63	4.37	4.10	3.21
60	10kohm	D	879-6130	4.63	4.37	4.10	3.21
60	10kohm	B	879-6149	4.87	4.59	4.30	3.38
<b>Dual (EVB Series)</b>							
100	10kohm	Y	879-5967	6.75	6.35	5.94	4.82
100	10kohm	A	879-5975	7.09	6.67	6.24	5.07
100	10kohm	D	879-5983	6.89	6.48	6.06	4.92
60	10kohm	Y	879-6033	6.42	6.00	5.58	4.13
60	10kohm	A	879-6041	8.20	5.59	4.43	4.01
60	10kohm	D	879-6068	6.11	5.71	5.31	3.93
<b>Single (EWA Series)</b>							
60	10kohm	A	879-6157	3.22	2.59	2.16	1.68
60	10kohm	D	879-6165	3.22	2.59	2.16	1.68
60	10kohm	B	879-6173	2.94	2.01	1.59	1.44
60	10kohm	A	879-6181	3.58	2.44	1.94	1.75
60	10kohm	D	879-6190	3.58	2.44	1.94	1.75
45	10kohm	A	879-6203	2.52	1.97	1.87	1.49
45	10kohm	D	879-6211	3.53	2.94	2.79	2.22
45	10kohm	B	879-6220	2.52	1.97	1.87	1.49
45	10kohm	A	879-6238	3.16	2.15	1.87	1.54
45	10kohm	D	879-6246	2.97	2.47	2.35	1.87

Slide Potentiometers

PTA/PTB Series



- Carbon element
- Metal housing
- Single and dual gang

Travel (mm)	Resistance kΩ	Mounting hole Pitch	Dimensions W H D	Rated Power (W)	Rated Voltage (a.c.)	Mftrs. List No.
<b>Audio Taper - Single Gang</b>						
45	10	56	60 20.5 9	0.125	150	PTA4543-2015DP-A103
60	10	71	75 20.5 9	0.125	150	PTA6043-2015DP-A103
<b>Audio Taper - Dual Gang</b>						
45	10	56	60 20.5 9	0.06	150	PTA4544-2015DP-A103
60	10	71	75 20.5 9	0.06	150	PTA6044-2015DP-A103
60	10	80	88 18 16	0.25	150	PTB6044-2010BP-A103
100	10	120	128 18 16	0.25	150	PTB0144-2010BP-A103
<b>Linear Taper - Single Gang</b>						
45	10	56	60 20.5 9	0.25	200	PTA4543-2015DP-B103
60	10	80	88 18 16	0.25	200	PTB6043-2010BP-B103

Resistance	Mounting	Dimensions	Rated	Rated	Mfrs.
100	10	71	75	20.5	9
100	10	120	128	18	16
0.5	200	PTA6043-2015DP-B103			
0.5	200	PTB0143-2010BP-B103			

Resistance tolerance  $\pm 20\%$   
 Operating temperature -10°C to +50°C

528779

Travel	Value	Order Code	Price Each				
			1+	10+	25+	50+	100+
<b>Audio Taper - Single Gang</b>							
45	10K	168-8414	0.80	0.75	0.69	0.65	0.61
60	10K	168-8417	1.15	1.07	1.00	0.93	0.88
<b>Audio Taper - Dual Gang</b>							
45	10K	168-8416	1.00	0.93	0.86	0.81	0.76
60	10K	168-8419	1.24	1.15	1.07	1.00	0.94
60	10K	168-8413	3.02	2.80	2.61	2.44	2.30
100	10K	168-8412	4.11	3.81	3.55	3.32	3.12
<b>Linear Taper - Single Gang</b>							
45	10K	168-8415	0.80	0.75	0.69	0.65	0.61
60	10K	168-8410	2.78	2.58	2.40	2.25	2.12
100	10K	168-8411	0.96	0.89	0.83	0.77	0.73
100	10K	168-8409	3.35	3.10	2.89	2.71	2.55

N Faders Master Controls



- Slider potentiometer, hard wire terminations
- Applications include fader for studio mixers.

Resistance $\Omega$	Lever Travel	Fixing Centres	Width	Mfrs. List No.	Order Code	
Single	10K	60	80	16	RS60N11	119-1712

207233

Logarithmic	Order Code	Price Each			
		1+	10+	25+	50+
Single					
10K 60mm Travel	119-1712	5.10	4.18	3.60	3.15

Standard Slide Potentiometers



- Slide potentiometers available in three lengths
- Low profile PCB mounting for volume, tone and balance control in audio equipment and graphic equalizers.

Travel (mm)	Mounting hole Pitch	Width	Rated Power (W)	Rated Voltage (a.c.)
30	41	8	100	150
45	51	8	125	150
60	71	8	100	150

Resistance tolerance  $\pm 20\%$

207230

Travel	Value	Order Code	Price Each			
			1+	10+	25+	50+
<b>Logarithmic</b>						
30	10K	119-1726	1.53	1.26	1.11	0.97
45	10K	119-1727	1.81	1.47	1.29	1.19
60	10K	119-1728	2.53	2.07	1.83	1.69
<b>Linear</b>						
30	50K	119-1729	1.53	1.26	1.11	1.04
45	50K	119-1730	1.72	1.40	1.23	1.13
60	50K	119-1732	2.53	2.07	1.83	1.69

Over 480,000 products online



LCP8 Series Miniature Linear Motion Potentiometer



- Conductive plastic element
  - Bronze bearings
- L = 31.99, W = 7.29, H = 8.18  
 Linearity  $\pm 2\%$   
 Operating temperature -30°C to +105°C

Power rating 200mW  
 Resistance tolerance  $\pm 15\%$   
 Temperature coefficient  $\pm 400\text{ppm}/^\circ\text{C}$  (500 $\Omega$  = 80ppm/°C)

452164

Resistance (k $\Omega$ )	Order Code	Price Each			
		1+	10+	25+	50+
<b>LCP8P - Plain shaft</b>					
5	130-7091	30.66	25.00	23.06	20.98
10	130-7090	30.66	25.00	23.06	20.98
<b>LCP8S - Threaded shaft</b>					
5	130-7093	41.60	33.91	31.28	28.46
10	130-7092	41.60	33.91	31.28	28.46
<b>LCP8P - Threaded shaft with internal spring return</b>					
10	130-7094	41.60	33.91	31.28	28.46

Servo Mount Potentiometers



1 Watt - 358 Series Conductive Plastic



- 7/8" Diameter single turn
- Compact size, advanced design technology
- Offers a cost effective solution to your potentiometer requirements

L = 15.6 (body), 22 (spindle)  
 Dia. = 22.7 (body), 6.0/6.35 (spindle)

Power rating @ 70°C	1W	Electrical rotation	340° $\pm 3^\circ$
Dielectric withstanding voltage	500V	Rotational life	5000000 cycles
Resistance tolerance	$\pm 10\%$	Insulation resistance	1000M $\Omega$
Linearity	$\pm 0.1\%$	Operating temperature	-55°C to +125°C

340° Mechanical Rotation (6mm Shaft)

Stocked in the following OHMIC Values:

1K = 130-5998 2K = 130-5999 5K = 130-6000 10K = 130-6001 20K = 130-6002

340° Mechanical Rotation (6.35mm Shaft)

Stocked in the following OHMIC Values:

1K = 130-5993 2K = 130-5994 5K = 130-5995 10K = 130-5996 20K = 130-5997

Continuous Mechanical Rotation (6mm Shaft)

Stocked in the following OHMIC Values:

1K = 130-5982 2K = 130-5983 5K = 130-5984 10K = 130-5985 20K = 130-5986

Continuous Mechanical Rotation (6.35mm Shaft)

Stocked in the following OHMIC Values:

1K = 130-5987 2K = 130-5988 5K = 130-5989 10K = 130-5990 20K = 130-5991

452122

Mechanical Rotation	Order Code	Price Each			
		1+	5+	25+	50+
340°	All Values	18.32	17.31	16.71	16.38
Continuous	All Values	17.07	14.51	14.07	13.65

1 Watt - 157 Series, Conductive Plastic  $\pm 2\%$  and  $\pm 0.5\%$  Linearity



- High quality conductive plastic precision servo mount potentiometer
- Optional standard  $\pm 2\%$  or  $\pm 0.5\%$  linearity
- Each potentiometer supplied with mounting kit (three clamps, nuts and instructions)
- Mounting kit also available separately

L = 13.1, (body), 11.13 (spindle) Dia = 22.22, (body) 19.05 (recess), 3.17 (spindle)

Power rating @ 40°C	1W	Mechanical rotation	360° continuous
Dielectric strength	1000V ac	Rotational life	10000000 cycles
Resistance tolerance	$\pm 20\%$	Output smoothness	0.1% max.
Linearity (independent)	$\pm 2\%$ (standard) $\pm 0.5\%$ (special)	Insulation resistance	1000M $\Omega$
Temperature coefficient	$\pm 60\text{ppm}/^\circ\text{C}$	Operating temperature	-55°C to +125°C

Stocked in the following OHMIC Values:

Standard 157-21  $\pm 2\%$  linearity  
 1K = 121-3240 2K = 121-3241 5K = 121-3242 10K = 121-3243

Standard 157-22  $\pm 0.5\%$  linearity  
 1K = 121-3244 2K = 121-3245 5K = 121-3247 10K = 121-3248 20K = 121-3249

Mfrs. List No. 157-21 + Value, 157-22 + Value

207292

Order Code	Price Each					
	1+	10+	25+	50+	100+	
157-21 $\pm 2\%$ lin.	All Values	28.78	27.99	26.20	24.16	22.95
152-9002 $\pm 0.5\%$ lin.	All Values	32.20	27.37	25.76	24.47	23.25
Mounting kit	121-3250	1.88	1.72	1.63	1.28	1.22



Servo Mount Potentiometers - continued

1 Watt – 6539S Series, Conductive Plastic



- High quality conductive plastic servo mount potentiometer
- Essentially infinite resolution, excellent rotational life

L = 12.7 (body), 9.53 (spindle)  
Dia = 22.2 (body), 19.05 (recess), 3.17 (spindle)

Power rating @ 70°C	1W	Mechanical rotation	360° continuous
Voltage rating	300V ac (or limited by power dissipation whichever <)	Rotational life	10000000 cycles
Resistance tolerance	±15%	Output smoothness	0.1% max
Linearity	340° ±3%	Insulation resistance	500MΩ
		Operating temperature	-65°C to + 125°C

Stocked in the following OHMIC Values:  
1K = 238-065    2K = 653-032    5K = 238-077    10K = 238-089

	Order Code	1+	10+	25+	50+
Potentiometer	All Values	27.58	25.84	24.04	23.28

2 Watt, 10 Turn – 534-Blue Series, Wirewound



- Precision wirewound servo mount potentiometer
- Linearity ±2%
- Glass filled thermoplastic housing
- Gold plated terminals
- Each potentiometer supplied with mounting kit and instructions)

Stocked in the following OHMIC Values:

Value	Resolution	Order Code
1K	0.03%	114-4806
5K	0.02%	114-4808
10K	0.02%	114-4809

Power rating @ 70°C	2W	Mechanical rotation	3600° continuous
Dielectric strength	1000V ac	Rotational life	>1000000 cycles
Resistance tolerance	±5%	Insulation resistance	1000MΩ
Linearity (independent)	±0.2% (standard)	Operating temperature	-55°C to + 125°C
Temperature coefficient	±20ppm/°C		

	Order Code	1+	5+	10+	25+
	All Values●	31.75	26.99	25.40	22.22

Analogue Output Potentiometers

601-1045 Smart-Pot Sensor



H = 44, W = 33, D = 20 (body)  
Shaft = 22 (incl. bush) x 6.35 dia.  
Mounting bush = 3/8" x 32 UNEF-2A  
Lead assembly length = 30

- Patented Smart position sensor
- Provides 360° absolute analogue electrical output
- High reliability and long life
- Reverse polarity protection on board
- Sealed to IP54
- Connector lead assembly available
- Designed for CCTVs, medical instruments, robotic arms control, CNC machinery, rotational control systems, pick n' place machines and angular feedback

Supply voltage	5V dc ±0.5V dc	Independent linearity	±1° typical
Supply current	20mA max	Mechanical rotation	Continuous
Temperature coefficient	±1° max	Rotational life	5 million revolutions
Angular response	50µs	Output connection	Molex 7880 header
Voltage output	>90%Vs	Operating temperature	-40°C to + 70°C

	Order Code	1+	10+	50+	100+
Smart sensor	328-2661	65.54	60.31	54.93	49.60
Connector lead assembly	121-3370●	3.53	3.45	3.39	2.75

REACH - SVHCs



Products containing **Substances of Very High Concern** under REACH can now be easily identified online. Look for this logo to access supporting safety datasheets at [www.farnell.co.uk](http://www.farnell.co.uk)

601-HE Series Smart Sensor

Hall Effect Technology



H = 44, W = 33, D = 22 (body)  
Shaft = 22 (incl. bush) x 6.35 dia

The model 601-HE represents a new generation of Smart Sensors in contactless technology based on the Hall effect principle. This unique electronic device is a self-contained package which provides an analog electrical output over a full 360° without the need of external electronics. The low power consumption and non-volatile output makes this universal sensor the real cost-effective alternative to encoders.

- Absolute ratiometric output over 360° range with no dead band
- Self-contained package not requiring external electronic interface
- Contactless technology
- Reverse polarity protection
- Non volatile positioning output

Supply voltage	4.5 to 5.5V	Independent Linearity	±1%
Supply current	10mA max	IP Rating	
Angle rotation	360°	Operating temperature	-45°C to 125°C

Output Signal Direction	Mfrs. List No.	Order Code	1+	10+	50+	100+
Clockwise	601HE1000B01	151-7319●	69.77	64.21	58.47	52.24
Counter Clockwise	601HE2000B01	121-3370●	3.53	3.45	3.39	2.75

351-HE Sensor

Hall Effect Technology



- Accurate linearity down to: ± 0.5 %
- All electrical angles available up to: 360° - No dead band
- Long life
- Model dedicated to all applications in harsh environments

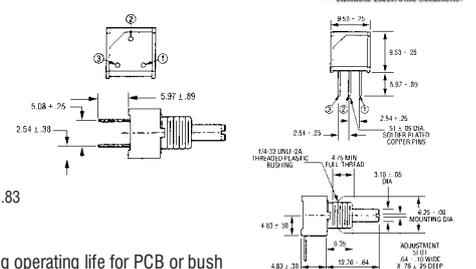
Body = 15.8 x 22.7 dia  
Shaft = 22 (incl. bush) x 6.35 dia

Supply voltage	4.5 to 5.5V	Independent Linearity	±0.5%
Supply current	10mA max	IP Rating	IP50
Angle rotation	360°	Operating temperature	-45°C to + 125°C

Mfrs. List No.	Order Code	1+	10+	50+	100+	+
351HE0B4WA1S22	156-0935●	45.52	41.78	38.63	35.93	--

Digital Output Potentiometers

3315 Series Conductive Plastic



Body H=9.53, W=9.53, D=4.83  
Shaft=12.7 (inc bush) x 3.18  
Bush = /4-32 UNEF-2A

- Miniature package, long operating life for PCB or bush mounting
- On clockwise rotation of the shaft a 2 bit gray code output is produced where channel A leads channel B by 90°.

Contact rating	100mA @ 16Vd.c. or 0.1W	Mechanical rotation	Continuous
Dielectric strength	900V a.c.	Insulation resistance	>1000MΩ
Maximum operating speed	120 rpm	Operating temperature	-40°C to + 125°C
Rotational life	100000 cycles	Pulses per revolution	6

	Order Code	1+	25+	50+	100+
Encoder 6 cycles 3315C	935-4018●	1.58	1.47	1.37	1.11
Encoder 6 cycles 3315Y	935-4034●	1.54	1.43	1.33	1.08
Encoder 16 cycles 3315C	935-4026●	1.47	1.36	1.25	1.02
Encoder 16 cycles 3315Y	935-4042●	1.47	1.36	1.25	1.02

Over 480,000 products online



**Absolute Contacting Encoder – ACE**



- Low cost panel or PCB mounting
- Absolute contacting encoder giving 8 bit parallel grey code output of each of 128 rotary positions
- May be interfaced directly with a microprocessor
- Removes the need for the pulse counting/direction discrimination software required for incremental encoders
- Technical support for output code truth table

H=27.9, W=22.2,  
L=8.8 (body above PCB)  
Spindle and bush=19, Bush=M9

Output	8 bit grey code	Rotational life	50000 shaft revolutions
Positions per revolution	128	Mechanical rotation	Continuous
Contact rating	10mA @ 10V or 0.1W	Operating temperature	-25°C to + 125°C
Dielectric strength	1000V AC minimum	Max operating speed	120 rpm
Insulation resistance	≥1000MΩ		

Mfrs. List No: EAWOJ-B24-AE0128L

207267

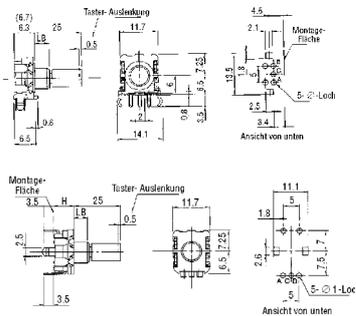
Order Code	Price Each			
	1+	25+	50+	100+
935-8234●	7.17	5.57	4.52	3.98

**Low Profile 11mm sq**



Bush=M7 x 0.75

- Low profile, high precision audio type encoder
- PCB or chassis mounting with momentary switch



Mfrs. List No. EC11B15242 = 119-1733  
EC11B15244 = 119-1734

Voltage rating	5V d.c.	Output signal	Channel A leads Channel B by 60° +/-30° clockwise rotation
Maximum current	10mA		
Rotational life	15000 cycles		

207244

	Order Code	Price Each			
		1+	10+	50+	250+
Horizontal	119-1733●	6.21	5.61	5.21	3.93
Vertical	119-1734●	6.21	5.61	5.21	3.93

**EC Series Digital Contacting Encoder**



Body D=27.6, W=22.2, H=7.4  
Shaft=19.0 (inc bush) x 6.32 dia,  
Bush=M9 x 0.75

- Low cost digital contacting encoders, long operating life and high operating temperature characteristics
- 2 bit gray code output is produced, channel A leads channel B by 90° (clockwise)
- Optional snap-on PCB mounting bracket

Contact rating	10mA @ 10V, or 0.1W	Maximum operating speed	120 rpm
Voltage rating	350V ac (or limited by power dissipation whichever -)	Rotational life	200000 revs
		Mechanical rotation	Continuous
		Insulation resistance	>1000Mohm
Dielectric strength	1000V ac	Operating temperature	+1°C to + 125°C

Revolutions	Detents	Mfrs List No.	Order Code
6	24	ECWOJ-B24-AC0006	109-111
24	24	ECWIJ-B24-AC0024	120-0080

207187/406088

	Order Code	Price Each			
		1+	25+	50+	100+
Encoder, 6 cycles	109-111●	3.680	2.880	2.360	2.090
Encoder, 24 cycles	120-0080●	3.680	2.880	2.360	2.090
PCB mounting bracket	219-113	0.300	0.280	0.270	0.196

**Contacting Encoders**



Contact incremental encoders provide a cost effective solution for applications not requiring a high resolution, for example position sensing in many automotive, industrial agricultural and medical applications.

- Patented Silver-in-Glass™ switching element technology
- Integral active de-bounce circuitry provides clean, high level outputs with CMOS or TTL logic
- Robust construction, suitable for harsh or dirty conditions

- 2 channel quadrature output
- Suitable for high temperatures, vibration and shock environments

Resolution	32 pulses/rev.
Rotational speed	200rpm(continuous), 400rpm (periodic)
Rotational life	5000000 shaft rev.
Operating temperature	-40°C to +85°C
Supply voltage	3V (min.) 6V (max.)
Dimensions	L=7.62 (body), L=22.2 (spindle + bush) Ø=33.3 (body), Ø=3/8"-32 UNEF-2A (bush), 6.35 (spindle)

Connection	2-Channel Type	Connection	2-Channel Type	Connection	2-Channel Type
Input Vs Common	1 2	Channel A Out Channel Z Out	3 -	Channel B out	4

207295

Type	Mfrs. List No.	Order Code	1+	10+	Price Each	50+	100+
2-Channel	DE2-0-1-32	121-3269●	38.99	37.91	25+	36.89	35.00

**120EN Series Rotary Optical Encoder**



Ribbon Cable Horizontal PCB Vertical PCB  
Shaft=22 (incl. bush), dia.=6.35  
Mounting bush=3/8" x 32 NEF  
Ribbon cable length=190

- Manually or motor operated rotary optical encoder
- 2 channel quadrature output, channel A leads channel B by 90° electrically, CCW rotation
- Stainless steel spindle, nickel plated bush
- Ribbon cable, horizontal or vertical PCB mounting versions

Supply voltage	5V dc ±0.25V dc	Maximum rotational speed	300 rpm
Supply current	30mA max.	Rotational life	10 million revolutions
Mechanical rotation	Continuous	Operating temperature	-40°C to +65°C
Resolution	128 pulses per revolution		

Connections	Yellow	Output A	Pin 2	Output A
Ribbon cable	Red Green Ground	5V dc PCB	Orange Pin 1	Output B 5V dc Pin 4 Ground Output B

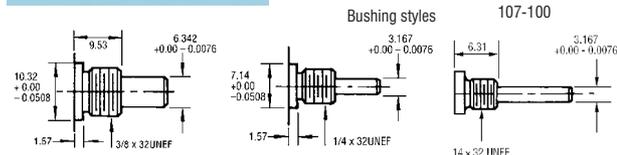
207364

Style	Mfrs. List No.	Order Code	Price Each			
			1+	10+	50+	100+
Ribbon cable	120EN-128-CBL	114-4747●	41.04	35.25	27.45	23.05
Horizontal PCB	120EN-128-B66	114-4748●	39.44	33.91	26.42	22.17
Vertical PCB	120EN-128-C24	114-4749●	38.96	33.43	26.07	21.84

**EN Series Rotary Optical Encoder**



Body  
H=21.21,  
W=15.88,  
D=18.50,  
Spindle L=22.23



- Suitable for digital systems where both magnitude and direction of adjustment must be provided
- 2 bit gray code output produced, channel A leads channel B by 90° (clockwise)
- Ideal as a digital panel control or as position sensing devices in applications where long life, high resolution and precise linearity are critical.

