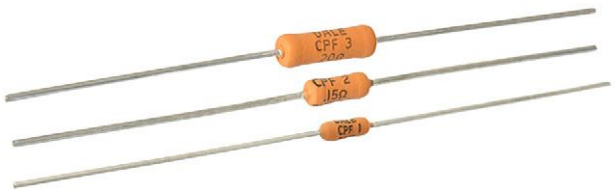
Metal Film Resistors, Axial, Industrial Power, Precision, Flameproof



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

Pb-free Available

e3 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 $P_{70\,°C}$ 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
				0.2 to 150K	2, 5	200
				0.1 to 150K	2, 5	300
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
				0.2 to 150K	2, 5	200
				0.1 to 150K	2, 5	300
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
				0.2 to 150K	2, 5	200
				0.1 to 150K	2, 5	300

Note

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

For technical questions, contact: ff2aresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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 **M** = 300 ppm	**E14** = lead (Pb)-free, bulk **E36** = lead (Pb)-free, T/R (full) **EE6** = lead (Pb)-free, T/R (1000 pcs) **B14** = tin / lead, bulk **R36** = tin / lead, T/R (full) **RE6** = tin / lead, T/R (1000 pcs)	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
M	M	300 ppm/°C

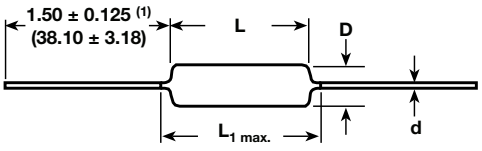
TECHNICAL SPECIFICATIONS

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



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)

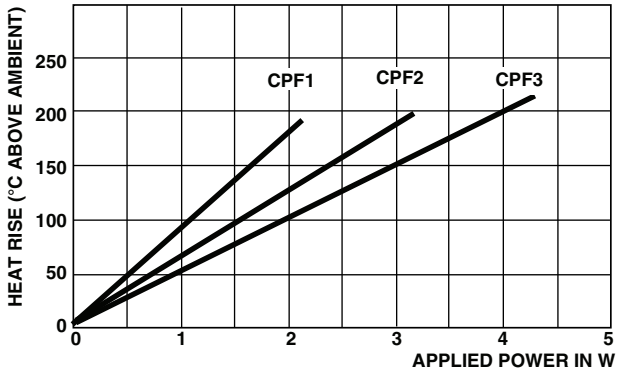
Note

(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

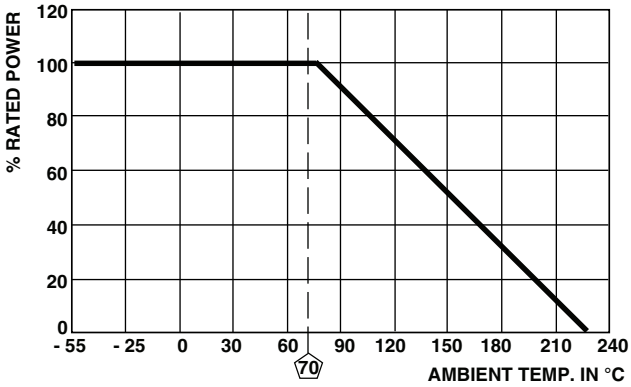
For technical questions, contact: ff2aresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

THERMAL RESISTANCE



DERATING



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, M = 300 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 %

For technical questions, contact: ff2aresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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 in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

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

© 2024 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED