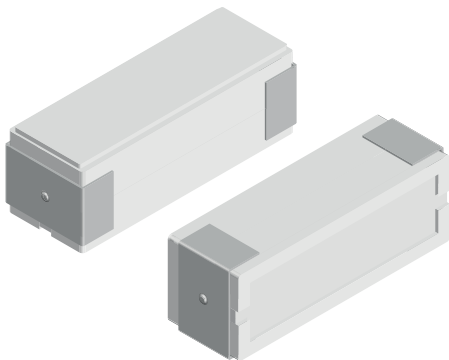




## Wirewound Resistors, Commercial Power, Surface Mount



### FEATURES

- High wattage in a SMD package
- Meets or performs better than EIA-RS-344 requirements
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package
- Superior surge capability
- Direct mounting on printed circuit board

Please reference the Vishay Dale closest equivalent: SM-5 ([www.vishay.com/doc?31812](http://www.vishay.com/doc?31812)).

### Notes

- There may be slight differences between the CP002M product and the SM-5 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-018-2015%20Rev%200.pdf](http://www.vishay.net/files/Cross-Reference%20Data%20-%20PTN-DR-018-2015%20Rev%200.pdf).

### STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING<br>$P_{40^{\circ}\text{C}}$<br>W | RESISTANCE RANGE<br>$\Omega$ | TOLERANCE<br>$\pm \%$ | WEIGHT (typical)<br>g |
|--------------|------------------|-----------------------------------------------|------------------------------|-----------------------|-----------------------|
| CP002M       | CP-2M            | 4                                             | 0.1 to 2.74K                 | 1, 3, 5, 10           | 1.6                   |

### TECHNICAL SPECIFICATIONS

| PARAMETER                       | UNIT                    | CP002M RESISTOR CHARACTERISTICS                              |
|---------------------------------|-------------------------|--------------------------------------------------------------|
| Temperature Coefficient         | ppm/ $^{\circ}\text{C}$ | $\pm 50$ 1.0 $\Omega$ and above, $\pm 90$ below 1.0 $\Omega$ |
| Short Time Overload             | -                       | See Performance table                                        |
| Dielectric Withstanding Voltage | $V_{AC}$                | 1000                                                         |
| Maximum Working Voltage         | V                       | $(P \times R)^{1/2}$                                         |
| Operating Temperature Range     | $^{\circ}\text{C}$      | -65 to +175                                                  |

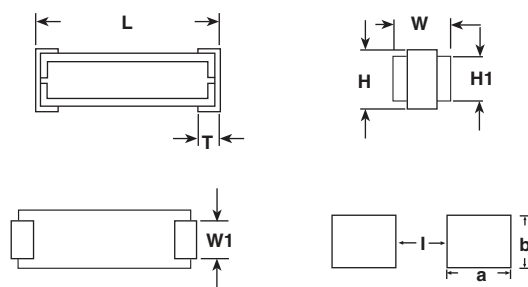
### PART NUMBER AND PRODUCT DESCRIPTION

Global Part Number example: CP002M15R00JB37

|                        |   |   |   |   |   |                                                                                         |   |   |                                                                                          |   |   |                                                           |   |                                                                                |  |  |  |
|------------------------|---|---|---|---|---|-----------------------------------------------------------------------------------------|---|---|------------------------------------------------------------------------------------------|---|---|-----------------------------------------------------------|---|--------------------------------------------------------------------------------|--|--|--|
| C                      | P | 0 | 0 | 2 | M | 1                                                                                       | 5 | R | 0                                                                                        | 0 | J | B                                                         | 3 | 7                                                                              |  |  |  |
| GLOBAL MODEL<br>CP002M |   |   |   |   |   | VALUE<br>R = decimal<br>K = thousand<br>R1500 = 0.15 $\Omega$<br>1K500 = 1.5 k $\Omega$ |   |   | TOLERANCE<br>F = $\pm 1.0 \%$<br>H = $\pm 3.0 \%$<br>J = $\pm 5.0 \%$<br>K = $\pm 10 \%$ |   |   | PACKAGING<br>B37 = tin/lead, bulk<br>P07 = tin/lead, tube |   | SPECIAL<br>(dash number)<br>(up to 3 digits)<br>from 1 to 999<br>as applicable |  |  |  |