Supply voltage	5V dc ±0.25V dc	Connections	1 Ground
Supply current	26mA max		2 NC
Mechanical rotation	Continuous		3 Output A
Resolution	(935-8242, 935-8277, 9358250) (935-8629)		4 +Vcc
Operating temperature	128 pulses per revolution 256 pulses per revolution -40°C to +85°C		5 Output B

Mfrs. List No. ENA1J-B28-L00128L = 935-8242, ENS1J-B28-L00256L = 935-8269, ENC1J-D28-L00128L = 935-8250,

## Digital Output Potentiometers - continued

## EN Series Rotary Optical Encoder - continued

207180

Order Code	Price Each			
	1+	25+	50+	100+
935-8242●	34.50	29.32	26.31	22.48
935-8269●	66.67	51.91	42.09	37.04
935-8250●	41.66	32.45	26.31	23.15

## DPL12 Series

Tyco Electronics



- 12mm Rotary Encoder with LED
- Incremental
- Push on switch option
- Various shaft lengths
- LED colour and detent options



Operating Temperature	-40°C to +85°C	Rotational life (cycles)	30000
Operating Temperature	360°	Rotational speed	60rpm
No. of Pulses	24	Dielectric strength	300V

LED Colour	Shaft Length	Shaft $\varnothing$	Mfrs. List No.	Order Code
<b>Without Switch - No Detents</b>				
Red	24	6	DPL12VN24A24KR	157-2255
Red	20	6	DPL12VN24A20FR	157-2256
Green	24	6	DPL12VN24A24KG	157-2257
Green	20	6	DPL12VN24A20FG	157-2259
Blue	24	6	DPL12VN24A24KB	157-2261
Blue	20	6	DPL12VN24A20FB	157-2262

<b>Without Switch - 24 Detents</b>				
Red	24	6	DPL12V2424A24KR	157-2263
Red	20	6	DPL12V2424A20FR	157-2264
Green	24	6	DPL12V2424A24KG	157-2265
Green	20	6	DPL12V2424A20FG	157-2266
Blue	24	6	DPL12V2424A24KB	157-2267
Blue	20	6	DPL12V2424A20FB	157-2268

<b>With Switch - No Detents</b>				
Blue / Green	25	6	DPL12SVN24A25K1	157-2269
Blue / Green	21	6	DPL12SVN24A21F1	157-2270
Blue / Orange	25	6	DPL12SVN24A25K2	157-2272
Blue / Orange	21	6	DPL12SVN24A21F2	157-2273
Green / Red	25	6	DPL12SVN24A25K3	157-2274
Green / Red	21	6	DPL12SVN24A21F3	157-2275

<b>With Switch - 24 Detents</b>				
Blue / Green	25	6	DPL12SV2424A25K1	157-2276
Blue / Green	21	6	DPL12SV2424A21F1	157-2278
Blue / Orange	25	6	DPL12SV2424A25K2	157-2279
Blue / Orange	21	6	DPL12SV2424A21F2	157-2280
Green / Red	25	6	DPL12SV2424A25K3	157-2281
Green / Red	21	6	DPL12SV2424A21F3	157-2282

527124

	Price Each				
	1+	10+	50+	100+	250+
<b>Without Switch</b>					
All Values●	3.46	3.07	2.76	2.32	2.12
<b>With Switch</b>					
All Values●	4.23	3.87	3.50	3.18	2.73

## EC11 Series

ALPS



- Compact and highly reliable sliding contact type
- Incremental type
- Applications include controls for car audio and navigation systems, controls for image/sound devices including DVD players, mini component stereos, CD players and portable audio devices

Voltage supply	5V
Current, supply	10mA
Angle, mechanical rotation	360°
Dielectric strength	300V
Operating temperature	-40°C to +85°C

H=4.5, D=11.7, W=12  
Dia (shaft)=6

Shaft Length	No. of Detents	Pulse output count	Mfrs. List No.	Order Code
12	30	15	EC11E15204A3	152-0804
10	30	15	EC11E15244C0	152-0806
10	0	18	EC11E1834403	152-0807

Order Code	Price Each				
	1+	25+	50+	250+	500+
152-0804●	3.94	3.33	2.99	2.52	2.08
152-0806●	4.67	3.97	3.75	3.33	2.89
152-0807●	4.70	4.01	3.78	3.37	2.92

## Knob For Use With EC11 Series



DK45-114 A.6	=	152-0821
Knob diameter	45mm	
Shaft diameter	6mm	
Height	6.2mm	
Colour	Black	

496546

Order Code	Price Each				
	1+	25+	100+	250+	500+
152-0821●	2.10	1.87	1.68	1.52	1.31

## EC12 Series

ALPS



Voltage supply	50V
Current, supply	0.5mA
Angle, mechanical rotation	360°
Dielectric strength	50V
Operating temperature	-10°C to +70°C

- Controls for image / sound devices, including DVD players, mini component stereos, CD players, portable audio players, monitors
- Controls for audio mixers and electronic instruments
- New type (EC12D) with push switch for volume control of car audio and navigation systems

Height	Width	Depth	Diameter (shaft)	Length (shaft)	No. of Detents	Pulse Output Count	Mfrs. List No.	Order Code
5mm	13.2mm	14mm	6mm	12mm	12	12	EC12E1220401	152-0809
5mm	13.2mm	14mm	6mm	7mm	12	12	EC12E1220401	152-0809
6mm	13.2mm	14mm	6mm	7mm	12	12	EC12E1224402	152-0810
6mm	13.2mm	12.4mm	6mm	7mm	24	24	EC12E24242A2	152-0811
5mm	13.2mm	14mm	6mm	7mm	24	24	EC12E2420404	152-0812
6mm	13.2mm	14mm	6mm	7mm	24	24	EC12E244407	152-0813
5mm	13.2mm	14mm	6mm	2.65mm	24	24	EC12E2420301	152-0814
5mm	11.7mm	14.1mm	6mm	5mm	30	15	EC12D1524401	152-0815

Order Code	Price Each				
	1+	25+	50+	250+	500+
152-0808●	1.89	1.68	1.47	1.16	1.03
152-0809●	0.89	0.78	0.63	0.52	0.44
152-0810●	1.89	1.68	1.47	1.16	1.03
152-0811●	1.06	0.96	0.82	0.76	0.68
152-0812●	0.89	0.78	0.63	0.52	0.44
152-0813●	1.06	0.96	0.82	0.76	0.68
152-0814●	0.89	0.78	0.63	0.52	0.44
152-0815●	0.63	0.56	0.50	0.45	0.44

## Knob for use with EC12 Series



DK45-114 A.6	=	152-0821
Knob diameter	45mm	
Shaft diameter	6mm	
Height	6.2mm	
Colour	Black	

496983

Order Code	Price Each				
	1+	25+	100+	250+	500+
152-0821●	2.10	1.87	1.68	1.52	1.31

## EM11 and EM20 Series

ALPS



- Non-contact, magnetic type encoder
- Applications include controls for audio mixers and broadcasting devices

Voltage rating	5V
Operating temperature	-20°C to +85°C

EM11: H=7.5, W=11, D=10.8, dia (shaft)=6, L (shaft)=7  
EM20: H=13, W=23, D=20, dia (shaft)=4, L (shaft)=7.5

No. of detents	Pulse output count	Torque	Mfrs List No.	Order Code
16	16	10mN-m	EM11B16140A4	152-0818
40	40	7mN-m	EM20B4004001	152-0819
40	40	8mN-m	EM20B4014000	152-0820

Order Code	Price Each			
	1+	5+	10+	25+
152-0818●	19.40	18.11	16.30	14.34
152-0819●	18.46	17.22	15.23	13.31
152-0820●	18.88	17.64	15.65	13.63

## Knobs for use with EM11 and EM20 Series



Knob diameter	45mm
Shaft diameter	6mm
Height	6.2mm
Colour	Black



Knob diameter	45mm
Shaft diameter	4.5mm
Height	6.2mm
Colour	Black

For EM11: DK45-114 A.6 = 152-0821  
For EM20: DK45-114 A.6-4.5 = 152-0822

496638

Order Code	Price Each				
	1+	25+	100+	250+	500+
152-0821●	2.10	1.87	1.68	1.52	1.31
152-0822●	2.10	1.87	1.68	1.52	1.31

## SRGP Series

ALPS



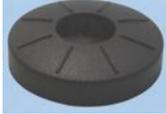
Voltage supply	5V
Output voltage, max	1V
Current, supply	10mA
No. of detents	16
Torque	13mN-m
Insulation resistance	100M $\Omega$ ohm
Operating temperature range	-10°C to +60°C

Diameter=30, Depth=4.5

- Small sized encoder with a hollow shaft to allow an LED placed under the encoder to be visible
- Applications include controls for image/sound devices including car navigation systems, DVD players car audio systems, mini component stereos, and LCD monitors, level controls for communication devices, including telephones and FAX machines, controls for general electronic devices, including air conditioners, electronic toys, microwave, remote controllers

Order Code	Price Each				
	1+	25+	50+	250+	500+
152-0816●	4.70	4.01	3.78	3.37	2.92

## Knob For Use With SRGP Series



DK50,2X12,5	=	152-0823
Knob diameter		50.2mm
Shaft diameter		18.6mm
Height		12.5mm
Colour		Black

496601

Order Code	Price Each				
	1+	25+	100+	250+	500+
152-0823●	2.97	2.64	2.37	2.15	1.94

## Accessories

## Potentiometer 'Hexseal'



- 'Hexseal' rotary shaft seals
- Resistant to salt spray, ozone and most acids
- Manufactured in grey silicone rubber with brass nut
- Conforms to MIL-B-5423/09

Operating temperature -70°C to +205°C

207381

Shaft Dia	Thread	Order Code	Price Each		
			1+	25+	100+
1/4" (6.35mm)	3/8-32	146-839●	3.08	2.83	2.63

## Potentiometer Locking Device



- Collet type locking device
- Prevents accidental disturbance of critical settings.

Suits 2" x 32 UNEF-2A Threads.  
Material: Nickel plated brass.

A43

Spindle Dia.	Overall Length	Max Width	Internal Thread	Mfrs. List No.	Order Code
1/4"	13.5	18	3/8" x 32TPI	A43	351-970

207378

Order Code	Price Each		
	1+	10+	100+
351-970●	3.50	3.10	2.65

## Potentiometer Hardware



121-3371      351-994      352-007      352-019

Nut finish: Nickel plated.

227235

Order Multiple=10	Mfrs. List No.	Order Code	Price Each		
			10+	100+	1K+
Brass	N602	121-3371●	0.140	0.137	0.121
Steel, Zinc Plated Washer	W901	351-994●	0.270	0.250	0.230
Steel Shake Proof Washer	W902	352-007●	0.116	0.109	0.102

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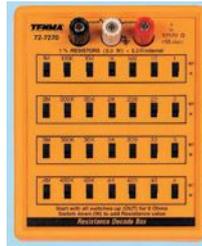
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## Decade Box

## Resistance Decade Box

72-7270

TENMA™



Ideal for service, prototype and experimental use, this useful tool may be set at any value from 1~11,111,110ohm, in one ohm increments. Twenty eight individual slide switches allow the user to quickly and easily select resistor values. Wave soldered, two layer PC board utilises high quality 1 tolerance 1/5W resistors.

