

## Low Resistance Metal Element Resistors

### LOB Series

- Ultra low resistance values to 0.005Ω
- Available in 1, 3 and 5 watt rated packages
- Tolerances from ±1% to ±5%
- Inherently non-inductive ( $\leq 0.02\mu\text{H}$  at 0.5MHz)
- Low temperature coefficient of resistance
- High stability over life



All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

### Electrical Data

|  |       | LOB-1               | LOB-3               | LOB-5               |
|--|-------|---------------------|---------------------|---------------------|
| Continuous power dissipation at 25°C in free air | watts | 1                   | 3                   | 5                   |
| Overload power for 5 seconds                     | watts | 5                   | 15                  | 25                  |
| Resistance range                                 | ohms  | R005 to R100        | R005 to R120        | R005 to R100        |
| Maximum working voltage                          | volts | $\sqrt{1 \times R}$ | $\sqrt{3 \times R}$ | $\sqrt{5 \times R}$ |
| Operating temperature                            | °C    | -55 to 175          | -55 to 175          | -55 to 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, this must be taken into account when selecting a resistor.

### Physical Data

| Dimensions (mm) |            |           |            |            |       |
|-----------------|------------|-----------|------------|------------|-------|
| Type            | L          | D         | f          | d          | C nom |
| LOB-1           | 9.9±0.3    | 3.6±0.2   | 38.1±3.2   | 0.813±0.05 | 33.27 |
| LOB-3           | 14.22±0.25 | 5.33±0.25 | 34.93±3.18 | 0.81±0.05  | 33.27 |
| LOB-5           | 23.37±0.25 | 8.38±0.25 | 31.75±3.18 | 1.02±0.05  | 42.42 |

### Description

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

### Construction

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 moulding compound.

### Applications

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

### General Note

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

LOB Series

Power derating percentage vs  
Free air ambient temperature



Temperature coefficient of resistance vs  
Resistance value



| Test                   | MIL-STD 202 | MAX %ΔR*          | Unit |
|------------------------|-------------|-------------------|------|
| Load life (2000 hours) | Method 108  | ±1%               | %ΔR  |
| Thermal shock          | Method 107  | ±1%               | %ΔR  |
| Vibration              | Method 204  | ±0.5%             | %ΔR  |
| Mechanical shock       | Method 213  | ±0.5%             | %ΔR  |
| Dielectric strength    | Method 301  | ±0.5%             | %ΔR  |
| Insulation resistance  | Method 302  | >10 <sup>11</sup> | ohms |

\*±0.0005 ohm allowance for test/contact error.

Packaging

Resistors are supplied taped and reeled.  
Bulk packaging available.

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## Ordering Procedure

This product has two valid part numbers:

**European (Welwyn) Part Number: LOB3-R01JI** (LOB3, 10 milliohms  $\pm 5\%$ , Pb-free)

|   |   |   |   |   |   |   |   |   |   |  |
|---|---|---|---|---|---|---|---|---|---|--|
| L | O | B | 3 | - | R | 0 | 1 | J | I |  |
| 1 |   |   |   | 2 |   | 3 | 4 |   |   |  |

| 1    | 2        | 3              | 4                              |                  |
|------|----------|----------------|--------------------------------|------------------|
| Type | Value    | Tolerance      | Packing & Termination Finish   |                  |
| LOB1 | R = ohms | F* = $\pm 1\%$ | I = Standard packing & Pb-free |                  |
| LOB3 |          | H = $\pm 3\%$  | PB = Standard packing & SnPb   |                  |
| LOB5 |          | J* = $\pm 5\%$ | LOB1                           | Taped, 3500/reel |
|      |          | * preferred    | LOB3                           | Taped, 1250/reel |
|      |          |                | LOB5                           | Taped, 800/reel  |

**USA (IRC) Part Number: LOB-3R010FLFSLT** (LOB3, 10 milliohms  $\pm 5\%$ , Pb-free)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | O | B | - | 3 | R | 0 | 1 | 0 | F | L | F | S | L | T |
| 1 |   |   |   | 2 |   | 3 | 4 |   | 5 |   |   |   |   |   |

| 1     | 2        | 3             | 4                  | 5                |           |
|-------|----------|---------------|--------------------|------------------|-----------|
| Type  | Value    | Tolerance     | Termination Finish | Packing          |           |
| LOB-1 | R = ohms | F = $\pm 1\%$ | Omit for SnPb      | SLT = Lead Tape* |           |
| LOB-3 |          | H = $\pm 3\%$ | LF = Pb-free       | LOB-1            | 3500/reel |
| LOB-5 |          | J = $\pm 5\%$ |                    | LOB-3            | 1250/reel |
|       |          |               |                    | LOB-5            | 800/reel  |
|       |          |               |                    | BLK = Bulk       |           |
|       |          |               |                    | LOB-1            | 1500/box  |
|       |          |               |                    | LOB-3            | 800/box   |
|       |          |               |                    | LOB-5            | 200/box   |

\* preferred

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