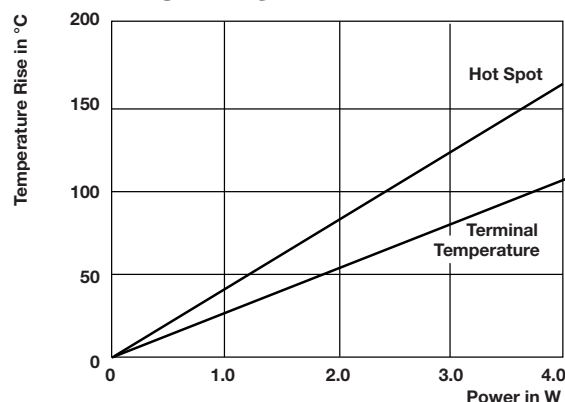
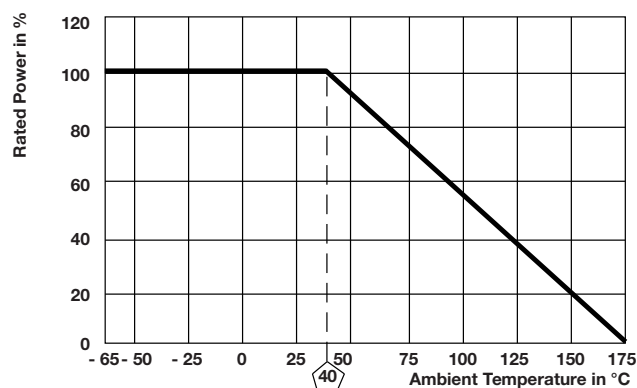
Historical Part Numbering example: CP-2M 15  $\Omega$  5 % B37

|                  |                  |                |           |
|------------------|------------------|----------------|-----------|
| CP-2M            | 15 $\Omega$      | 5 %            | B37       |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING |

**DIMENSIONS** in inches [millimeters]

| MODEL  | DIMENSIONS in inches [millimeters] |                         |                         |                                      |                                      |                         |
|--------|------------------------------------|-------------------------|-------------------------|--------------------------------------|--------------------------------------|-------------------------|
|        | L<br>± 0.032<br>[0.813]            | W<br>± 0.032<br>[0.813] | H<br>± 0.032<br>[0.813] | W <sub>1</sub><br>± 0.010<br>[0.254] | H <sub>1</sub><br>± 0.032<br>[0.813] | T<br>± 0.010<br>[0.254] |
| CP002M | 0.712<br>[18.08]                   | 0.250<br>[6.35]         | 0.262<br>[6.65]         | 0.170<br>[4.32]                      | 0.250<br>[6.35]                      | 0.100<br>[2.54]         |

| MODEL  | SOLDER PAD DIMENSIONS in inches [millimeters] |                 |                  |
|--------|-----------------------------------------------|-----------------|------------------|
|        | a                                             | b               | l                |
| CP002M | 0.280<br>[7.11]                               | 0.200<br>[5.08] | 0.460<br>[11.68] |

**TEMPERATURE RISE****DERATING****MATERIAL SPECIFICATIONS**

**Element:** copper-nickel alloy or nickel-chrome alloy depending on resistance value

**Core:** alumina ceramic

**Body:** steatite ceramic case with inorganic potting compound

**Terminals:** high temperature solder dipped copper

**Part Marking:** DALE, model, wattage, value, tolerance, date code

| PERFORMANCE                |                                                                |                                                |
|----------------------------|----------------------------------------------------------------|------------------------------------------------|
| TEST                       | CONDITIONS OF TEST                                             | TEST LIMITS                                    |
| Thermal Shock              | -55 °C to +150 °C, 5 cycles, 15 min at each extreme            | ± (0.2 % + 0.05 Ω) ΔR                          |
| Short Time Overload        | 3.5 x rated power for 5 s<br>5 x rated power for 5 s           | ± (0.5 % + 0.05 Ω) ΔR<br>± (4.0 % + 0.05 Ω) ΔR |
| Low Temperature Storage    | -65 °C for 24 h                                                | ± (0.2 % + 0.05 Ω) ΔR                          |
| High Temperature Condition | 1000 h at +175 °C                                              | ± (0.5 % + 0.05 Ω) ΔR                          |
| Insulation Resistance      | MIL-STD-202, method 302, 100 V                                 | 1000 MΩ min.                                   |
| Mechanical Shock           | 100 g's for 11 ms, 5 pulses                                    | ± (0.1 % + 0.05 Ω) ΔR                          |
| Vibration                  | Frequency varied 10 Hz to 500 Hz in one min, 3 directions, 9 h | ± (0.1 % + 0.05 Ω) ΔR                          |
| Load Life                  | 1000 h at rated power, +40 °C, 1.5 h "ON", 0.5 h "OFF"         | ± (1.0 % + 0.05 Ω) ΔR                          |
| Resistance to Solder Heat  | +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence          | ± (0.5 % + 0.05 Ω) ΔR                          |
| Bias Humidity              | +85 °C, 85 % RH, 10 % bias, 1000 h                             | ± (1.0 % + 0.05 Ω) ΔR                          |



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