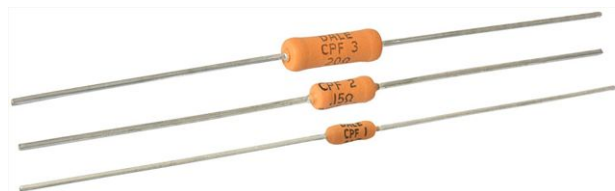




Metal Film Resistors, Industrial Power, Precision, Flameproof



FEATURES

- High power rating, small size
- Flameproof, high temperature coating
- Special filming and coating processes
- Excellent high frequency characteristics
- Low noise
- Low voltage coefficient
- Material categorization:

For definitions of compliance please see www.vishay.com/doc?99912



RoHS*
Available

Note

* This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information/tables in this datasheet for details.

STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | MAXIMUM WORKING VOLTAGE ⁽¹⁾ V | POWER RATING $P_{70^{\circ}\text{C}}$ W | RESISTANCE RANGE Ω | TOLERANCE $\pm \%$ | TEMPERATURE COEFFICIENT $\pm \text{ppm}/^{\circ}\text{C}$ |
|--------------|------------------|---|---|------------------------------|-------------------------|--|
| CPF1 | CPF-1 | 250 | 1 | 5 to 150K | 0.1, 0.25, 0.5, 1 | 25 |
| | | | | 5 to 150K | 0.1, 0.25, 0.5, 1, 2, 5 | 50 |
| | | | | 1 to 150K | 0.5, 1, 2, 5 | 100 |
| | | | | 0.5 to 150K | 1, 2, 5 | 150 |
| | | | | 0.5 to 150K | 1 | 200 |
| | | | | 0.1 to 150K | 2, 5 | 200 |
| CPF2 | CPF-2 | 350 | 2 | 5 to 150K | 0.1, 0.25, 0.5, 1 | 25 |
| | | | | 5 to 150K | 0.1, 0.25, 0.5, 1, 2, 5 | 50 |
| | | | | 1 to 150K | 0.5, 1, 2, 5 | 100 |
| | | | | 0.5 to 150K | 1, 2, 5 | 150 |
| | | | | 0.5 to 150K | 1 | 200 |
| | | | | 0.1 to 150K | 2, 5 | 200 |
| CPF3 | CPF-3 | 500 | 3 | 8 to 150K | 0.1, 0.25, 0.5, 1 | 25 |
| | | | | 8 to 150K | 0.1, 0.25, 0.5, 1, 2, 5 | 50 |
| | | | | 1 to 150K | 0.5, 1, 2, 5 | 100 |
| | | | | 1 to 150K | 1, 2, 5 | 150 |
| | | | | 1 to 150K | 1 | 200 |
| | | | | 0.1 to 150K | 2, 5 | 200 |

Note

⁽¹⁾ Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CPF1562R00FKR36 (preferred part numbering format)

| | | | | | | | | | | | | | | | | | |
|----------------------|---|---|--|---|---|---|---|---|---|---|---|--|---|---|---|--|--|
| C | P | F | 1 | 5 | 6 | 2 | R | 0 | 0 | F | K | R | 3 | 6 | | | |
| GLOBAL MODEL | | | RESISTANCE VALUE | | | TOLERANCE CODE | | | TEMPERATURE COEFFICIENT | | | PACKAGING | | | SPECIAL | | |
| CPF1 CPF2 CPF3 | | | R = Ω K = k Ω R10000 = 0.1 Ω 10R000 = 10 Ω 150K00 = 150 k Ω | | | B = $\pm 0.1 \%$ C = $\pm 0.25 \%$ D = $\pm 0.5 \%$ F = $\pm 1 \%$ G = $\pm 2 \%$ J = $\pm 5 \%$ | | | E = 25 ppm H = 50 ppm K = 100 ppm L = 150 ppm N = 200 ppm | | | E14 = Lead (Pb)-free, bulk E36 = Lead (Pb)-free, T/R (full) EE6 = Lead (Pb)-free, T/R (1000 pieces) B14 = Tin/lead, bulk R36 = Tin/lead, T/R (full) RE6 = Tin/lead, T/R (1000 pieces) | | | Blank = Standard (Dash Number) (Up to 3 digits) From 1 to 999 as applicable | | |

Historical Part Number example: CPF-15620FT-1 R36 (will continue to be accepted)

| | | | | |
|------------------|------------------|----------------|-------------------|-----------|
| CPF-1 | 5620 | F | T-1 | R36 |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | TEMP. COEFFICIENT | PACKAGING |

Note

- For additional information on packaging, refer to the Through-Hole Resistor Packaging document (www.vishay.com/doc?31544).