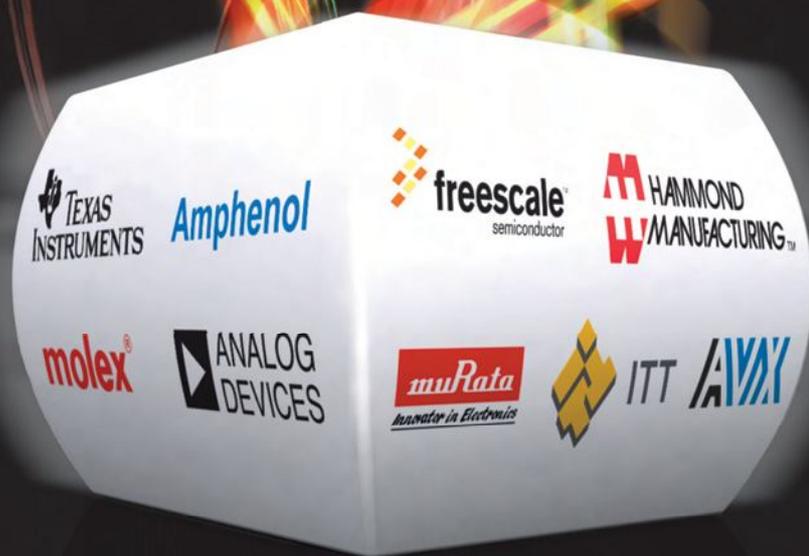
- Maximum stray internal resistance is 1/5ohm
- Colour coded binding posts provide resistor and ground connections
- Passive device requires no power source
- Dimensions (WxHxD): 146x114x32mm

336768.343652

Mfrs. List No.	Order Code	Price Each		
		1+	5+	50+
72-7270	490-8454	53.44		50.25



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## Connectors – Audio & Video

### Latest Products from...

#### XLR Plugs & Sockets; Free & Panel Mount



See page 1456

#### DIN Plugs & Sockets; Free & Panel Mount



See page 1431

#### Circular Video Plugs & Sockets; Free & Panel Mount



See page 1447

#### 6.35mm Jack Plugs & Panel Sockets



See page 1441

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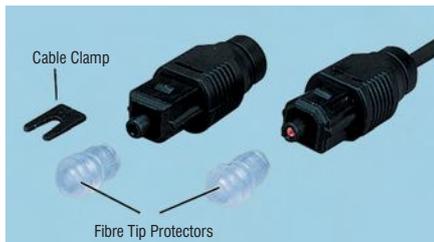
Audio & Video

255790

<p><b>Jack Type - 2.5mm</b></p>  <p>SEE PAGE 1433</p>	<p><b>Digital Type</b></p>  <p>SEE THIS PAGE</p>	<p><b>Loudspeaker Connectors</b></p>  <p>SEE PAGE 1444</p>	<p><b>Multipole - Circular</b></p>  <p>SEE PAGE 1446</p>
<p><b>Jack Type - 3.5mm</b></p>  <p>SEE PAGE 1435</p>	<p><b>Phono (RCA) Type</b></p>  <p>SEE PAGE 1449</p>	<p><b>DIN Type - Miniature</b></p>  <p>SEE PAGE 1428</p>	<p><b>Scart Type</b></p>  <p>SEE PAGE 1453</p>
<p><b>Jack Type - 6.35mm (1/4")</b></p>  <p>SEE PAGE 1439</p>	<p><b>XLR Type</b></p>  <p>SEE PAGE 1453</p>	<p><b>DIN Type - Circular</b></p>  <p>SEE PAGE 1429</p>	<p><b>Multipole - Rectangular</b></p>  <p>SEE PAGE 1448</p>

Digital Types

TOS-Link Optical Plugs - Self Terminating



Self-terminating TOS-Link type plugs for custom optical, digital audio cables.

- Plug are supplied with soft dust caps for protection prior to use
- Cable retained in the plug by means of a two pronged tape clamp
- Standard, single sheathed plastic optical cable with jacket and Ø2.2mm OD

246843

Description	Order Code	Price Each			
		1+	10+	20+	50+
TOS-Link Plug	382-4524	1.08	1.01	0.90	0.78
Optical Cable - 50m Drum	382-4536	39.02	38.15	35.19	33.19
Cleave Tool	382-4548	9.61	9.41	9.19	8.64

OpticalCon® Panel Connectors



N02-4FD Series



Hard Nickel Plated



Ruthenium Plated

OpticalCon™ panel mounted fibre optic connectors are ruggedized all metal, dust and dirt protected chassis connectors for reliable optical connections. Based on a standard optical LC-Duplex connection with design improvements to ensure a safe and rugged connection the connectors are compatible with both cost effective standard LC connectors for permanent connections, or Neutrik's rugged OpticalCon® cable connectors for mobile applications.

Optical Connector:	LC-Duplex	Dielectric Strength:	1500V DC
Fibre Types:	Multimode, Singlemode PC & APC	Operating Temperature:	-30°C to +80°C
Electrical Contacts:	4	Lifetime:	>1000 mating cycles
Rated Current:	3A	Dimensions (WxHxD):	26.0 x 31.0 x 32.4 mm
Rated Voltage:	50V AC		

444671

Mfrs. List No.	Shell	Order Code	1+	3+	5+
<b>4-Pole Chassis Sockets</b>					
N02-4FD	Hard Nickel	125-6933●	41.13	36.16	31.65
N02-4FD-R	Ruthenium	125-6934●	42.55	38.30	32.73
<b>4-Pole Chassis Sockets with Shell Ground Contact</b>					
N02-4FD-1	Hard Nickel	125-6935●	45.38	39.36	34.92
N02-4FD-1-R	Ruthenium	125-6936●	43.97	38.30	33.83

OpticalCon® Couplers



NA02 Series



Optical Connector:	LC-Duplex
Fibre Types:	Multimode, Singlemode PC & APC
Electrical Contacts:	4
Current Rating:	3A
Voltage Rating:	50V AC
Dielectric Strength:	1500V DC
Operating Temperature:	-30°C to +80°C
Lifetime:	>1000 Steckzyklen
Dimensions (WxHxD):	26.0 x 31.0 x 159.5mm

444716

Mfrs. List No.	Fibre	Order Code	1+	3+	5+
NA02M-4S75	Multimode PC	125-6937●	123.17	117.80	113.52
NA02S-4S75	Singlemode PC	125-6938●	69.66	--	--
NA02SA-4S75	Singlemode APC	125-6939●	71.44	--	--

Ethercon RJ45 Type



- Robust RJ45 data connector
- For harsh and demanding environments in audio and stage applications
- Complies with Cat 5 requirements
- Chassis connector mates with both Neutrik connector carrier with inserted RJ45 plug and sole standard RJ45 plug

<b>Cable Connector</b>	Mating Cycles	1000	<b>Receptacle</b>	Number of Contacts	8
<b>Material</b>	Housing	Galvanised Nickel	Rated Current	1.5A	
	Strain Relief Clamp	POM	Dielectric Strength	1000V	
	Bushing	PA6	Contact Resistance	10m	
	Temperature Range	-30°C to 80°C	Insulation Resistance	500	
			Housing Mat	PBTP	
			Contact Mat	CuSn	
			Contact Plating	Gold	

452103.460825

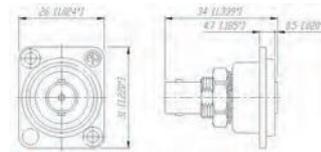
Mfrs. List No.		Order Code	1+	10+	50+	100+
<b>Cable Connectors</b>						
Nickel	NE8MC	388-6244	1.80	1.67	1.60	1.51
Black Cr	NE8MC-B	131-0135	1.86	1.63	1.56	1.48
Nickel, Weatherproof	NE8MC-1	131-0139	1.34	1.16	1.11	1.06
Black Cr, Weatherproof	NE8MC-1-B	131-0140	1.70	1.49	1.42	1.35
<b>Neutrik 'A' Receptacles - All Plastic</b>						
PCB Mount, Horizontal	NE8FAH	388-6256	2.58	2.40	2.30	2.19
PCB Mount, Vertical	NE8FAV	120-2031	2.79	2.60	2.37	2.15
IDC Terminals	NE8FAVYK	388-6268	5.10	4.74	4.54	4.37
<b>Neutrik 'B' Receptacles - Nickel Ring</b>						
PCB, Horiz, with LEDs	NE8FBH-LED	131-0141	3.65	3.20	3.06	2.91
<b>Neutrik 'D' Receptacles - Full Nickel Flange</b>						
PCB Mount, Vertical	NE8FDV	489-3062	2.98	2.75	2.53	2.29
IDC Terminals	NE8FDV-YK	489-5009	5.55	5.16	4.94	4.75
110 Punch Down Terms	NE8FDV-Y110	456-0814	5.41	5.00	4.58	4.15
Nickel, Feed Thru Terms	NE8FDP	120-2032	5.41	5.31	5.15	4.88
Black Cr, Feed Thru Term	NE8FDP-B	727-0379	8.41	7.81	7.14	6.46



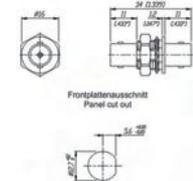
NB75SI



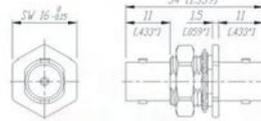
NBB75FG



Mechanical Drawing NBB75DFI / DFG



Mechanical Drawing NBB75FG



Mechanical Drawing NBB75FI

Durable 75Ω BNC bulkhead jacks with plated contacts. Versions are available with or without isolation, with or without D-shaped housings and as feed through plugs or solder terminals on the rear.

Description	Mfrs. List No.	Order Code
Recessed bulkhead jack, black D-shaped housing, feed through, isolated	NBB75DFIB.	470-9573
Recessed bulkhead jack, black D-shaped housing, feed through, grounded	NBB75DFGB.	470-9585
Bulkhead jack, feed through, isolated	NBB75FI.	470-9597
Bulkhead jack, feed through, grounded	NBB75FG.	470-9603
Bulkhead jack, front mount, solder version with isolation washers	NBB75SI	120-2040

Impedance: 75Ω Isolation Voltage: 1500V ac rms  
 Rated Current: rms Temperature Range: -30°C to +85°C

334780

**EtherCon® RJ45 Feedthrough Coupler**  
NE8FF



- RJ45 coupling for extension line applications etc.
- Compliant with Cat5 (TIA/EIA and ISO/IEC Standards)
- Can be used with both EtherCon (NE8MC: 388-6244) and conventional RJ45 connectors
- Durable, resistant metal housing - ideal for rough operating conditions

334039

Mfrs. List No.		Order Code	1+	10+	50+	100+
NE8FF	120-2033		13.74	12.29	11.24	10.10

**USB and Firewire Adapters**  
NAUSB and NA1394 Series



- Ideal for audio networking and integration of digital equipment into audio systems
- USB genderchanger type A-B (B-A)
- Firewire (IEEE 1394) feedthrough with 6-pole receptacle at both ends
- Built in universally accepted standard D-shape housing

415531.407608

Description	Order Code	1+	10+	25+
USB Adaptor - Silver	999-1999	3.01	2.73	2.47
USB Adaptor - Black	999-2006	3.34	3.04	2.74
Firewire - Silver	999-2014	4.48	4.08	3.69
Firewire - Black	999-2022	5.53	4.97	4.53

**BNC Bulkhead Jacks**  
NBB75 Series



NBB75DFIB / NBB75DFGB



NBB75FI

**75Ω BNC Connector - Rear Twist**  
NBNC75 Series



75Ω BNC Connector with black sleeving. Suitable for the following cables

- 999-2030: e.g. Belden 1522A
- 999-2065: RG6 (e.g. 592-031)
- 999-2073: RG11 (e.g. 164-3736)
- 470-9445: RG59B/U (e.g. 120-2739)
- 999-2057: RG59 mini (e.g. 139-0056)
- 999-2049: RG179B/U (e.g. 121-7820)
- 470-9457: e.g. Cordial CVI 06-28
- Coloured sleeves are available for cable colour coding

Impedance: 75Ω  
 Rated Current: 500V rms / 250 V ac rms (Rear Twist Tiny)  
 Cable Attachment: Sheath cable crimp  
 Cable Diameter: 2.5-3.8mm (Rear Twist - Small)  
 4.0-7.7mm (Rear Twist - Standard)  
 10.3mm max. (Rear Twist - Large)  
 Temperature Range: -30°C to +85°C

334773

Mfrs. List No.		Order Code	1+	10+	50+
<b>Connector - Rear Twist (Standard Cable)</b>					
NBNC75BLP7.	470-9445		1.66	1.54	1.48
NBNC75BFG7.	470-9457		2.02	1.78	1.62
NBNC75BTU1..	999-2065		1.92	1.74	1.57
<b>Connector - Rear Twist (Small Cable)</b>					
NBTC75BFI4.	999-2030		3.34	3.00	2.73
NBTC75BXX6.	999-2057		3.43	3.08	2.80
<b>Connector - Rear Twist (Large Cable)</b>					
NBLC75BVZ17.	999-2073		3.20	2.87	2.61
<b>Sleeves</b>					
BST-BNC 2-Red	470-9470		0.30	0.26	0.22
BST-BNC 4-Yellow	470-9494		0.30	0.26	0.22
BST-BNC 5-Green	470-9500		0.30	0.26	0.22
BST-BNC 6-Blue	470-9512		0.30	0.26	0.22

**Electronics Design World**

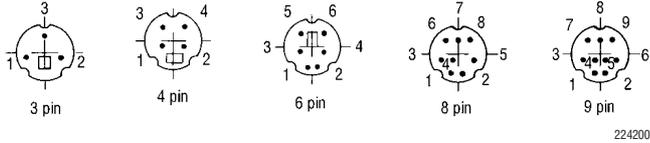
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### DIN Type - Miniature Circular

#### Miniature DIN Contact Pole Configuration Viewed on Plug Mating Face



224200

#### Miniature DIN Type - Free Plugs and PCB Sockets



Free plug L=51.6, Dia=14, Cable entry = 5 max. PCB socket H=16.5, W=14.3, D=13.5

- For use with computer peripherals, video equipment (S-VHS)
- Audio/video applications where space saving is required. Manufactured in black plastic with solder pin.
- Cable termination. Cable clamps are available separately for the free plugs.
- The PCB sockets are screened and nickel plated.

