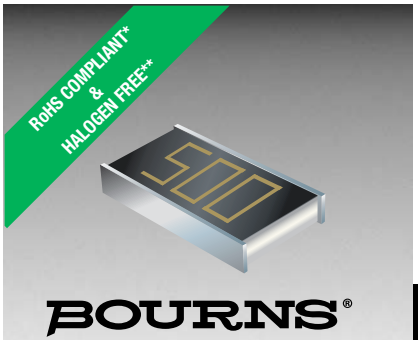


Features

- Wide terminal type
- Excellent heat dissipation
- Low inductance <5 nH
- Low thermal EMF <3 µV/°C
- High reliability
- Metal foil
- RoHS compliant* and halogen free**

Applications

- Current sensing
- Power supplies
- Stepper motor drives
- Input amplifiers

CFG Series Metal Foil, Wide Terminal Current Sense Resistor

Electrical Characteristics

Characteristic	CFG0612
Power Rating @ 70 °C	1 W
Resistance Value	5 mΩ, 10 mΩ
Operation Temperature Range	-55 °C ~ +155 °C
Temperature Coefficient of Resistance	±100 ppm/°C
Tolerance	±1 %
Insulation Resistance	Over 100 MΩ
Maximum Working Voltage (V)	$(P*R)^{1/2}$

Note: 1 watt with total solder pad and trace size of 300 mm²

Additional Information

Click these links for more information:

PRODUCT | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Reliability Tests

Test Items	Reference Standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1-4.8 JIS-C5201-4.8	+25 °C ~ +125 °C	—
Load Life	IEC60115-1-4.25.1 JIS-C5201-4.25.1	1000 hours at rated power, 70 °C, 1.5 hours “ON”, 0.5 hour “OFF”	< ±2 %
Short Time Overload	IEC60115-1-4.13 JIS-C5201-4.13	5 X rated power for 5 s	< ±1 %
Moisture no Load	IEC60115-1- 4.24.2.1a) JIS-C5201- 4.24.2.1a)	85 °C, 85 %RH, 1000 hrs	< ±2 %
Damp Heat with Load	IEC60115-1- 4.24 JIS-C5201-1 4.24	40 ±2 °C with relative humidity 90 to 95 %. D.C. rated power for 1.5 hours ON and 30 minutes OFF. Cycle repeated 1,000 hours	< ±1 %
Temperature Cycle	IEC60115-1-4.19 JIS-C5201-4.19	-55 °C & +125 °C, 100 cycle, 15 min per extreme condition	< ±1 %
Resistance to Soldering Heat	IEC60115-1-4.18 JIS-C5201-4.18	260 ±5 °C for 10 ±1 sec	< ±1 %
Solderability	IEC60115-1-4.17 JIS-C5201-4.17	245 ±5 °C, 2 ±0.5 sec	At least 95 % of surface area of electrode shall be covered with new solder
High Temperature Exposure	IEC60115-1- 4.23.2 JIS-C5201-4.23.2	155 °C, 1000 hrs	< ±2 %
Low Temperature Storage	EC60115-1- 4.23.4 JIS-C5201-4.23.4	-55 °C, 1000 hrs	< ±2 %
Substrate Bending	IEC60115-1-4.33 JIS-C5201-4.33	Bending width 2 mm	< ±1 %
Insulation Resistance	IEC60115-1-4.6 JIS-C5201-4.6	100 V DC for 1 minute	>100 MΩ

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

** Bourns considers a product to be “halogen free” if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

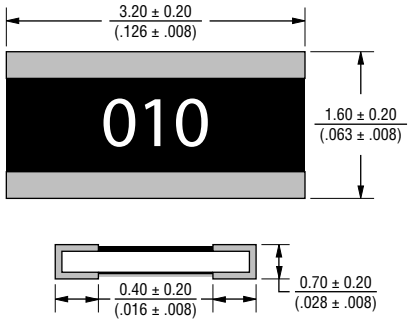
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CFG Series Metal Foil, Wide Terminal Current Sense Resistor

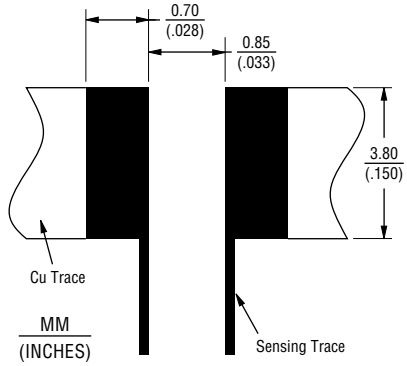
BOURNS®

Product Dimensions



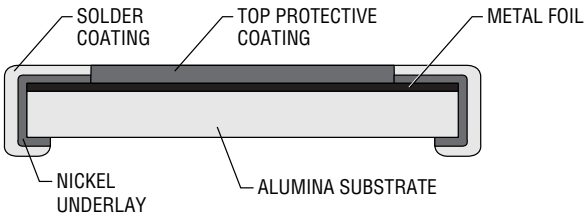
DIMENSIONS: MM / (INCHES)

Recommended Solder Pad Dimensions



DIMENSIONS: MM / (INCHES)

