

# 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
- Compliant to RoHS directive 2002/95/EC



RoHS\*  
COMPLIANT

## STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{70\text{ }^\circ\text{C}}$ 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

### Notes

- Marking: Print marked - DALE, model, resistance value, tolerance/temperature coefficient, date code
- <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>(1)</sup>	V $\approx$	250	350	500
Insulation Voltage	V-	900	900	900
Thermal Resistance	K/W	85	60	50
Insulation Resistance	$\Omega$	10 <sup>10</sup>		
Category Temperature Range	$^\circ\text{C}$	- 65 $^\circ\text{C}/+ 230\text{ }^\circ\text{C}$		

### Note

- <sup>(1)</sup> Rated voltage  $\sqrt{P \times R}$

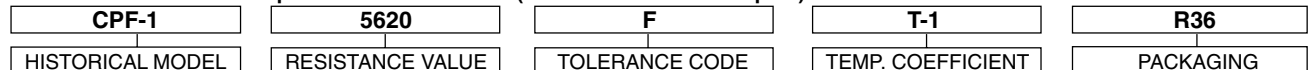
## GLOBAL PART NUMBER INFORMATION

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

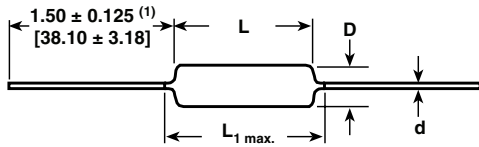


GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	TEMPERATURE COEFFICIENT	PACKAGING	SPECIAL
CPF1 CPF2 CPF3	R = $\Omega$ K = k $\Omega$ R10000 = 0.1 $\Omega$ 10R000 = 10 $\Omega$ 150K00 = 150 k $\Omega$	B = $\pm 0.1\%$ C = $\pm 0.25\%$ D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$	E = 25 ppm H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

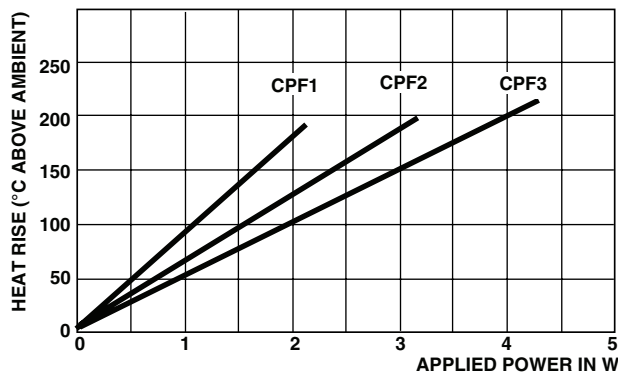
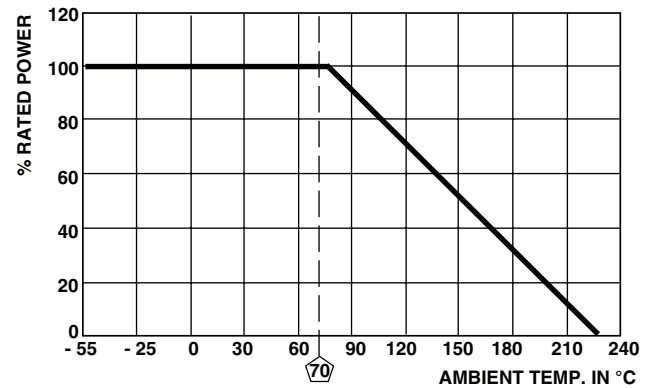


\* Pb containing terminations are not RoHS compliant, exemptions may apply

**DIMENSIONS**

**Notes**

- (1)  $1.08 \pm 0.125$  ( $27.43 \pm 3.18$ ) if tape and reel
- 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**

**DERATING**

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

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 %



## Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.