



## Wirewound Resistors, Industrial Power, Tubular, Metal Case, MCRL



### FEATURES

- High power to size ratio
- Flameproof inorganic compound
- All welded construction
- Heat sink mountable to steel panel at least 10" x 10" x 0.04" (254 mm x 254 mm x 1.02 mm)
- Heat transfer increased by use of thermally conductive grease or epoxy
- Wirewound
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

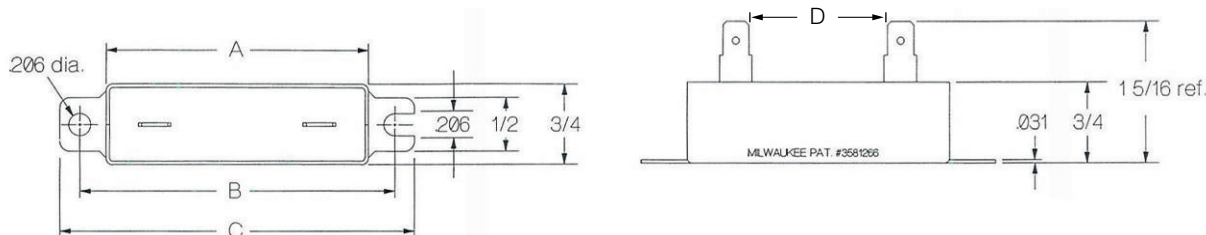


**RoHS**  
COMPLIANT

### STANDARD ELECTRICAL SPECIFICATIONS

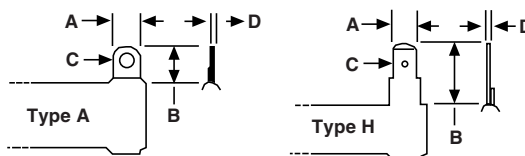
| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING WITH HEAT SINK W | POWER RATING WITHOUT HEAT SINK W | RESISTANCE RANGE $\Omega$ | TOLERANCE $\pm$ % | TERMINAL STYLE |
|--------------|------------------|-------------------------------|----------------------------------|---------------------------|-------------------|----------------|
| MCRL0045     | 12M16            | 45                            | 20                               | 1.1 to 2750               | 5, 10             | A              |
| MCRL0070     | 12M40            | 70                            | 40                               | 0.2 to 22K                | 5, 10             | H              |
| MCRL0100     | 12M59            | 100                           | 50                               | 0.2 to 66K                | 5, 10             | H              |
| MCRL0125     | 12M89            | 125                           | 65                               | 0.25 to 76K               | 5, 10             | H              |

### DIMENSIONS in inches (millimeters)



| GLOBAL MODEL | A               | B               | C               | D<br>DISTANCE BETWEEN<br>TERMINAL (REF.) |       | WEIGHT<br>(TYP.)<br>g |
|--------------|-----------------|-----------------|-----------------|------------------------------------------|-------|-----------------------|
| MCRL0045     | 1 (25.4)        | 1.438 (36.513)  | 1.875 (47.625)  | 5/16                                     | 0.312 | 33                    |
| MCRL0070     | 2.5 (63.5)      | 3 (76.2)        | 3.375 (85.725)  | 1 1/4                                    | 1.25  | 77                    |
| MCRL0100     | 3.688 (93.675)  | 4.125 (104.775) | 4.563 (115.90)  | 2 7/16                                   | 2.44  | 108                   |
| MCRL0125     | 5.562 (141.275) | 6 (152.4)       | 6.438 (163.525) | 4 1/8                                    | 4.12  | 185                   |

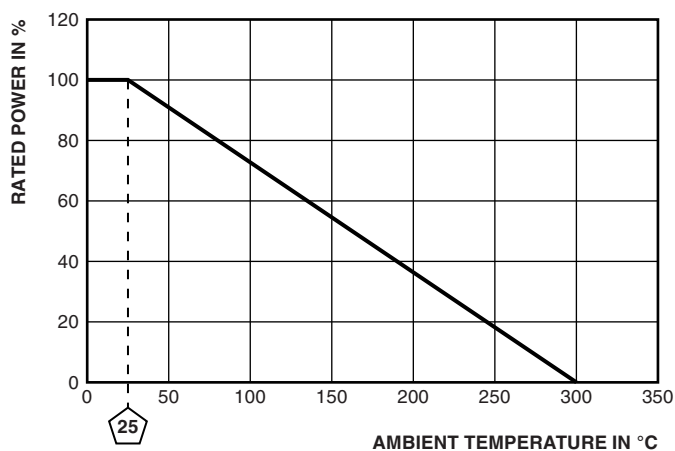
### TERMINAL STYLE in inches (millimeters)



| DIMENSIONS    | A (3/16" LUG)   | H (1/4" SQC)   |
|---------------|-----------------|----------------|
| Width (A)     | 0.1875 (4.7625) | 0.25 (6.35)    |
| Height (B)    | 0.375 (9.525)   | 0.625 (15.875) |
| Diameter (C)  | 0.13 (3.302)    | 0.065 (1.651)  |
| Thickness (D) | 0.02 (0.508)    | 0.032 (0.8128) |

