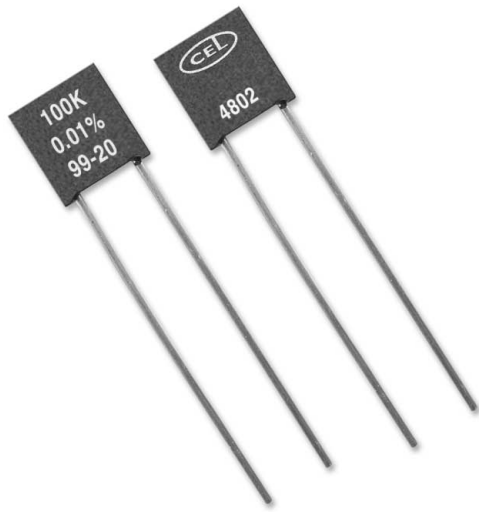


Ultra Precision Bulk Metal® Film Resistors



FEATURES

- BS/CECC approved
- Tolerances down to 0.005%
- Current noise and distortion below level of practicable measurement
- Low thermal e.m.f
- Ideal resistor for precision instrumentation
- Use of bulk metal gives superior stability
- Planar construction gives low residual capacitance and inductance

ELECTRICAL SPECIFICATIONS

Commercial		4802/12/32	4804	4805	Notes
Power Rating at 70°C	watts	0.5	1	1.5	
Resistance Range*	ohms	1R0 to 100K	0R5 to 200K	0R33 to 300K	
Limiting element voltage	volts	200	350	500	
TCR (20 to 70°C)	ppm/°C	5	3	3	
Resistance tolerance					See table I below
Approved BS CECC 40-302-002**		4802/12			
Power rating at 70°C	watts	0.25			
Resistance range	ohms	100 to 56K			
Limiting element voltage	volts	200			
TCR (-55 to 125°C)	ppm/°C	5			
Resistance tolerance					See table I below
Thermal impedance	°C/watt	250	130	80	
Values		E24 and E96 preferred			Any value to order
Ambient temperature range	°C		-55 to 155		All styles and products

* Higher values are available but with reduced power ratings. Please ask sales desk for details.

** BS CECC 40 style reference: 4802 BX; 4812 CX.

Table I. Resistance Range (ohms) and Tolerance (%)

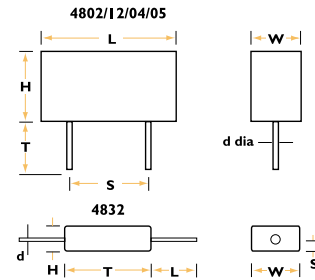
Tolerance (code)	4802/12/32	4804	4805
0.005 (V)	200R to 100K	100R to 200K	65R to 300K
0.01 (T)	100R to 100K	50R to 200K	33R to 300K
0.02 (Q)	50R to 100K	25R to 200K	17R to 300K
0.05 (A)	25R to 100K	10R to 200K	8R to 300K
0.1 (B)	10R to 100K	5R to 200K	3.3R to 300K
0.25 (C)	5R to 100K	2R to 200K	1.7R to 300K
0.5 (D)	2R to 100K	10R to 200K	0.6R to 300K
1.0 (F)	1R to 100K	0.5R to 200K	0.33R to 300K

Ultra Precision Bulk Metal® Film Resistors

PHYSICAL DATA

Dimensions (mm) & Weight (g)

Type	L max	H max	W max	T min	d nom	S nom	Wt. nom
4802	8.9	10.2	3.8	30	0.6	5.1	1
4812	7.5	8	2.5	30	0.6	5.1	0.6
4804	15.2	13.2	3.8	30	0.6	10.2	1.5
4805	22.6	13.2	3.8	30	0.6	17.8	2
4832	9.7	5.4	9.7	30	0.6	1.5	1.1



Construction

The resistor element is an etched bulk metal foil, bonded to an alumina substrate. Connections to the foil are made by copper wires welded to the foil to minimise thermal e.m.f.

Before encapsulation, the resistor element is coated with silicone rubber to isolate the element from mechanical stress which would adversely affect the carefully balanced construction and result in poor resistance/temperature characteristics.

Terminations

Material Solder coated copper wire

Strength The terminations meet the requirements of IEC 68.2.21.

Solderability The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2.

Marking Type reference, resistance value, tolerance and date code are legend marked. The resistance value conforms to IEC 62.

Solvent Resistance The protection will withstand all normal industrial solvents suitable for cleaning printed circuit boards.

ORDERING INFORMATION

Specify Charcroft 4800 Series resistors as follows:

4802
MODEL NO.

T = RoHS compliant
None = Tin/Lead alloy
TERMINATION

250R00
RESISTANCE VALUE

V = ± 0.005%
T = ± 0.01%
Q = ± 0.02%
A = ± 0.05%
B = ± 0.1%
C = ± 0.25%
D = ± 0.5%
F = ± 1.0%
TOLERANCE

TR = Tape & Reel
(4802/12 only)
None = Bulk (loose)
PACKAGING

Resistance Value, in ohms, is expressed by a series of 6 characters, 5 of which represent significant digits while the 6th is a dual purpose letter that designates both the multiplier and the location of the comma or decimal.

RESISTANCE RANGE

10 Ω to <1KΩ
1K Ω to 100KΩ

LETTER DESIGNATOR

R
K

MULTIPLIER FACTOR

x 1
x 10³

EXAMPLE

100R01 = 100.01Ω
5K2310 = 5,231Ω

For example: 4802 T 250R00 V - Model: 4802; Termination: RoHS compliant; Value: 250 Ω; Tolerance: 0.005% Packaging: Bulk

PERFORMANCE DATA

		Actual		
		Maximum		Typical
Load at commercial rating: 1000 hours at 70°C	ΔR%	0.05		0.02
Dry heat: 1000 hours at 155°C	ΔR%	0.05		0.02
Shelf life: 12 months at room temperature	ΔR%			0.0025
Derating from rated power at 70°C		Zero at 155°C		
Short term overload	ΔR%	0.01		0.005
Climatic category		55/155/56		
Climatic	ΔR%	0.05		0.03
Long term damp heat	ΔR%	0.05		0.03
Temperature rapid change	ΔR%	0.01		0.005
Resistance to solder heat	ΔR%	0.01		0.005
Vibration and bump	ΔR%	0.01		0.005
Noise. (in a decade of frequency)	μV/V	Below level of practicable measurement		
Voltage coefficient of resistance	ppm/V			
Insulation Resistance	ohms	>1000M		
Inductance	μH	0.2		0.08
Capacitance	pF	1		0.5