

# 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](http://www.vishay.com/doc?99912)



**RoHS\***  
COMPLIANT

### Note

\* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

## STANDARD ELECTRICAL SPECIFICATIONS

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

### Note

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

## TEMPERATURE COEFFICIENT CODES

GLOBAL TC CODE	HISTORICAL TC CODE	TEMPERATURE COEFFICIENT
E	T-9	25 ppm/ $^{\circ}\text{C}$
H	T-2	50 ppm/ $^{\circ}\text{C}$
K	T-1	100 ppm/ $^{\circ}\text{C}$
L	T-0	150 ppm/ $^{\circ}\text{C}$
N	T-00	200 ppm/ $^{\circ}\text{C}$

## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CPF1	CPF2	CPF3
Rated Dissipation at 70 $^{\circ}\text{C}$	W	1	2	3
Limiting Element Voltage <sup>(2)</sup>	V $\cong$	250	350	500
Insulation Voltage	V <sub>eff</sub>	900	900	900
Thermal Resistance	K/W	85	60	50
Insulation Resistance	$\Omega$	10 <sup>10</sup>		
Category Temperature Range	$^{\circ}\text{C}$	- 65 $^{\circ}\text{C}$ /+ 230 $^{\circ}\text{C}$		

### Note

<sup>(2)</sup> Rated voltage  $\sqrt{P \times R}$

## 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

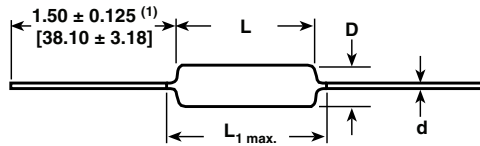
GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	TEMPERATURE COEFFICIENT	PACKAGING	SPECIAL
CPF1 CPF2 CPF3	R = $\Omega$ K = k $\Omega$ R10000 = 0.1 $\Omega$ 10R000 = 10 $\Omega$ 150K00 = 150 k $\Omega$	B = $\pm 0.1 \%$ C = $\pm 0.25 \%$ D = $\pm 0.5 \%$ F = $\pm 1 \%$ G = $\pm 2 \%$ J = $\pm 5 \%$	E = 25 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

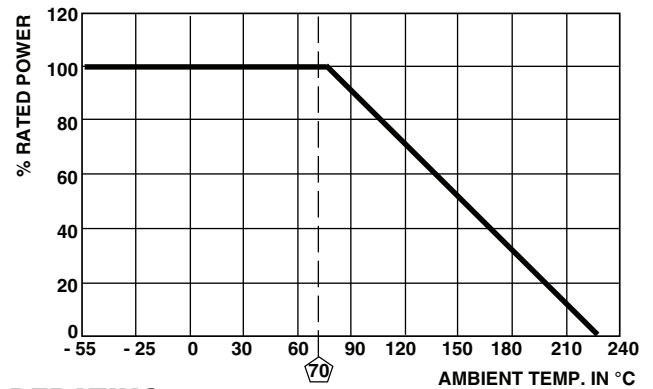
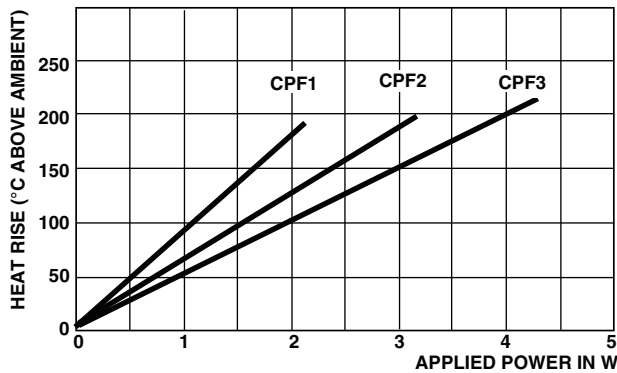
### Note

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

**DIMENSIONS**

**Notes**

- (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.
- 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.

GLOBAL MODEL	DIMENSIONS in inches (millimeters)			
	L	D	L <sub>1 max.</sub>	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)


**THERMAL RESISTANCE**

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

**DERATING**

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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