



Metal Film Resistors, Axial, Industrial Power, Precision, Flameproof



FEATURES

- High power rating, small size
- Flameproof, high temperature silicone 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



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 °C} W | RESISTANCE RANGE Ω | TOLERANCE ± % | TEMPERATURE COEFFICIENT ± ppm/°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 = kΩ R10000 = 0.1 Ω 10R000 = 10 Ω 150K00 = 150 kΩ | | B = ± 0.1 % C = ± 0.25 % D = ± 0.5 % F = ± 1 % G = ± 2 % J = ± 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

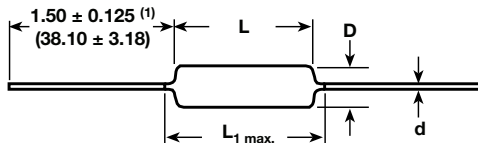
• For additional information on packaging, refer to the Through-Hole Resistor Packaging document (www.vishay.com/doc?31544).

| 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 | | |

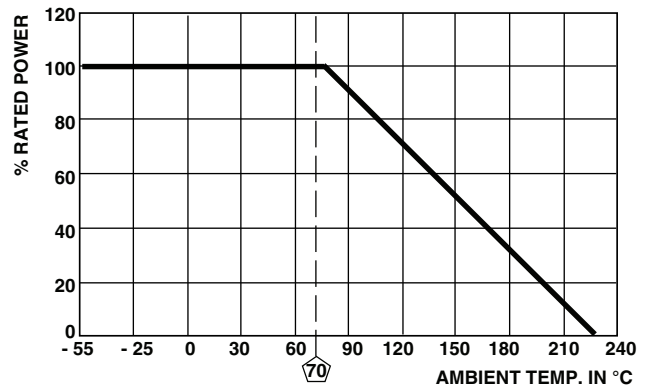
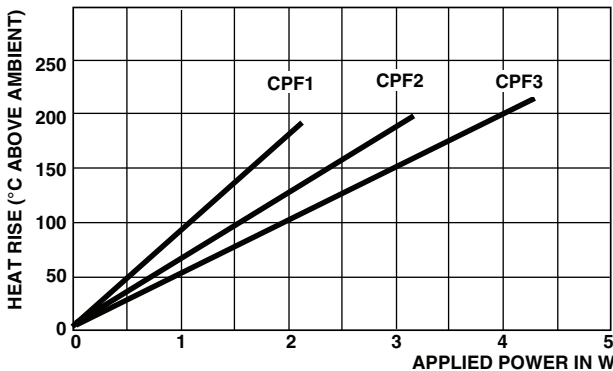
Note

(1) Rated voltage $\sqrt{P \times R}$

DIMENSIONS

Note

(1) 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 kΩ | 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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