**TECHNICAL SPECIFICATIONS**

| PARAMETER                              | UNIT                | RESISTOR CHARACTERISTICS                                                          |
|----------------------------------------|---------------------|-----------------------------------------------------------------------------------|
| Power rating                           | W                   | 20 to 125                                                                         |
| Resistance range                       | $\Omega$            | 0.2 to 76K                                                                        |
| Resistance tolerance                   | %                   | 5 for above 1 $\Omega$ , 10 for below 1 $\Omega$                                  |
| TCR                                    | ppm/ $^{\circ}$ C   | $\pm 400$ , $\pm 180$ , $\pm 130$ , $\pm 20$ (varies by wattage and resistance)   |
| Operating temperature                  | $^{\circ}$ C        | -40 to +300                                                                       |
| Temperature rise                       | $^{\circ}$ C        | 275 above an ambient of 25 $^{\circ}$ C                                           |
| Maximum altitude                       | f.a.s.l. (m.a.s.l.) | derate above 4921 f.a.s.l. (1500 m.a.s.l.)                                        |
| Short-term overload (surge)            |                     | 10 x rated power for 5 s                                                          |
| Surge windings                         |                     | available                                                                         |
| Maximum working voltage                |                     | $(P \times R)^{1/2}$                                                              |
| Insulation resistance                  | $\Omega$            | 1M                                                                                |
| Dielectric voltage                     | V <sub>RMS</sub>    | up to 1500 (upon request)                                                         |
| Creepage                               | inch (mm)           | 0.50 (12.7) typical                                                               |
| Terminal sleeves                       |                     | available for all sizes, increases creepage distance for 600 V applications       |
| Inductance                             | $\mu$ H             | 0.2 to 800 (varies by wattage and resistance)                                     |
| Non-inductive winding                  |                     | available                                                                         |
| Terminal strength                      | lb                  | n/a                                                                               |
| Electrical or mechanical customization |                     | available: <a href="http://www.vishay.com/doc?31859">www.vishay.com/doc?31859</a> |

**DERATING CURVE****MATERIAL SPECIFICATIONS**

|                    |                                                        |
|--------------------|--------------------------------------------------------|
| Element            | copper-nickel, nickel-chrome, iron-chrome-aluminum     |
| Core               | electrical porcelain                                   |
| Potting compound   | electrical cement or special high temperature silicone |
| Standard terminals | stainless steel                                        |
| Part marking       | value, date code, MRC                                  |



### GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: MCRL007022K00JHB00 (MCRL0070 22K 5 % 1/4SQC B)

|                     |   |   |                   |                                                                                     |   |                                                                                                                  |   |                           |                                                                                                   |   |                        |   |   |                                                           |   |   |   |
|---------------------|---|---|-------------------|-------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------|---|---------------------------|---------------------------------------------------------------------------------------------------|---|------------------------|---|---|-----------------------------------------------------------|---|---|---|
| M                   | C | R | L                 | 0                                                                                   | 0 | 7                                                                                                                | 0 | 2                         | 2                                                                                                 | K | 0                      | 0 | J | H                                                         | B | 0 | 0 |
| MODEL<br>(3 digits) |   |   | TYPE<br>(1 digit) | SIZE<br>(4 digits)                                                                  |   | VALUE<br>(5 digits)                                                                                              |   | TOLERANCE<br>(1 digit)    | TERMINAL<br>(1 digit)                                                                             |   | PACKAGING<br>(1 digit) |   |   | SPECIAL<br>(2 digits)                                     |   |   |   |
| MCR                 |   |   | L = Cement        | 0045 = 45 W<br>0100 = 100 W<br><br>Available sizes:<br>0045<br>0070<br>0100<br>0125 |   | R = Decimal<br>K = Thousand<br>R1500 = 0.15 Ω<br>1K500 = 1.5 kΩ<br><br>Check datasheet for available value range |   | J = ± 5.0 %<br>K = ± 10 % | A = 3/16" lug (3/16L)<br>B = A extended length (3/16XL)<br>H = 1/4" single quick-connect (1/4SQC) |   | B = Bulk               |   |   | 00 = Standard<br>NI = Non-inductive<br>SW = Surge winding |   |   |   |



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