TEMPERATURE COEFFICIENT CODES

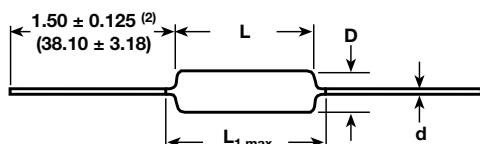
| GLOBAL TC CODE | HISTORICAL TC CODE | TEMPERATURE COEFFICIENT |
|----------------|--------------------|-------------------------|
| E | T-9 | 25 ppm/°C |
| H | T-2 | 50 ppm/°C |
| K | T-1 | 100 ppm/°C |
| L | T-0 | 150 ppm/°C |
| N | T-00 | 200 ppm/°C |

TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | CPF1 | CPF2 | CPF3 |
|---|------------------|------------------|------|------|
| Rated Dissipation at 70 °C | W | 1 | 2 | 3 |
| Limiting Element Voltage ⁽¹⁾ | V _≅ | 250 | 350 | 500 |
| Insulation Voltage | V _{eff} | 900 | 900 | 900 |
| Thermal Resistance | K/W | 85 | 60 | 50 |
| Insulation Resistance | Ω | 10 ¹⁰ | | |
| Category Temperature Range | °C | -65 °C/+230 °C | | |

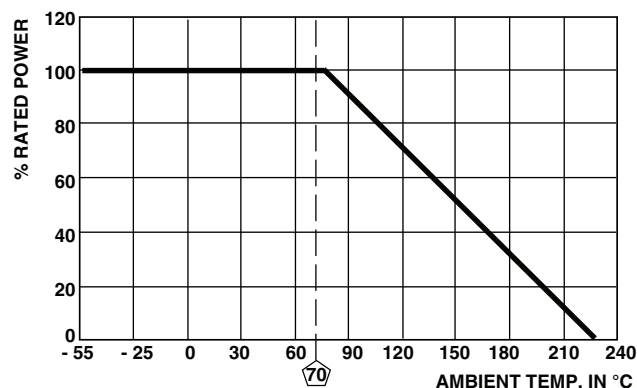
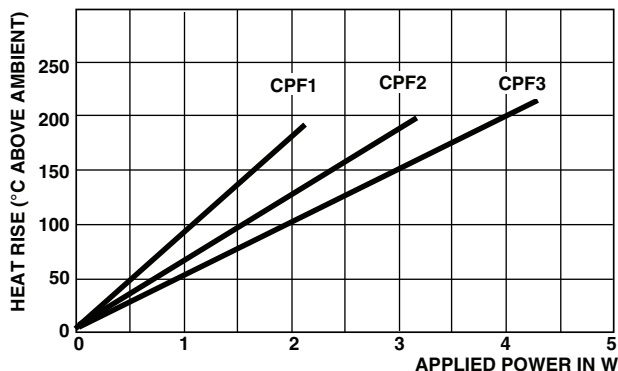
Note

⁽¹⁾ Rated voltage $\sqrt{P \times R}$

DIMENSIONS

Note

⁽²⁾ Lead length for product in bulk pack. For product supplied in tape and reel, the actual lead length would be based on the body size, tape spacing and lead trim.

| GLOBAL MODEL | DIMENSIONS in inches (millimeters) | | | |
|--------------|------------------------------------|---------------------------------|---------------------|--------------------------------|
| | L | D | L _{1 max.} | d |
| CPF1 | 0.240 ± 0.020 (6.10 ± 0.51) | 0.090 ± 0.008 (2.29 ± 0.20) | 0.310 (7.87) | 0.025 ± 0.002 (0.64 ± 0.05) |
| CPF2 | 0.344 ± 0.031 (8.74 ± 0.79) | 0.145 ± 0.015 (3.68 ± 0.38) | 0.425 (10.80) | 0.032 ± 0.002 (0.81 ± 0.05) |
| CPF3 | 0.555 ± 0.041 (14.10 ± 1.04) | 0.180 ± 0.015 (4.57 ± 0.381) | 0.650 (16.51) | 0.032 ± 0.002 (0.81 ± 0.05) |


DERATING
THERMAL RESISTANCE
Note

- Surface temperatures were taken with an infrared pyrometer in +25 °C still air. Resistors were supported by their leads in test clips at a point 0.500" (12.70 mm) out from the resistor body ends.

| MATERIAL SPECIFICATIONS | |
|-------------------------|---|
| Element | Proprietary nickel-chrome alloy |
| Core | Cleaned high purity ceramic |
| Coating | Special high temperature conformal coat |
| Termination | Standard lead material is solder-coated Solderable and weldable per MIL-STD-1276, Type C |

| MECHANICAL SPECIFICATIONS | |
|---------------------------|---|
| Terminal Strength | 2 pound pull test |
| Solderability | Continuous satisfactory coverage when tested in accordance with MIL-STD-202, Method 208 |

**MARKING**

Temperature Coefficient: T00 = 200 ppm, T0 = 150 ppm, T1 = 100 ppm, T2 = 50 ppm, T9 = 25 ppm

CPF1, CPF2, CPF3: (5 lines)

| | |
|-----------------|---------------------|
| DALE | Manufacturer's name |
| CPF-1 | Style and size |
| 49.9 k Ω | Value |
| 1 % T2 | Tolerance and TC |
| 1208 | 4-digit date code |

PERFORMANCE

| TEST | MAX. ΔR (TYPICAL TEST LOTS) |
|---------------------------------|-------------------------------------|
| Thermal Shock | ± 1.0 % |
| Short Time Overload | ± 0.5 % |
| Low Temperature Operation | ± 0.5 % |
| Moisture Resistance | ± 1.5 % |
| Resistance to Soldering Heat | ± 0.5 % |
| Shock | ± 0.5 % |
| Vibration | ± 0.5 % |
| Terminal Strength | ± 0.5 % |
| Dielectric Withstanding Voltage | ± 0.5 % |
| Life | ± 2.0 % |



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