Contact rating 2A @ 12V dc, 1A @ 100V ac Contact plating Silver, 0.3μ  
Contact resistance 30mΩ Mating cycles 1000 min

224201

Free Plugs	Order Code	Price Each				
		1+	25+	50+	100+	500+
3 pin	152-207●	0.86	0.82	0.75	0.73	0.68
4 pin	152-208●	0.90	0.87	0.80	0.77	0.72
6 pin	152-209●	0.94	0.92	0.85	0.83	0.75
8 pin	152-210●	0.97	0.94	0.88	0.86	0.78
9 pin	152-391●	1.21	1.13	1.09	1.05	0.91
PCB Sockets						
3 pin	152-211●	1.10	1.02	0.95	0.93	0.86
4 pin	152-212●	1.19	1.09	1.02	1.00	0.91
6 pin	152-213●	1.26	1.17	1.09	1.07	0.95
8 pin	152-214●	1.37	1.30	1.23	1.20	1.08
9 pin	152-392●	1.83	1.74	1.66	1.60	1.38

Cable Clamps (10 per pack)	Price Per Pack			
	1+	5+	10+	50+
210-973●	4.21	4.10	3.99	3.89

#### MiniDIN In-line Sockets



In-line sockets for connecting to standard MiniDIN plugs. Solder connections and strain relief provided.

246830

Type	Order Code	Price Each			
		1+	25+	100+	250+
4-pin	128-0666●	0.59	0.52	0.49	0.44
6-pin	128-0723●	1.21	1.11	1.03	0.86
8-pin	128-0724●	1.19	1.10	1.02	0.83

#### 4-Pin Mini DIN (S-VHS) Plugs



High quality 4-pin Mini DIN (S-VHS) type plugs with gold contacts for improved signal transmission. Available with either red or white bands for identification purposes

369401.276773

Colour	Order Code	Price Each			
		1+	10+	50+	100+
White	128-0733●	1.43	1.27	1.06	0.85
Red	128-0734●	1.43	1.27	1.06	0.85

#### 4 Pin Mini DIN Plug S-Video



- Gold plated contacts
- High quality all metal construction
- Internal cable strain relief
- Solder bucket terminations
- Max. cable diameter 6mm

240311

4 Pin Plug	Order Code	Price Each				
		1+	25+	50+	100+	250+
	128-0672●	1.66	1.44	1.32	1.13	0.93

#### 4-Pin Mini DIN right Angle Plug

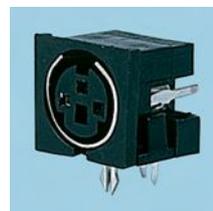


A high quality S-VHS type 4-pin mini DIN plug suitable for use in confined spaces. The right angled design reduces stress on cables. Suitable for 8mm cable.

369402.276752

4 Pin Plug	Order Code	Price Each			
		1+	10+	50+	100+
	128-0735●	2.08	1.90	1.81	1.64

#### MiniDIN PCB Sockets



Industry standard pin-out, right-angled PCB mounting sockets as used in many computing applications where a compact multipole connector is required.

369403.256517

Description	Order Code	Price Each			
		1+	10+	50+	100+
4-pin	128-0736●	0.65	0.58	0.50	0.45
8-pin	128-0738●	0.99	0.89	0.81	0.67

#### Mini DIN Type Panel Sockets



Feature 20mm fixing centres.

369404.256518

Description	Order Code	Price Each			
		1+	10+	50+	100+
4-Pin	128-0741●	0.65	0.58	0.50	0.45
5-Pin	128-0742●	0.65	0.58	0.50	0.45
8-Pin	128-0743●	0.65	0.58	0.50	0.45

#### Miniature DIN Sockets



Miniature DIN chassis sockets with mounting plates. 30mm fixing centres

246831

Type	Order Code	Price Each			
		1+	10+	50+	100+
4-Pin	128-0718●	1.03	0.95	0.87	0.67
6-Pin	128-0671●	1.05	0.99	0.91	0.80

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40,000 PRICES REDUCED



**4-pin MiniDIN Chassis Socket**



An S-Video type (4-pin MiniDIN) socket with solder bucket terminations. Supplied with fixing nut. Panel cutout:  $\varnothing$ 11mm approx.

Supplied in packs of 5.

369405.256520

Order Code	Price Per Pack			
	1+	10+	25+	50+
128-0744●	1.64	1.49	1.36	1.23

**4-pin Mini DIN Adaptor - Panel Mount**



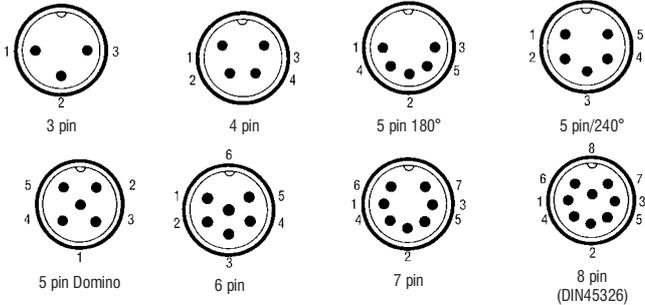
A 4-pin miniature DIN socket to socket adaptor for panel mounting.

369400.256509

Order Code	Price Each			
	1+	10+	50+	100+
128-0732●	1.09	1.03	0.97	0.85

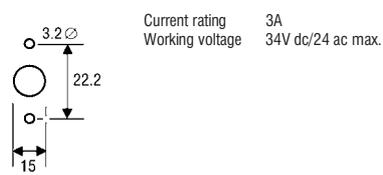
**DIN Type - Circular**

**DIN Contact Pin Configuration Viewed on Plug Mating Face**



224202

**DIN Type Connectors**



224203

Free Plugs	Order Code	Price per Pack				
		1+	10+	25+	100+	250+
3 pin	128-0794●	0.37	0.34	0.31	0.27	0.22
4 pin	128-0795●	0.44	0.39	0.35	0.31	0.25
5 pin 180°	128-0796●	0.92	0.80	0.72	0.65	0.52
6 pin	128-0797●	0.57	0.52	0.46	0.39	0.29
7 pin	128-0798●	0.62	0.56	0.51	0.41	0.34
8 pin	128-0799●	1.12	0.91	0.81	0.66	0.53
Free Sockets						
5 pin 180°	981-2989▲	1.62	1.39	1.28	1.17	0.92
5 pin 240°	128-0800●	0.77	0.68	0.62	0.55	0.40
6 pin	981-3004▲	1.49	1.34	1.19	1.00	0.74
8 pin	128-0801●	1.12	0.91	0.81	0.66	0.53
Panel Sockets						
3 pin	128-0802●	0.72	0.65	0.59	0.52	0.46
4 pin	128-0803●	0.88	0.78	0.67	0.59	0.48
5 pin 180°	128-0804●	0.72	0.62	0.57	0.51	0.41
5 pin 240°	128-0805●	0.77	0.68	0.62	0.55	0.40
6 pin	981-3071▲	1.58	1.43	1.28	1.07	0.78
7 pin	128-0807●	0.92	0.82	0.74	0.60	0.48
8 pin	128-0808●	1.43	1.16	1.03	0.84	0.67

**90° PCB Mounting DIN Sockets**

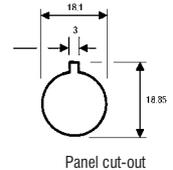


- Features:**
- Fully screened
  - Cable exit 90° from the plug axis
  - 3 to 8 way pin base
- Applications:**
- Instrumentation and audio
  - Ideal where space is critical

419077

Mfrs. List No.	Order Code	Price Each			
		1+	10+	25+	100+
5 pin 180°	917-5814	0.99	0.93	0.89	0.84
5 pin 240°	917-5822	0.71	0.68	0.64	0.61
6 pin	917-5830▲	0.77	0.68	0.62	0.59
7 pin	917-5849	1.03	0.89	0.79	0.70
8 pin	917-5857	1.03	0.89	0.79	0.70

**DIN Type - Screw Locking**



Free Plug	Free Socket	Panel socket
L=65, Dia.=19 Cable entry=5.5	L=58.6, Dia.=19 Cable entry=5.5	L=20.5, Dia.=20
Current rating 4A	Working voltage 34V dc/24V ac	Contact resistance ≤10mohm
Temperature range -20°C to 60°C	Housing Insulator Polyethylene	Contacts Polyamide 66, UL94V-2 Brass, tin plated

224205

Free Plug	Mfrs. List No.	Order Code	Price Each			
			1+	10+	50+	100+
3 pin	MAS 3100	496-820●	1.38	1.19	0.97	0.88
4 pin	MAS 4100	496-844●	1.62	1.39	1.15	0.99
5 pin 180°	MAS 5100 S 45	496-893●	1.45	1.23	1.00	0.89
5 pin 240°	MAS 5100 60	496-881●	1.45	1.23	1.00	0.89
6 pin	MAS 6100	496-911●	1.54	1.33	1.09	0.96
7 pin	MAS 7100 S	496-935●	1.61	1.36	1.12	1.00
8 pin	MAS 8100 S	496-959●	1.70	1.45	1.18	1.06
Free Socket						
3 pin	MAK 3100 S	496-674●	1.62	1.44	1.13	1.00
4 pin	MAK 4100	496-698●	1.51	1.28	1.06	0.93
5 pin 180°	MAK 5100 S 45	496-741●	1.76	1.52	1.23	1.10
5 pin 240°	MAK 5100 60	496-730●	1.26	1.09	0.89	0.79
6 pin	MAK 6100	496-765●	1.85	1.59	1.27	1.16
8 pin	MAK 8100 S	496-807●	2.01	1.72	1.40	1.23
Panel Socket						
3 pin	MAB 3100 S	496-418●	1.30	1.13	0.91	0.80
4 pin	MAB 4100	496-443●	1.39	1.19	0.97	0.86
5 pin 180°	MAB 5100 S 45	496-510●	1.36	1.17	0.93	0.82
5 pin 240°	MAB 5100 60	496-509●	1.36	1.17	0.93	0.82
6 pin	MAB 6100	496-558●	1.59	1.35	1.10	0.96
7 pin	MAB 7100 S	496-595●	1.50	1.28	1.05	0.92
8 pin	MAB 8100 S	496-649●	1.51	1.29	1.06	0.93

