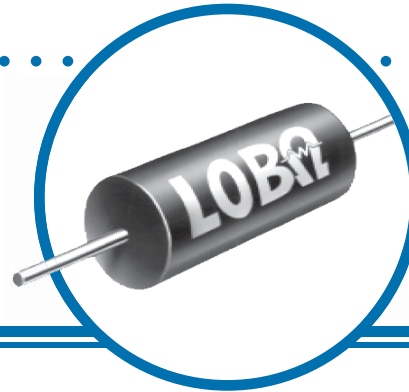


Low Resistance Metal Element Resistor

LOB Series

- Low TCR
- High stability over life
- Tolerances from $\pm 1\%$ to $\pm 5\%$
- Ultra low resistance values (0.005Ω to 0.1Ω)
- Inherently non-inductive ($\leq 0.02 \mu\text{H}$ @ 0.5 MHz)
- Available in 1W, 3W, and 5W rated packages
- Lead free RoHS compliant construction available



DESCRIPTION:

The LOB Series power precision metal element resistors feature resistance values down to 0.005Ω with virtually no inductance. Available in 1, 3, and 5 watt rated axial leaded packages, these resistors are compatible with automatic insertion equipment.

APPLICATIONS:

- Switchmode and linear power supplies
- Automotive current-sensing circuits
- Instrumentation
- Regulators

CONSTRUCTION:

The LOB Series resistors feature tinned copper leads welded directly to a low-temperature coefficient resistance element in a highly automated proprietary process. The leaded resistor elements are then encapsulated in a molding compound.

Specifications

Style	Continuous Power Dissipation @ 25°C in free air (watts)	Overload Power for 5 seconds (watts)	Maximum Working Voltage (volts)	Maximum Storage Temperature (°C)
LOB-1	1	5	$\sqrt{1 \times R}$	175
LOB-3	3	15	$\sqrt{3 \times R}$	175
LOB-5	5	25	$\sqrt{5 \times R}$	175

*Power Dissipation - The maximum wattage rating depends upon the amount of heat which can be transferred to the surroundings while not exceeding the maximum element temperature. Ambient air temperature, velocity of cooling air, thermal resistance of heat, and the temperature of surrounding objects will affect this transfer, and must be taken into account when selecting a resistor.

Environmental Testing

Test Parameters	MIL-STD 202	MAX %ΔR *	Unit
Load Life (2,000 hours)	Method 108	$\pm 1\%$	%ΔR
Thermal Shock	Method 107	$\pm 1\%$	%ΔR
Vibration	Method 204	$\pm 0.5\%$	%ΔR
Mechanical Shock	Method 213	$\pm 0.5\%$	%ΔR
Dielectric Strength	Method 301	$\pm 0.5\%$ @ 1000 VAC	%ΔR
Insulation Resistance	Method 302	$> 10^{10}$ @ 100 VDC	Ohms

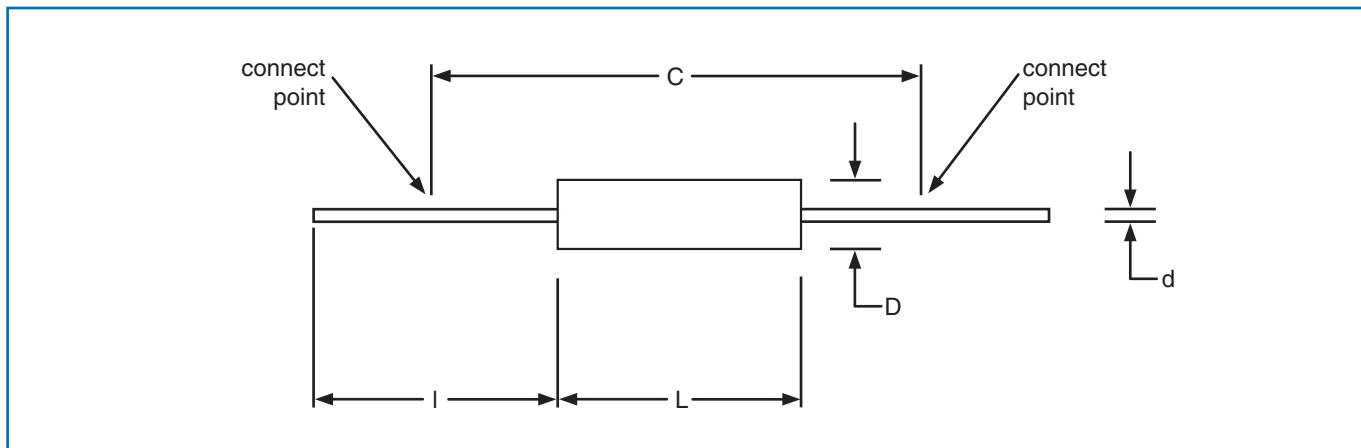
* ± 0.0005 ohm allowance for test/contact error.

