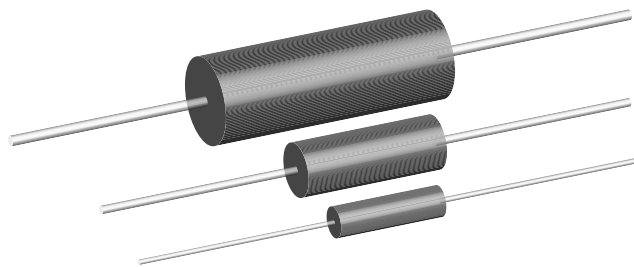




# Wirewound Resistors, Commercial Power, Axial Lead, Low Value



## FEATURES

- Ideal for all types of current sensing applications including switching and linear power supplies, instruments and power amplifiers
- Low inductance - less than 10 nH
- Cooler operation for high power to size ratio
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS COMPLIANT**  
 HALOGEN FREE  
 GREEN (5-2008)

Please reference the Vishay Dale closest equivalent: LVR ([www.vishay.com/doc?30206](http://www.vishay.com/doc?30206)).

### Notes

- There may be slight differences between the MTL product and the LVR product.
- See the cross-reference file for a complete list of differences and part number crosses: [www.vishay.net/files/Cross-Reference%20Data%20-%20PTN-DR-019-2015%20Rev%200.pdf](http://www.vishay.net/files/Cross-Reference%20Data%20-%20PTN-DR-019-2015%20Rev%200.pdf).

| STANDARD ELECTRICAL SPECIFICATIONS |                  |   |                              |                       |
|------------------------------------|------------------|---|------------------------------|-----------------------|
| GLOBAL MODEL                       | HISTORICAL MODEL | POWER RATING<br>$P_{25\text{ }^\circ\text{C}}$<br>W | RESISTANCE RANGE<br>$\Omega$ | TOLERANCE<br>$\pm \%$ |
| MTL1A                              | MTL-1A           | 1   | 0.003 to 0.1                 | 1, 5                  |
| MTL2B                              | MTL-2B           | 2   | 0.003 to 0.1                 | 1, 5                  |
| MTL03                              | MTL-3            | 3   | 0.003 to 0.1                 | 1, 5                  |
| MTL05                              | MTL-5            | 5   | 0.003 to 0.1                 | 1, 5                  |
| MTL06                              | MTL-6            | 6   | 0.003 to 0.1                 | 1, 5                  |
| MTL10                              | MTL-10           | 10  | 0.003 to 0.1                 | 1, 5                  |

| TECHNICAL SPECIFICATIONS        |          |   |
|---------------------------------|----------|---|
| PARAMETER                       | UNIT     | MTL RESISTOR CHARACTERISTICS                |
| Temperature Coefficient         | ppm/°C   | See TCR vs. Resistance Value chart          |
| Terminal Strength               | lb       | 5 min (MTL1A) and 10 min (MTL2B and larger) |
| Dielectric Withstanding Voltage | $V_{AC}$ | 500 for MTL1A; 1000 for MTL2B and larger    |
| Maximum Working Voltage         | V        | $(P \times R)^{1/2}$                        |
| Operating Temperature Range     | °C       | -55 to +275                                 |
| Insulation Resistance           | $\Omega$ | 1000 M $\Omega$ min.                        |

### GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: **MTL1A5L000FE66** (Visit [www.vishay.net](http://www.vishay.net) SAP Parts Manual for all options)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| M | T | L | 1 | A | 5 | L | 0 | 0 | 0 | F | E | 6 | 6 |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|

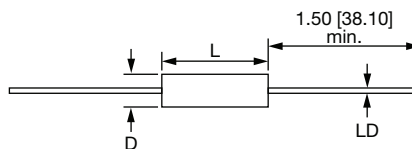
|   |   |   |  |   |
|---|---|---|--|---|
| <b>GLOBAL MODEL</b><br>(5 digits)<br>MTL1A<br>MTL2B<br>MTL03<br>MTL05<br>MTL06<br>MTL10 | <b>VALUE</b><br>(5 digits)<br>R = Decimal<br>L = m $\Omega$<br>(below 0.01 $\Omega$ )<br>5L000 = 0.005 $\Omega$<br>R1000 = 0.1 $\Omega$ | <b>TOLERANCE</b><br>(1 digit)<br>F = $\pm 1 \%$<br>J = $\pm 5 \%$ | <b>PACKAGING CODE</b><br>(3 digits)<br>E66 = Bulk pack | <b>SPECIAL</b><br>(up to 3 digits)<br>(Dash Number)<br>From 1 to 999<br>as applicable |
|---|---|---|--|---|