**DIN Type Connectors MAS, MAK and MAWI**



- DIN connectors for a variety of uses
- Manufactured to DIN41524
- Insulated handle, solder tabs
- Supplied with polyethylene bag

Rated voltage	34V	Maximum wire size	0.34mm <sup>2</sup>
Rated current	≤4A	Temperature range	-20°C to 60°C
Contact resistance	≤4mohm		

Mfrs. List No. LB2 panel socket, LB3 switched panel socket

224206

Free Plugs	Mfrs. List No.	Order Code	Price Each			
			1+	10+	50+	100+
3 pin	MAS 30	809-743●	0.84	0.76	0.50	0.49
5 pin 180°	MAS50S	809-767●	1.00	0.91	0.59	0.58
5 pin 240°	MAS50	809-755●	1.05	0.93	0.62	0.59
6 pin	MAS60	809-779●	0.99	0.90	0.59	0.56
7 pin	MAS 70 S	809-780●	1.07	0.95	0.63	0.62
8 pin	MAS 80 S	809-792●	1.34	1.21	0.78	0.76



DIN Type - Circular - continued

DIN Type Connectors - continued

MAS, MAK and MAWI - continued

Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
<b>Free Plugs 90°</b>						
5 pin 180°	MAWI50 SB	809-809●	1.74	1.59	1.03	1.00
6 pin	MAWI60 B	809-810●	1.68	1.52	0.97	0.95
7 pin	MAWI70 SB	809-822●	2.00	1.80	1.16	1.13
<b>Free Sockets</b>						
5 pin 180°	MAK 50 S	809-834●	1.19	1.09	0.71	0.70

DIN Type Connectors MAB



- DIN PCB mounting sockets
- Manufactured to DIN41524
- Depth MAB3H, MAB5SH 16.2/MAB5WH 16.5/MAB6H, MAB8SH 17.5

Rated voltage	34V	Maximum wire size	0.34mm <sup>2</sup>
Rated current	≤4A	Temperature range	-20°C to 60°C
Contact resistance	≤4mohm		

Mfrs. List No. LB2 panel socket, LB3 switched panel socket

224207

Socket	Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
5 pin 180°	MAB 5 SH	809-883●	0.62	0.56	0.50	0.44	0.39
6 pin	MAB 6 H	809-901●	0.73	0.72	0.66	0.54	0.40
8 pin	MAB 8 SH	809-913●	1.31	1.29	1.21	0.99	0.74



Standard, Nickel	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>Locking, Black</b>						
3 pin	591-0300	119-3827●	2.46	2.39	2.22	2.13
4 pin	591-0400	119-3864●	1.94	1.84	1.77	1.69
5 pin 180°	591-0500	119-3828●	2.65	2.57	2.40	2.23
5 pin 240°	591-0510	119-3865●	2.67	2.60	2.40	2.23
6 pin	591-0600	119-3866●	2.69	2.60	2.49	2.25
7 pin	591-0700	119-3868●	2.90	2.75	2.43	2.31
8 pin	591-0800	119-3869●	3.04	2.95	2.73	2.55

DIN Type - Line sockets



Suitable for mating with lockable and standard plugs within the range. Nickel plated.

Note: Latching is not guaranteed with DIN audio locking plugs of other ranges.

L = 57, Dia = 15.9, Cable entry = 5.5 max.

224211

Mfrs. List No.	Order Code	1+	25+	100+	250+
3 pin	600-0300	119-3878●	2.52	2.42	2.28
4 pin	600-0400	119-4011●	2.61	2.51	2.42
5 pin 180°	600-0500	119-3881●	2.49	2.44	2.31
5 pin 240°	600-0510	119-3882●	2.49	2.44	2.31
6 pin	600-0600	119-4012●	2.55	2.51	2.40
7 pin	600-0700	119-3883●	3.62	3.55	3.48

DIN Type - Panel and PCB Sockets



Panel and PCB sockets suitable for either locking or standard screened plugs. The PCB sockets allow direct in-line connection to a PCB.

Contact rating	4A	Housings	Zinc cast, nickel plated or brass with electrically conductive matt black finish
Working voltage	100V ac/dc max	Insulator	Glass filled Nylon/Noryl
Contact resistance	≤10mΩ	Contacts	Brass, silver plated
Temperature range	-25°C to +70°C		

224212

10

Professional Range



A range of DIN screened plugs and sockets suitable for audio and computer applications, offering robust construction with cable clamp and strain relief. Nickel plated or mattblack finish.

Contact rating	4A	Housing	Diecast, nickel plated or electronically conductive matt black finish
Working voltage	100V ac/dc max	Insulator	Nylon
Contact resistance	≤10mohm	Contacts	Brass, silver plated
Temperature	-25°C to 70°C		

224209

DIN Type - Standard and Locking Plugs



Standard black L=60.3, Dia=15.9  
Standard nickel Cable entry = 5.5 max.  
Locking nickel L=59.8, Dia=15.9 Cable entry = 5.5 max

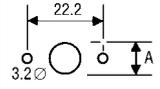
224210

Standard, Nickel	Mfrs. List No.	Order Code	1+	25+	100+	250+
3 pin	610-0300	119-3812●	1.48	1.35	1.31	1.17
4 pin	610-0400	119-3847●	1.62	1.46	1.29	1.13
5 pin 180°	610-0500	119-3813●	1.54	1.39	1.33	1.26
5 pin 240°	610-0510	119-3814●	1.56	1.41	1.35	1.30
5 pin 'Domino'	610-0520	119-3810●	1.77	1.57	1.51	1.43
6 pin	610-0600	119-3815●	1.67	1.51	1.43	1.39
7 pin	610-0700	119-3816●	1.95	1.72	1.64	1.55
8 pin	610-0800	119-3834●	2.57	2.29	2.25	2.14
<b>Locking, Nickel</b>						
3 pin	590-0300	119-3832●	2.48	2.43	2.26	2.11
4 pin	590-0400	119-3849●	2.54	2.48	2.24	2.11
5 pin 180°	590-0500	119-3833●	2.58	2.54	2.41	2.35
5 pin 240°	590-0510	119-3795●	2.58	2.54	2.42	2.23
5 pin 'Domino'	590-0520	119-3850●	2.56	2.51	2.29	2.14
6 pin	590-0600	119-3798●	2.62	2.57	2.43	2.25
7 pin	590-0700	119-3799●	2.81	2.74	2.53	2.22
8 pin	590-0800	119-3800●	3.00	2.94	2.70	2.45
<b>Standard, Black</b>						
3 pin	611-0300	119-3825●	1.95	1.72	1.47	1.38
4 pin	611-0400	119-3858●	1.90	1.70	1.45	1.35
5 pin 180°	611-0500	119-3826●	1.98	1.81	1.52	1.40
5 pin 240°	611-0510	119-3859●	1.95	1.72	1.47	1.38
5 pin 'Domino'	611-0520	119-3860●	2.01	1.84	1.56	1.43
6 pin	611-0600	119-3861●	2.23	2.02	1.77	1.61
7 pin	611-0700	119-3862●	2.57	2.34	2.00	1.84
8 pin	611-0800	119-3863●	2.68	2.42	2.06	1.91

DIN Type - Circular and Flange Mounting



119-3841 L = 19.3, Dia = 18, Panel cut-out = 16, Panel thickness = 8.5 max.  
119-3830 L = 13.4  
119-3822



224213

Circular, Nickel	Mfrs. List No.	Order Code	1+	25+	100+	250+
3 pin	650-0300	119-3836●	2.02	1.98	1.94	1.82
4 pin	650-0400	119-3852●	1.95	1.91	1.87	1.72
5 pin 180°	650-0500	119-3837●	2.12	2.09	2.03	1.92
5 pin 240°	650-0510	119-3838●	2.27	2.22	2.13	2.05
6 pin	650-0600	119-3839●	2.46	2.41	2.31	2.18
7 pin	650-0700	119-3840●	2.61	2.56	2.44	2.34
8 pin	650-0800	119-3841●	2.66	2.57	2.48	2.35
<b>Circular, Black</b>						
3 pin	651-0300	119-3829●	1.90	1.82	1.64	1.51
4 pin	651-0400	119-3870●	1.98	1.85	1.77	1.64
5 pin 180°	651-0500	119-3830●	2.14	2.03	1.88	1.73
5 pin 240°	651-0510	119-3871●	2.14	2.03	1.88	1.73
6 pin	651-0600	119-3873●	2.35	2.23	2.08	1.92
7 pin	651-0700	119-3874●	2.53	2.40	2.24	2.10
8 pin	651-0800	119-3875●	2.56	2.42	2.38	2.18
<b>Flange, Nickel</b>						
3 pin	630-0300	119-3817●	1.05	0.99	0.90	0.85
4 pin	630-0400	119-3851●	1.43	1.31	1.29	1.23
5 pin 180°	630-0500	119-3819●	1.24	1.13	1.10	1.08
5 pin 240°	630-0510	119-3821●	1.24	1.12	1.09	1.06
5 pin 'Domino'	630-0520	119-3811●	1.30	1.15	1.13	1.09
6 pin	630-0600	119-3822●	1.39	1.26	1.23	1.17
7 pin	630-0700	119-3823●	1.54	1.38	1.35	1.33
8 pin	630-0800	119-3835●	2.37	2.13	2.09	2.01

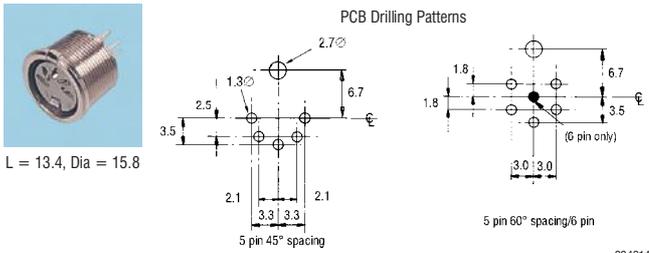
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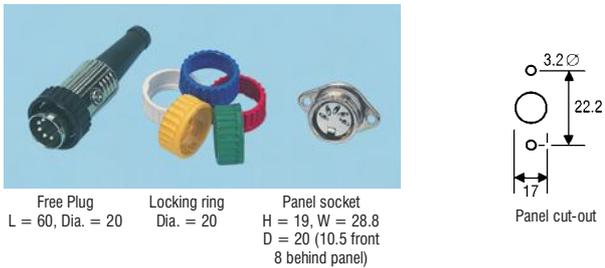
**DIN Type - PCB Mounting Sockets**



224214

	Mftrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
5 pin 180°	690-0500	119-3854	2.19	2.05	1.74	1.56
5 pin 240°	690-0510	119-3856	2.23	2.10	1.83	1.61
6 pin	690-0600	119-3857	2.68	2.46	2.14	1.88
8 pin	690-0800	119-4015	2.75	2.52	2.40	2.13
<b>10 Per Pack</b>			<b>1+</b>	<b>5+</b>	<b>10+</b>	<b>50+</b>
Mounting nuts	119-3986		2.69	2.59	2.46	2.10

**DIN Type - Bayonet Locking ¼ Turn**  
Separate Colour Coding Rings Available



224216

- Intermateable with industry standard bayonet locking ring types
- Coloured glass-filled locking rings in six colours
- Panel sockets coded with snap-in rings in same colours
- Black supplied as standard on all items

