Metal Film Resistors, Industrial, ± 1 % Tolerance

FEATURES

- Power ratings: 1/2 W, 3/4 W and 1 W at + 70 °C
- ± 100 ppm/°C temperature coefficient
- Superior electrical performance
- Flame retardant epoxy conformal coating
- Standard 5 band color code marking for ease of identification after mounting
- 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

Pb-free Available

e3 RoHS* COMPLIANT

Note

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

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{70\,°C}$ W	MAXIMUM WORKING VOLTAGE (1) V	TEMPERATURE COEFFICIENT ± ppm/°C	TOLERANCE ± %	RESISTANCE RANGE Ω	E-SERIES
CCF60	CCF-60	1.0	500	100	1	10 to 1M	96

Note

- Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less.

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CCF60
Rated Dissipation at 70 °C	W	1.0
Maximum Working Voltage	V	≤ 500
Insulation Voltage (1 Min)	V_{eff}	500
Dielectric Strength	V_{AC}	450
Insulation Resistance	Ω	≥ 10^{11}
Operating Temperature Range	°C	- 65 to + 165
Terminal Strength (Pull Test)	lb	2
Weight	g	0.75 max.

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CCF60301RFKR36 (preferred part numbering format)

C	C	F	6	0	3	0	1	R	F	K	R	3	6

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	TEMPERATURE COEFFICIENT	PACKAGING
CCF60	**R** = Ω **K** = kΩ **M** = MΩ **10R0** = 10 Ω **680K** = 680 kΩ **1M00** = 1.0 MΩ	**F** = ± 1 %	**K** = 100 ppm	**E36** = Lead (Pb)-free, T/R (2500 pieces) **R36** = Tin/lead, T/R (2500 pieces)

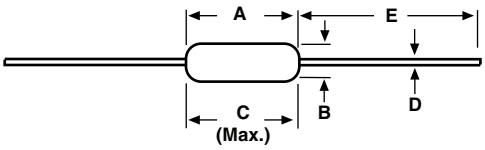
Historical Part Number example: CCF-603010F R36 (will continue to be accepted)

CCF-60	3010	F	R36
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

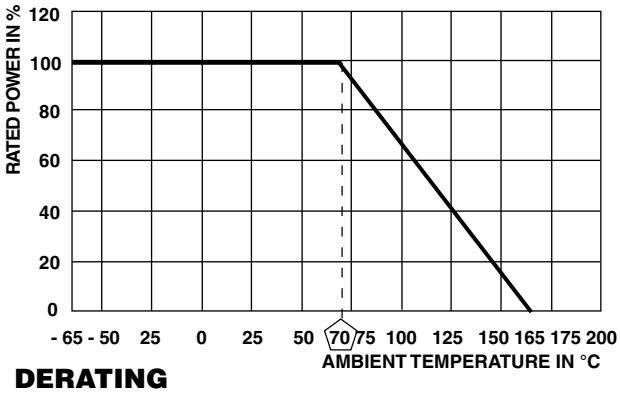
Note

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

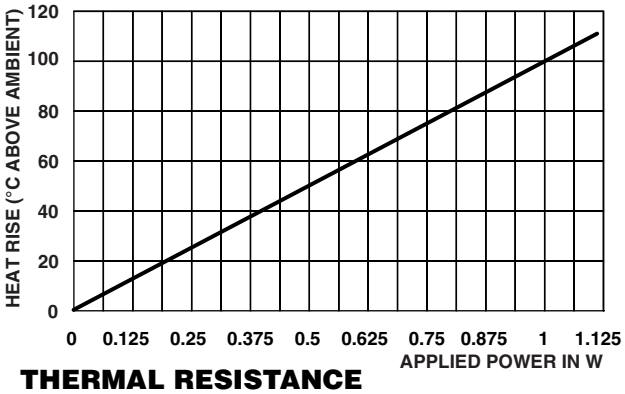
DIMENSIONS in inches (millimeters)



GLOBAL MODEL	A	B	C (Max.)	D	E
CCF60	0.344 ± 0.031 (8.74 ± 0.79)	0.139 ± 0.009 (3.53 ± 0.23)	0.400 (10.16)	0.025 ± 0.002 (0.64 ± 0.05)	1.000 ± 0.040 (25.40 ± 1.02)



DERATING



THERMAL RESISTANCE

RESISTANCE VALUES

Vishay Dale model CCF60 is available in the standard 96 resistance values per decade. Values are obtained from the following decade table by multiplying by powers of 10. As an example: 30.1 can represent 30.1 Ω, 301 Ω, 3.01 kΩ, 30.1 kΩ or 301 kΩ.

10.0	14.7	21.5	31.6	46.4	68.1
10.2	15.0	22.1	32.4	47.5	69.8
10.5	15.4	22.6	33.2	48.7	71.5
10.7	15.8	23.2	34.0	49.9	73.2
11.0	16.2	23.7	34.8	51.1	75.0
11.3	16.5	24.3	35.7	52.3	76.8
11.5	16.9	24.9	36.5	53.6	78.7
11.8	17.4	25.5	37.4	54.9	80.6
12.1	17.8	26.1	38.3	56.2	82.5
12.4	18.2	26.7	39.2	57.6	84.5
12.7	18.7	27.4	40.2	59.0	86.6
13.0	19.1	28.0	41.2	60.4	88.7
13.3	19.6	28.7	42.2	61.9	90.9
13.7	20.0	29.4	43.2	63.4	93.1
14.0	20.5	30.1	44.2	64.9	95.3
14.3	21.0	30.9	45.3	66.5	97.6

MARKING

Color code marking with 5 color bands

PERFORMANCE

POWER RATING AT + 70 °C	MAXIMUM ΔR (TYPICAL TEST LOTS)	
CCF60	1/2 W	3/4 W and 1 W
TEST [1]		
Thermal Shock	± 0.5 %	-
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 %	-
Life	± 0.5 %	± 1.0 %
Terminal Strength	± 0.2 %	-
Dielectric Withstanding Voltage	± 0.5 %	-

Note

[1] Test methods per MIL-STD-202

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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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