

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 **RoHS***
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 ⁽¹⁾ V	RESISTANCE RANGE Ω					
				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

⁽¹⁾ 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 ⁽²⁾	V $\cong$	250	350	500
Insulation Voltage	V $_{\text{eff}}$	900	900	900
Thermal Resistance	K/W	85	60	50
Insulation Resistance	Ω	10 ¹⁰		
Category Temperature Range	$^{\circ}\text{C}$	- 65 $^{\circ}\text{C}$ /+ 230 $^{\circ}\text{C}$		

Note

⁽²⁾ 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 = 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).

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.



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

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

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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Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

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