Historical Part Number example: **MTL-1A-0.005-1 %**

|                  |                  |           |
|------------------|------------------|-----------|
| MTL-1A           | 0.005 $\Omega$   | 1 %       |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE |



**DIMENSIONS** in inches [millimeters]



| GLOBAL MODEL | DIMENSIONS in inches [millimeters] |                      |                       |
|--------------|------------------------------------|----------------------|-----------------------|
|              | L<br>± 0.020 [0.508]               | D<br>± 0.020 [0.508] | LD<br>± 0.002 [0.051] |
| MTL1A        | 0.430 [10.92]                      | 0.120 [3.05]         | 0.025 [0.635]         |
| MTL2B        | 0.580 [14.73]                      | 0.200 [5.08]         | 0.032 [0.813]         |
| MTL03        | 0.600 [15.24]                      | 0.250 [6.35]         | 0.032 [0.813]         |
| MTL05        | 0.890 [22.61]                      | 0.335 [8.51]         | 0.040 [1.02]          |
| MTL06        | 1.055 [26.80]                      | 0.395 [10.03]        | 0.040 [1.02]          |
| MTL10        | 1.755 [44.58]                      | 0.355 [9.02]         | 0.040 [1.02]          |

**MATERIAL SPECIFICATIONS**

**Element:** Nickel-chrome alloy

**Encapsulation:** Molded epoxy

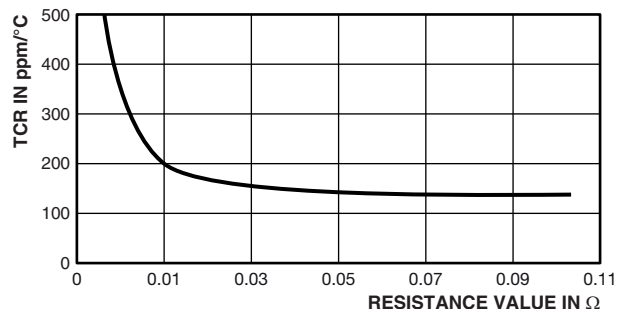
**Terminal:** Matte Tin

**Part Marking:** HEI, model, value, tolerance, date code

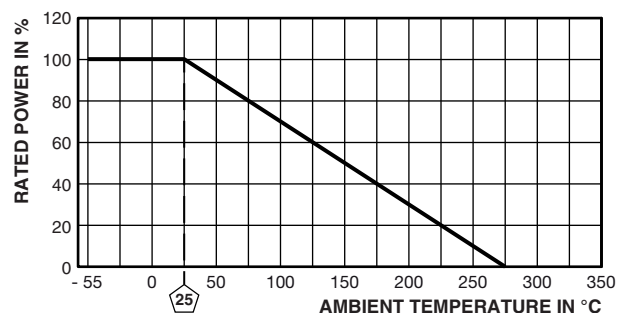
**Note**

- Due to resistor size limitations some resistors will have minimal information marked on parts.

**TCR VS. RESISTANCE VALUE**



**DERATING**



| PERFORMANCE         |  |             |
|---------------------|--|-------------|
| TEST                | CONDITIONS OF TEST                                     | TEST LIMITS |
| Temperature Cycling | -40 °C for 30 min/+125 °C for 30 min/1000 h            | ± 1 % ΔR    |
| Short Time Overload | 5 x rated power for 5 s                                | ± 1 % ΔR    |
| Moisture Resistance | +40 °C 90 % to 95 % RH, 0.1 W <sub>DC</sub> , 1000 h   | ± 1 % ΔR    |
| Load Life           | 1000 h at rated power, +70 °C, 1.5 h "ON", 0.5 h "OFF" | ± 1 % ΔR    |



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