General Note

IRC reserves the right to make changes in product specification without notice or liability. All information is subject to IRC's own data and is considered accurate at time of going to print.

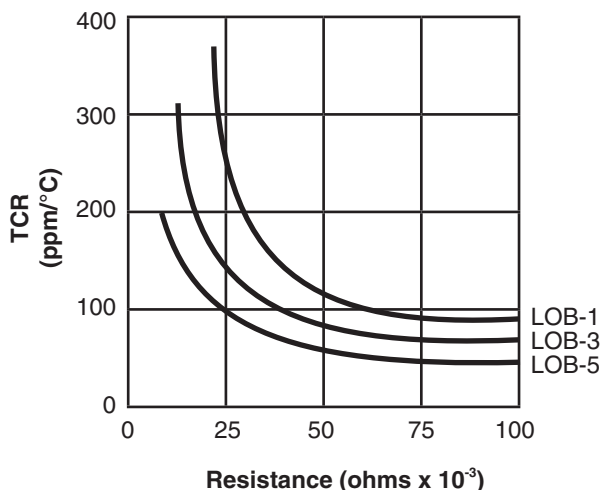
Low Resistance Metal Element Resistor

Physical Data

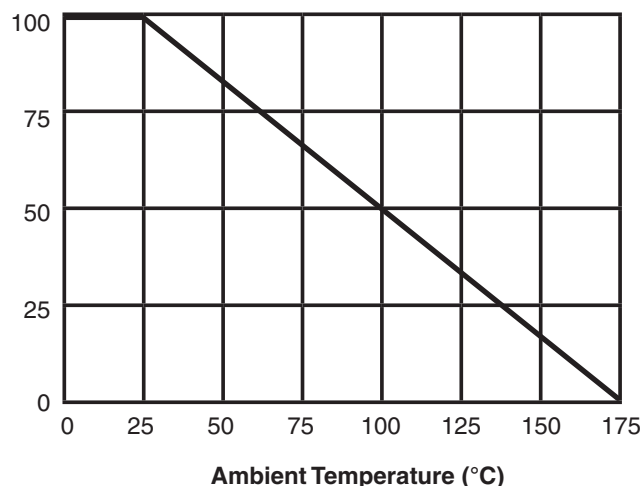


Dimensions (Inches (mm))					
Style	L	D	C	I	d
LOB-1	0.390 ± 0.010 (9.9 ± 0.3)	0.140 ± 0.008 (3.6 ± 0.2)	1.31 (33.274)	1.50 ± 0.125 (38.1 ± 3.2)	0.0305 ± 0.002 (0.813 ± 0.051)
LOB-3	0.560 ± 0.010 (14.224 ± 0.254)	0.2100 ± 0.010 (5.334 ± 0.254)	1.31 (33.274)	1.375 ± 0.125 (34.925 ± 3.175)	0.0305 ± 0.002 (0.813 ± 0.051)
LOB-5	0.920 ± 0.010 (23.368 ± 0.254)	0.330 ± 0.010 (8.382 ± 0.254)	1.670 (42.418)	1.250 ± 0.125 (31.750 ± 3.175)	0.040 ± 0.002 (1.016 ± 0.051)

Temperature Coefficient of Resistance vs. Resistance Value



Power Derating Percentage vs. Free Air Ambient Temperature:



Low Resistance Metal Element Resistor



Ordering Data

To order, specify style, resistance value, tolerance, and package type as in the following example:

Sample Part No. **LOB-3** **R010** **F** **LF** **LT**

IRC Type

LOB-1 (1 watt)
LOB-3 (3 watt)
LOB-5 (5 watt)

Resistance Value

0.005Ω	0.02Ω	0.04Ω	0.08Ω
0.01Ω	0.025Ω	0.05Ω	0.1Ω
0.015Ω	0.03Ω	0.07Ω	

Tolerance

J = 5%, H = 3%, F = 1%

Lead-Free RoHS Compliant

Packaging

LT = Lead Tape, 500 pcs. min.
LOB-1 = 3,500 pcs. max.
LOB-3 = 1,250 pcs. max.
LOB-5 = 800 pcs. max.

BLK = Bulk Pack, 500/box