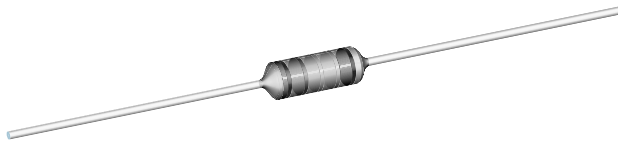




# Metal Film Resistors, Industrial Power, Flameproof



### FEATURES

- Small size suitable for 1/2 W, 1 W and 2 W applications
- High power rating, small size
- Flameproof, high temperature coating meets EIA RS-325-A
- Excellent high frequency characteristics
- Low noise
- Low voltage coefficient
- Tape and reel packaging for automatic insertion (52.4 mm inside tape spacing per EIA-296-E)
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS\* COMPLIANT HALOGEN FREE

### 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	TEMPERATURE COEFFICIENT $\pm$ ppm/ $^\circ\text{C}$	TOLERANCE $\pm$ %	RESISTANCE RANGE $\Omega$	E-SERIES
CCF02	CCF-2	2.0	350	100	1, 5	4.99 to 1M	96 for 1 % tolerance 24 for 5 % tolerance

### Note

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

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	CCF02
Rated Dissipation at 70 °C	W	2.0
Maximum Working Voltage	V	$\leq$ 350
Insulation Voltage (1 Min)	$V_{\text{eff}}$	$>$ 500
Dielectric Strength	$V_{\text{AC}}$	900
Insulation Resistance	$\Omega$	$\geq$ $10^{11}$
Operating Temperature Range	$^\circ\text{C}$	- 65/+ 230
Terminal Strength (Pull Test)	lb	2
Failure Rate	$10^{-9}/\text{h}$	$<$ 1
Weight (Max.)	g	0.35

MATERIAL SPECIFICATIONS	
Element	Proprietary nickel-chrome film
Solderability	Satisfactory per MIL-STD-202, Method 208.
Core	Fire-cleaned high purity ceramic
Termination	Standard lead material is solder-coated copper. Solderable and weldable per MIL-STD-1276, Type C.

MARKING
Color code marking with 5 color bands for $\pm$ 1 % product and 4 color bands for $\pm$ 5 % product

### GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CCF02301RFKR36 (preferred part numbering format)

C	C	F	0	2	3	0	1	R	F	K	R	3	6			
GLOBAL MODEL		RESISTANCE VALUE				TOLERANCE CODE		TEMPERATURE COEFFICIENT		PACKAGING			SPECIAL			
CCF02		R = $\Omega$ K = $\text{k}\Omega$ M = $\text{M}\Omega$ 4R99 = 4.99 $\Omega$ 680K = 680 $\text{k}\Omega$ 1M00 = 1.0 $\text{M}\Omega$				F = $\pm$ 1 % J = $\pm$ 5 %		K = 100 ppm		E36 = Lead (Pb)-free, T/R (2500 pieces) R36 = Tin/Lead, T/R (2500 pieces)			Blank = Standard (Dash Number) (up to 3 digits) From 1 to 999 as applicable			

Historical Part Number example: CCF-23010F (will continue to be accepted)

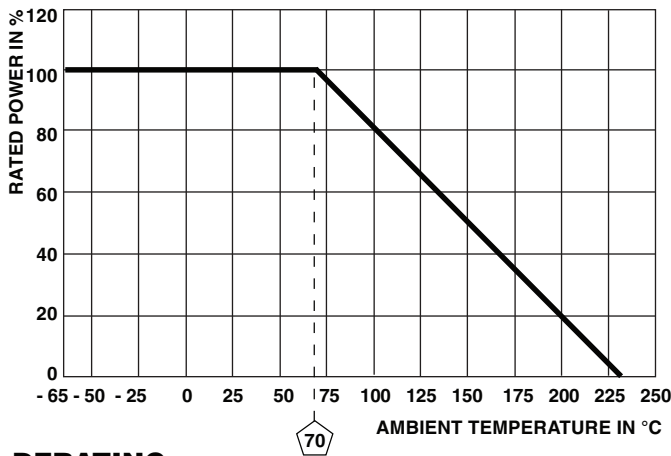
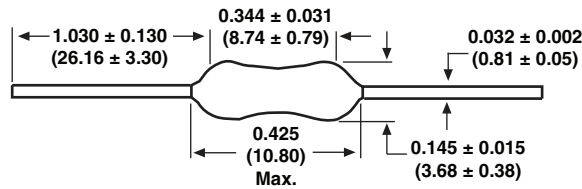
CCF-2	3010	F	R36
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

### 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)).



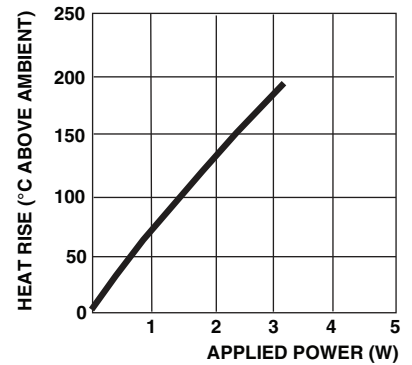
**DIMENSIONS** in inches (millimeters)



**DERATING**

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 0.5" (12.70 mm) out from the resistor body ends.



**THERMAL RESISTANCE**

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.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

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