	Mftrs. List No.	Order Code	Price Each				
			1+	25+	100+	250+	
<b>Free Plugs</b>							
3 pin	592-0301-01	119-4048	1.83	1.70	1.61	1.42	
4 pin	592-0401	119-4049	1.90	1.82	1.70	1.48	
5 pin 180°	592-0500	119-4050	1.98	1.87	1.74	1.55	
5 pin 240°	592-0510	119-4051	1.98	1.87	1.74	1.55	
6 pin	592-0600	119-4052	2.02	1.91	1.83	1.58	
7 pin	592-0700	119-4053	2.02	1.94	1.83	1.59	
8 pin	592-0800	119-4054	2.18	2.08	1.97	1.70	
<b>Plug Colour Coded Locking Rings</b>			<b>Price Per Pack</b>				
<b>20 Per Pack</b>			<b>1+</b>	<b>5+</b>	<b>10+</b>		
Blue	592-0002	119-4055	4.12	3.75	3.39		
Green	592-0004	119-4056	4.12	3.75	3.39		
Red	592-0005	119-4058	4.12	3.75	3.39		
White	592-0006	119-4059	4.12	3.75	3.39		
Yellow	592-0007	661-960	3.96	3.60	3.26		
<b>Mixed Pack (24), 4 of Each Colour</b>			592-0000	119-4060	3.49	3.17	2.87
<b>Panel Sockets</b>							
			<b>1+</b>	<b>25+</b>	<b>100+</b>	<b>250+</b>	
3 pin	593-0300	119-4061	1.20	1.14	1.09	0.96	
4 pin	593-0400	119-4062	1.32	1.27	1.16	1.02	
5 pin 180°	593-0500	119-4063	1.40	1.34	1.24	1.09	
5 pin 240°	593-0510	119-4064	1.40	1.34	1.24	1.09	
6 pin	593-0600	119-4065	1.52	1.44	1.36	1.20	
8 pin	593-0800	119-4067	3.48	3.25	3.08	2.70	

**DIN Plugs - Gold Contacts**



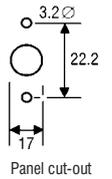
- Rubber strain relief
- Nickel plated brass shell
- Gold plated contacts

333692.278121

Description	Mftrs. List No.	Order Code	Price Each			
			1+	10+	25+	50+
5-Pin 180°	NYS322G	463-2515	0.74	0.70	0.65	0.62

£ € **40,000 PRICES REDUCED**

**DIN Type - Twin Lock**



Free plug L = 60, Dia = 20

Free socket L = 57, Dia = 17.2

Panel socket H = 19, W = 28.8 D = 20 (10.5 front, 8 behind panel)

Cable entry = 5.5 max

The flanged panel sockets are for front or rear mounting.

224217

Free Plugs	Mftrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
3 pin	71430-030/0800	119-3151	1.81	1.64	1.48	1.28
4 pin	71430-040/0800	119-3163	1.87	1.70	1.53	1.33
5 pin 180°	71430-050/0800	119-3154	2.00	1.84	1.58	1.40
5 pin 240°	71430-250/0802	119-3155	2.00	1.84	1.58	1.40
7 pin	71430-070/0800	119-3164	2.04	1.87	1.69	1.48
8 pin	71430-080/0800	119-3165	2.15	1.97	1.78	1.53
<b>Free Sockets</b>						
3 pin	71506-030/0800	119-3157	1.61	1.47	1.29	1.14
4 pin	71504-040/0800	119-3166	2.02	1.84	1.62	1.44
5 pin 180°	71506-050/0800	119-3158	1.62	1.46	1.29	1.14
5 pin 240°	71506-250/0802	119-3159	1.62	1.46	1.29	1.14
7 pin	71506-071/0800	119-3167	2.15	1.96	1.72	1.51
8 pin	71506-080/0800	119-3169	1.82	1.64	1.45	1.29
<b>Panel Sockets</b>						
3 pin	71206-031/0800	119-3160	1.14	1.07	1.04	0.90
4 pin	71206-040/0800	119-3171	1.19	1.13	1.10	0.93
5 pin 180°	71206-051/0801	119-3161	1.24	1.18	1.14	0.98
5 pin 240°	71206-050/0800	119-3162	1.24	1.18	1.14	0.98
7 pin	71206-070/0800	119-3172	1.88	1.80	1.73	1.48
8 pin	71206-080/0800	119-3173	1.97	1.86	1.80	1.53

**DIN Type - Twist Lock 90° Plugs**



Ideal for use in confined areas where space is at a premium.

H = 45.5, W = 20, D = 47 Cable entry = 5.5 max.

224218

Free Plugs	Mftrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
3 pin	71434-030/0800	119-3174	3.97	3.61	3.42	2.81
5 pin 180°	71434-050/0800	119-3176	6.06	5.54	4.94	4.15
5 pin 240°	71434-250/0800	119-3177	4.49	4.07	3.72	3.43

**DIN Type - Twist Lock PCB Mounting Sockets**



Straight H = 19, W = 28.8, D = 20 (10.5 front of flange)

90° H = 20, W = 23, D = 27

224219

Straight	Mftrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
3 pin	71252-030/0800	119-3178	1.22	1.12	1.02	0.91
5 pin 180°	71252-050/0800	119-3179	1.53	1.32	1.15	1.03
8 pin	71252-080/0800	119-3180	2.13	1.97	1.64	1.43
<b>90°</b>						
3 pin	71251-030/0800	119-3182	1.99	1.81	1.59	1.43
4 pin	71251-040/0800	119-3183	2.12	1.82	1.59	1.42
5 pin 180°	71251-050/0800	119-3184	2.51	2.15	1.88	1.67
5 pin 240°	71251-250/0800	119-3185	2.51	2.15	1.88	1.67
8 pin	71251-080/0800	119-3186	2.60	2.23	1.96	1.74

Over 480,000 products online QGO

**DIN Type - Circular - continued**

**Circular DIN Connectors**  
XK and XS Series



- One-piece inner shell
- Plastic housing with kink protection
- Shielded terminals
- Cable aperture  $\varnothing=6.002\text{mm}$

238930

Mfrs. List No.	Poles	Standard	Order Code	1+	10+	50+	100+	Price Each
<b>Plug</b>								
XS52	5	DIN41524	120-0115●	0.45	0.39	0.37	0.35	
XS45322	6	DIN45322	120-0116●	0.45	0.39	0.37	0.35	
XS72	7	DIN41529	120-0117●	0.44	0.38	0.36	0.34	
XS82	8	DIN45326	120-0118●	0.53	0.46	0.42	0.39	
<b>Socket</b>								
XK62	6	DIN45322	120-0119●	0.53	0.46	0.42	0.39	
XK72	7	DIN45329	120-0120●	0.44	0.38	0.36	0.34	
XK82	8	DIN45326	120-0121●	0.50	0.44	0.41	0.38	
XK802	8		330-0481	0.29	0.25	0.19	--	

**Circular DIN Plugs**  
SV and WSV Series



SV 50

WSV 50

Connection Type Solder Terminals  
Cable Aperture max. 6mm  $\varnothing$   
Protection IP40

238939

Mfrs. List No.	Poles	Order Code	1+	10+	50+	100+	500+	Price Each
<b>Straight</b>								
SV30	3	132-1476●	2.29	2.18	2.10	2.04	1.94	
SV40	4	124-3256●	2.30	2.19	2.12	2.05	1.98	
SV50	5	132-1477●	2.36	2.26	2.18	2.11	2.03	
SV50/6	5	120-0134●	2.38	2.27	2.19	2.11	2.04	
SV50/7	5	121-6994●	3.59	3.11	2.75	2.68	2.46	
SV60	6	132-1478●	2.48	2.37	2.29	2.22	2.12	
SV70	7	132-1479●	2.42	2.31	2.23	2.16	2.07	
SV71	7	132-1480●	2.46	2.34	2.26	2.18	2.09	
SV80	8	132-1482●	2.53	2.26	2.18	2.12	2.03	
SV81	8*	132-1483●	2.49	2.37	2.29	2.23	2.13	
SV120	12	132-1484●	3.61	3.44	3.33	3.23	3.09	
<b>Right Angle</b>								
WSV30	3	132-1494●	4.15	3.59	3.17	3.10	2.88	
WSV40	4	132-1496●	4.22	3.67	3.20	3.14	2.92	
WSV50	5	132-1497●	4.25	3.71	3.27	3.17	2.96	
WSV50/6	5	132-1498●	4.29	4.15	3.71	3.59	3.35	
WSV60	6	132-1499●	4.51	3.88	3.46	3.35	3.10	
WSV70	7	132-1501●	4.54	3.91	3.49	3.38	3.14	

\*DIN45326

**Female Circular DIN Connectors**  
KV and WKV Series



KV50

WKV50

Connection Type Solder Terminals  
Cable Aperture max. 6mm  $\varnothing$   
Protection IP40

238940

Mfrs. List No.	Poles	Order Code	1+	10+	50+	100+	500+	Price Each
<b>Straight</b>								
KV30	3	132-1485●	2.35	2.24	2.16	2.09	1.99	
KV40	4	132-1486●	2.40	2.29	2.20	2.14	2.05	
KV50	5	132-1487●	2.48	2.37	2.29	2.22	2.12	
KV50/6	5	132-1488●	2.47	2.37	2.29	2.21	2.12	
KV60	6	132-1489●	2.54	2.43	2.34	2.27	2.17	
KV70	7	132-1490●	2.60	2.48	2.39	2.32	2.21	

Mfrs. List No.	Poles	Order Code	1+	10+	50+	100+	500+	Price Each
<b>Straight</b>								
KV80	8	132-1491●	2.66	2.53	2.43	2.37	2.26	
KV81	8*	132-1492●	2.66	2.53	2.44	2.37	2.27	
KV120	12	124-3258●	4.84	4.61	4.47	4.34	4.22	
<b>Right Angled</b>								
WKV30	3	132-1502●	4.22	3.78	3.35	3.27	3.04	
WKV50	5	132-1503●	4.41	3.88	3.46	3.35	3.10	
WKV50/6	5	132-1504●	3.28	2.92	2.59	2.52	2.32	
WKV60	6	132-1505●	4.44	3.94	3.52	3.41	3.14	
WKV120	12	132-1506●	7.39	6.59	5.85	5.67	5.29	

\*DIN45326

**Circular DIN Chassis Plugs**  
SFV and SGV Series



SFV 50

SGV 50

238943

Mfrs. List no.	Poles	Order Code	1+	10+	50+	100+	500+	Price Each
<b>Front Mounting (lock-ring fits from rear)</b>								
<b>Solder Terminals</b>								
SFV30	3	119-3056●	1.70	1.61	1.55	1.49	1.45	
SFV50	5	119-3057●	1.73	1.66	1.60	1.54	1.48	
SFV50/6	5	119-3058●	3.21	2.95	2.66	2.52	2.29	
SFV60	6	119-3059●	3.26	2.98	2.72	2.54	2.31	
SFV70	7	119-3060●	2.04	1.95	1.88	1.81	1.73	
SFV81	8*	119-3062●	3.42	3.13	2.82	2.65	2.41	
SFV120	12	119-3063●	4.10	3.89	3.77	3.66	3.50	
<b>Rear Mounting (lock-ring fits from front)</b>								
<b>Solder Terminals</b>								
SGV30	3	119-3075●	3.31	3.04	2.73	2.59	2.36	
SGV40	4	119-3076●	3.30	3.03	2.72	2.54	2.34	
SGV50	5	120-0135●	3.16	2.68	2.50	2.43	2.32	
SGV50/6	5	119-3078●	3.51	3.22	2.90	2.72	2.47	
SGV70	7	119-3079●	3.63	3.31	2.98	2.79	2.56	
SGV81	8	119-3080●	3.65	3.34	3.00	2.80	2.56	
SGV120	12	119-3081●	6.91	6.32	5.68	5.33	4.82	

\*DIN5326

Mounting Tool

Mfrs. List No.

Order Code

Price Each

ZMS20

824-410

8.99

**DIN Sockets - Panel Mounting**  
KFV, KGV and KGR Series



KFV 50

KGR 50

KGV 50

245802

Mfrs. List No.	Poles	Order Code	1+	10+	50+	100+	500+	Price Each
<b>Front Mounting (Lock-ring fits from rear)</b>								
<b>Solder Terminals</b>								
KFV30	3	119-3064●	1.54	1.47	1.42	1.37	1.33	
KFV40	4	119-3066●	1.65	1.57	1.52	1.47	1.43	
KFV50	5	119-3067●	1.73	1.66	1.59	1.53	1.48	
KFV50/6	5	119-3068●	1.69	1.62	1.56	1.51	1.45	
KFV60	6	119-3069●	1.76	1.68	1.61	1.56	1.49	
KFV70	7	119-3070●	1.89	1.80	1.75	1.70	1.65	
KFV71	7	119-3071●	1.89	1.80	1.75	1.70	1.65	
KFV80	8	119-3072●	1.98	1.89	1.82	1.75	1.69	
KFV81	8*	119-3073●	1.98	1.89	1.82	1.75	1.69	
KFV120	12	119-3074●	5.04	4.80	4.65	4.49	4.31	
<b>Back Mounting (Lock-ring fits from front)</b>								
<b>Solder Terminals</b>								
KGV30	3	119-3082●	3.04	2.79	2.54	2.37	2.14	
KGV50	5	119-3083●	3.14	2.87	2.61	2.44	2.20	
KGV50/6	5	119-3084●	3.16	2.89	2.63	2.46	2.22	
KGV60	6	119-3085●	3.14	2.87	2.62	2.43	2.23	
KGV70	7	119-3086●	3.43	3.11	2.82	2.64	2.40	
<b>PCB Connectors</b>								
KGR50	5	119-3087●	3.67	3.36	3.03	2.82	2.56	
KGR50/6	5	119-3088●	3.73	3.39	3.05	2.84	2.59	

\*DIN45326

Mounting Tool

Mfrs. List No.

Order Code

Price Each

ZMS20

824-410

8.99

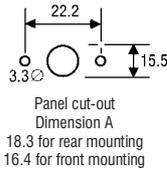
**DIN Type - Latching**  
Improved RFI Screening



Free plug  
L = 44, Dia = 21  
Max cable diameter = 7



Panel socket



These shielded connectors feature a unique locking device allowing push-pull coupling which cannot be disengaged by a direct pull on the cable. The cable is clamped by a one piece nylon cable grip. The sockets feature improved RFI screening rings.

Current rating	2A (temp. rise ≤5°C)	Housing	Glass-filled nylon
Breakdown voltage	1.5kV	Insulator	Brass, Silver Plated
Insulation resistance	≥10Gohm	Contacts	

224220

Mfrs. List No.	Order Code	Price Each				
		1+	25+	100+	250+	
<b>Free Plugs</b>						
3 pin	L1904A/3/FP	117-8499●	7.94	6.63	5.69	4.94
5 pin 180°	L1904A/5/FP	117-8500●	9.42	7.91	6.79	5.90
5 pin 240°	L1904A5AFP	117-8501●	9.42	7.91	6.79	5.90
7 pin	L1904A/7/FP	117-8502●	11.63	9.73	8.39	7.32
8 pin	L1904A/8/FP	117-8503●	12.59	10.53	8.98	7.87
<b>Panel Sockets</b>						
3 pin	L1904C/3/CS	309-023●	6.09	5.23	4.45	3.79
5 pin 240°	L1904C/5A/CS	309-059●	7.39	6.24	5.31	4.69
6 pin	L1904C/6/CS	309-060●	8.72	7.34	6.26	5.45
7 pin	L1904C/7/CS	309-072●	9.30	7.83	6.63	5.83
8 pin	L1904C/8/CS	528-870●	8.77	7.37	6.35	5.58

**Jack Type - 2.5mm**

**2.5mm Jack Plugs and Sockets – Stereo**



In-line stereo Jack plugs and sockets with integral strain reliefs.

2 per pack

339820.256564

Order Code	1+	Price per Pack	
		10+	50+
Plug 128-0730●	0.71	0.58	0.48
Socket 128-0731●	0.71	0.58	0.48

**2.5 mm Jack Plug**

KLS series



Mfrs. List No.	No. of Ways	Design	Colour
KLS1SL	2	RCA / Phono	Black
KLS10SL	2	RCA / Phono	Black
KLS13SL	3	RCA / Phono	Black

238814

Mfrs. List No.	Order Code	1+	10+	Price Each		
				50+	100+	500+
KLS 1	124-3259●	0.28	0.27	0.24	0.22	0.20
KLS 10	124-3260●	0.29	0.26	0.24	0.21	0.20
KLS 13	120-0139●	1.30	1.13	1.04	0.97	0.89

**2.5mm Jack - 2 Pole**



- Black plastic shell with a cable lamp
- Moulded cable strain relief
- Japanese specification

**Note:** To avoid compatibility problems it is advisable not to mix these jack plugs & sockets with other types.

152-197 L=40, Dia=8  
152-199 L=39, Dia=9.5  
473-467 H=9.6, W=7.2, D=16  
Cable entry = 4.0 max Panel cut-out=5.0 dia

224128

Order Multiple=5	Order Code	Price Each				
		5+	50+	250+	500+	1K+
Free plug	152-197●	0.48	0.46	0.45	0.43	0.42
Line socket	152-199●	0.35	0.34	0.33	0.30	0.28
Panel socket	473-467●	0.53	0.52	0.50	0.48	0.46

**2.5mm Jack Type - 2 Pole, High Quality**



143-317 L=31.5, Dia=8.9  
143-318 L=31.5, Dia=6.4  
143-337 H=15.7, W=10.7, D=11.4  
Cable entry=3.3 max Panel cut-out=5.3 Dia

**Note:** To avoid compatibility problems it is advisable not to mix these jack plugs & sockets with other types.

224129

Order Code	1+	100+	Price Each			
			250+	500+	1K+	
Insulated plug	143-317●	3.13	2.65	2.34	1.93	1.67
Screened plug	143-318●	3.02	2.53	2.24	1.84	1.67
Switched socket	143-337●	2.69	2.24	1.99	1.68	1.47

**2.5mm Professional Jack**

Plugs and Sockets



A range of miniature, 2-pole Jack plugs and sockets.

**Plugs:** In-line plugs available in either a standard, push-in type or a thread locking type that mates with the TR2A (119-2900) chassis socket.

**Sockets:** Available in enclosed solder and PCB mount versions or open versions. The TR2A open type can be wired for open or closed circuit operation.

Parameter	Value	Parameter	Value
Panel Thickness	850 / 851	Depth Behind Panel	MDSL2A 14mm
TR2A	1.6mm max.	MDSLARA 9.5mm	
Panel Mounting Hole	850 / 851	TR2A 5.8mm	
TR2A	∅5.16mm	PCB Footprint	MDSLARA 6.88x5.08mm
	∅4.8mm		

339820.256579

Description	Mfrs. List No.	Order Code	Price Each	
			1+	10+
<b>Plugs</b>				
Standard	850	119-2897●	3.01	2.67
Locking	851	119-2898●	3.30	2.96
<b>Sockets</b>				
Enclosed – Panel Type	MDSL2A	509-6248●	2.35	1.50
Enclosed – PCB	MDSLARA	509-6250●	2.61	1.66
Open Frame Panel Type	TR2A	119-2900●	2.79	2.50

**90° 2.5mm Jack Plugs**



90° 2.5mm jack plugs available in mono or stereo configurations, ideal for audio connections.

415503.345051

Description	Order Code	1+	Price Per Pack		
			25+	100+	250+
Mono	126-7369●	0.62	0.55	0.49	0.44
Stereo	126-7370●	0.92	0.82	0.79	0.71

**4-pole 2.5mm Jack Plug**



With strain reliefs. Commonly used for video plus stereo audio connections.

339821.256569

Order Code	1+	Price Each	
		10+	50+
128-0729●	0.78	0.69	0.52

Over 480,000 products online



**Jack Type - 2.5mm - continued**

**2.5mm 4-Pole Jack Plug**



- Metal Housing
- Solder connections
- 4-pole
- Spring strain relief

369573.345021

Order Code	Price Each			
	1+	25+	50+	100+
128-0791●	0.78	0.70	0.63	0.54

**2.5mm In-Line 4 Pole Jack Socket**



An in-line 4-pole jack socket with integral strain relief and solder terminals. Ideal for use with audio visual equipment.

2 per pack

339822.276325

Order Code	Price per Pack		
	1+	10+	50+
126-7380●	1.01	0.81	0.74

**2.5 mm Sockets**

KLB series



KLB 1 L    KLBR 1 L    KLB 13 L

Mfrs. List No.

KLBR1L  
KLBR1L  
KLB13L

No. of

Ways

Design  
RCA / Phono  
RCA / Phono  
RCA / Phono

238820

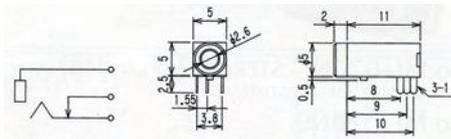
Mfrs. List No.

KLB1L  
KLBR1L  
KLB13L

Order Code  
121-7014●  
120-0140●  
120-0141●

Price Each  
0.45  
0.38  
0.59

**PCB Mount 2.5mm Jack Sockets**



PCB mount 2.5mm jack sockets available in mono and stereo configurations.

Supplied in packs of 5.

369509.276548

Description	Order Code	Price Per Pack			
		1+	10+	25+	100+
Mono	126-7386●	1.59	1.41	1.27	1.16
Stereo	126-7387●	2.09	1.89	1.76	1.59

**Help us to help the environment**



This catalogue has been printed on paper certified from a sustainable source. Please recycle after use.

**PCB Mount 2.5mm Jack Socket**



Low profile, mono switched, 2.5mm jack socket.

H=5, W=5, D=5

369520.256573

Order Code	Price Each			
	1+	10+	25+	100+
804-4953	0.37	0.33	0.29	0.28

**2.5mm Jack Socket – PCB Mount**



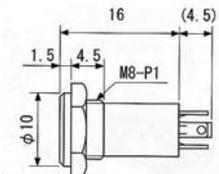
A stereo Jack socket with a PCB, right angle fixing.

Supplied in packs of 2.

369434.256574

Order Code	Price Per Pack			
	1+	10+	50+	100+
128-0745●	0.44	0.39	0.35	0.31

**2.5mm Panel Mount Jack Sockets**



A range of 2.5mm panel mount jack sockets supplied with lock nuts.

2 Per Pack

382819.345105

Description	Order Code	Price Per Pack			
		1+	25+	50+	100+
2-pole	126-7391●	0.49	0.44	0.38	0.35
3-pole	126-7392●	1.21	1.10	0.98	0.89
4-pole	126-7393●	0.57	0.51	0.46	0.41

**2.5mm Metal Jack Socket – Stereo**

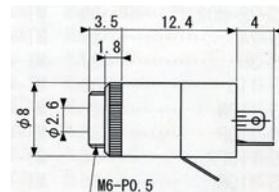


A high quality, 2.5mm Jack socket for chassis mounting. Solder termination.

339830.256578

Order Code	Price Each		
	1+	10+	50+
126-7372●	0.70	0.54	0.44

**2.5mm 4-Pole Panel Mount Jack Socket**



A 4-pole 2.5mm panel mount socket with solder terminals.

339823.276555

Order Code	Price Each		
	1+	10+	50+
126-7379●	1.01	0.81	0.74