Construction



Environmental Characteristics

Storage Conditions
- Temperature .....+5 °C ~ +35 °C
- Humidity .....40 % ~ 75 %

Shelf Life.....2 years from manufacturing date
Solder Recommendations..... Reflow profile
(Solder: Sn96.5 / Ag3 / Cu0.5)
Moisture Sensitivity Level..... 1

Rated Voltage

The rated voltage is calculated by the following formula:

$V = \sqrt{P \times R}$
$I = \sqrt{P \div R}$

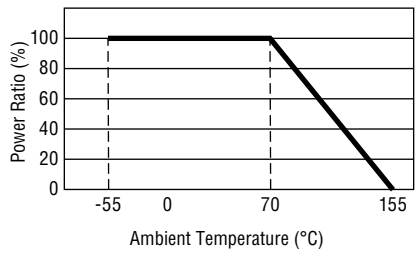
V: Rated Voltage (V)
I: Rated Current (Ω)
P: Rated Power (W)
R: Resistance Value (Ω)

Popular Resistance Values*

Code	Resistance Value (milliohms
R005	5
R010	10

*Please consult factory for other resistance values

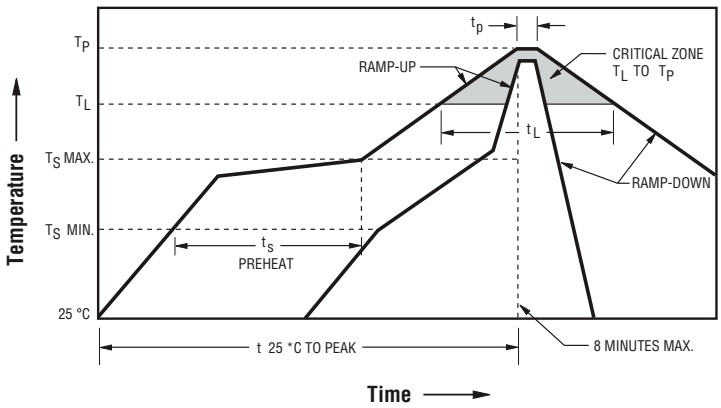
Derating Curve



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Solder Reflow Recommendations



Solder Profile	Lead Free Assembly
Average ramp-up rate (T_{smax} to T_p)	3 °C / second max.
Preheat: - Temperature Min. (T_{smin}) - Temperature Max. (T_{smax}) - Time (T_{smin} to T_{smax}) (t_s)	 150 °C 200 °C 60~150 seconds
Time maintained above: - Temperature (T_L) - Time (T_L)	 217 °C 60~120 seconds
Peak Temperature (T_p)	260 °C
Time within +0/-5 °C of actual Peak Temperature (T_p)[2]	10 seconds
Ramp-down rate	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.

How to Order

CFG 0612 - F X - R005 E LF

Model
CFG = Metal Foil, Wide Terminal Current Sense Resistor

Size
0612 = 0612 Size

Resistance Tolerance
F = ±1 %

TCR
X = ±100 PPM/°C

Resistance Code – (See Popular Resistance Table)
"R" (decimal point) followed by three significant digits *(example: R005 = 0.005 ohms)*

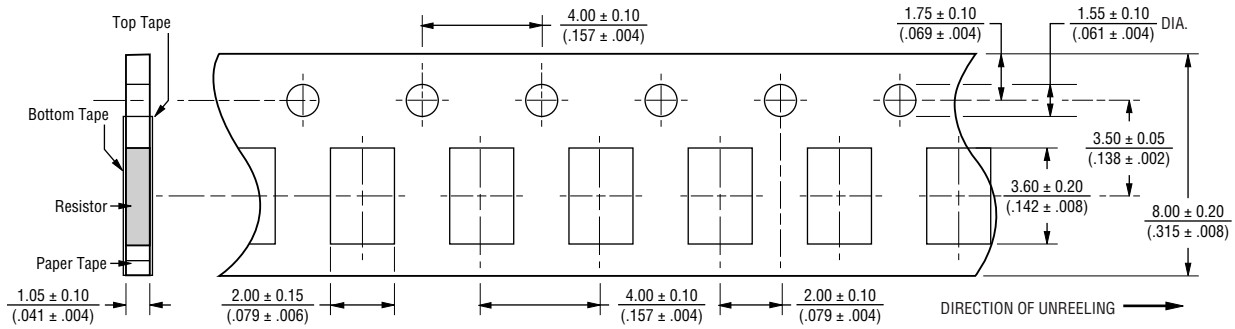
Packaging
E = Tape and Reel
4,000 pcs. / 7-inch reel, paper tape

Termination
LF = Tin-plated (RoHS Compliant)

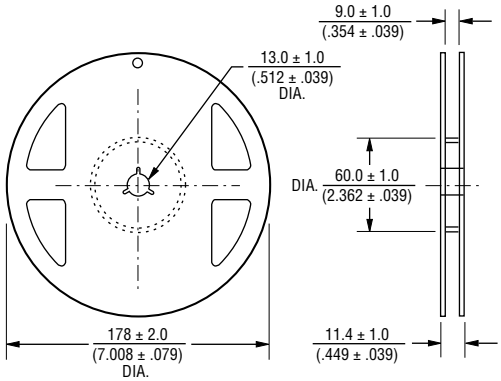
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Packaging Dimensions (Conforms to EIA RS-481A)



DIMENSIONS: MM / (INCHES)



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REV. 06/21

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