

## Features

- Metal foil
- High power density
- High reliability and stability
- RoHS compliant\* and halogen free\*\*

## Applications

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

# CFN Series Metal Foil, Current Sense Resistor

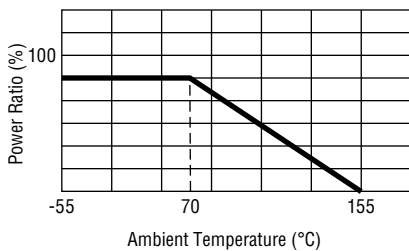
## Electrical Characteristics

Characteristic	CFN0805	CFN1206
Power Rating @ 70 °C	0.5 W	1 W
Resistance Value	5 mΩ, 10 mΩ, 20 mΩ	
Operation Temperature Range	-55 °C ~ +155 °C	
Temperature Coefficient of Resistance	±100 ppm/°C	
Tolerance	±1 %, ±5 %	

## Reliability Tests

Test Items	Condition of Test	ΔR Maximum
Load Life	1000 hours at rated power, 70 °C, 1.5 hours "ON", 0.5 hour "OFF"	< ±1 %
Short Time Overload	5 X rated power for 5 s	< ±1 %
Moisture no Load	85 °C, 85 %RH, 1000 hrs	< ±1 %
Temperature Cycle	-55 °C & +155 °C, 100 cycle, 15 min per extreme condition	< ±1 %
Resistance to Soldering Heat	260 ±5 °C for 10 ±1 sec	< ±0.5 %
Solderability	245 ±5 °C, 2 ±0.5 sec	At least 95 % of surface area of electrode shall be covered with new solder
High Temperature Exposure	155 °C, 1000 hrs	< ±1 %
Low Temperature Storage	-55 °C, 1000 hrs	< ±1 %
Substrate Bending	Bending width 2 mm	< ±0.5 %
Insulation Resistance	100 V DC for 1 minute	>100 MΩ

## Derating Curve



## 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



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

\*\* 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.

Specifications are subject to change without notice.

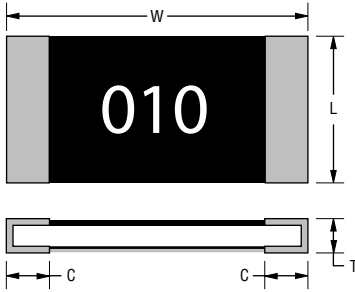
Users should verify actual device performance in their specific applications.

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# CFN Series Metal Foil, Current Sensing Chip Resistor

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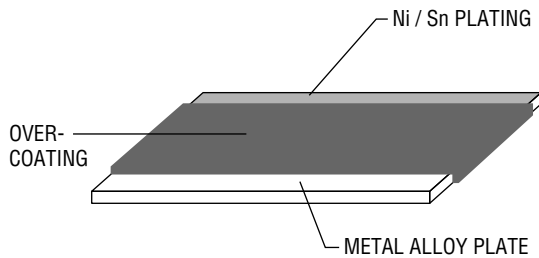
## Product Dimensions



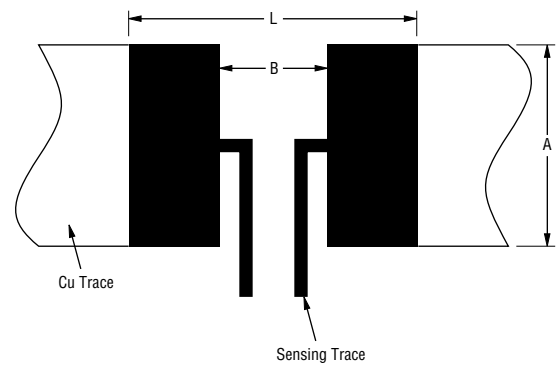
	W	L	D	t
<b>CFN0805</b>	$2.00 \pm 0.20$ (.079 ± .008)	$1.25 \pm 0.20$ (.049 ± .008)	$0.40 \pm 0.20$ (.016 ± .008)	$0.70 \pm 0.20$ (.028 ± .008)
<b>CFN1206</b>	$3.20 \pm 0.20$ (.126 ± .008)	$1.60 \pm 0.20$ (.063 ± .008)	$0.50 \pm 0.20$ (.020 ± .008)	$0.70 \pm 0.20$ (.028 ± .008)

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

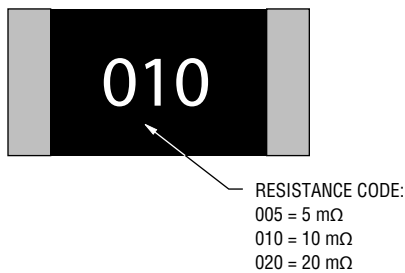
## Construction



## Recommended Solder Pad Dimensions



## Marking



## Popular Resistance Values\*

Code	Resistance Value (milliohms)
R005	5
R010	10
R020	20

\*Please consult factory for other resistance values

		A	L	B
<b>CFN0805</b>	$6 \leq R < 10$	1.40 (.055)	3.20 (.126)	0.80 (.031)
	$10 \leq R \leq 30$			1.20 (.047)
<b>CFN1206</b>	$6 \leq R < 10$			1.20 (.047)
	$10 \leq R < 20$	1.80 (.071)	4.70 (.185)	1.80 (.071)
	$20 \leq R \leq 40$			2.20 (.087)

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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# CFN Series Metal Foil, Current Sensing Chip Resistor

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## Solder Reflow Recommendations



Solder Profile	Lead Free Assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3 °C / second max.
Preheat: - Temperature Min. (T <sub>smin</sub> ) - Temperature Max. (T <sub>smax</sub> ) - Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	150 °C 200 °C 60~150 seconds
Time maintained above: - Temperature (T <sub>L</sub> ) - Time (T <sub>L</sub> )	217 °C 60~120 seconds
Peak Temperature (T <sub>p</sub> )	260 °C
Time within +0/-5 °C of actual Peak Temperature (T <sub>p</sub> ) <sup>2</sup>	10 seconds
Ramp-down rate	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.

## How to Order

CFN 0805 - F X - R005 E LF

Model \_\_\_\_\_  
CFN = Metal Foil Current Sense Resistor

Size \_\_\_\_\_  
0805 = 0805 Size  
1206 = 1206 Size

Resistance Tolerance \_\_\_\_\_  
F = ±1 %  
J = ±5 %

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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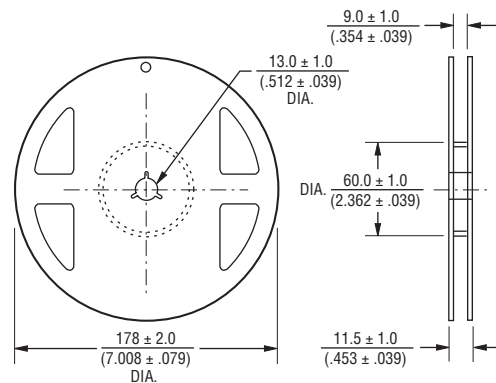
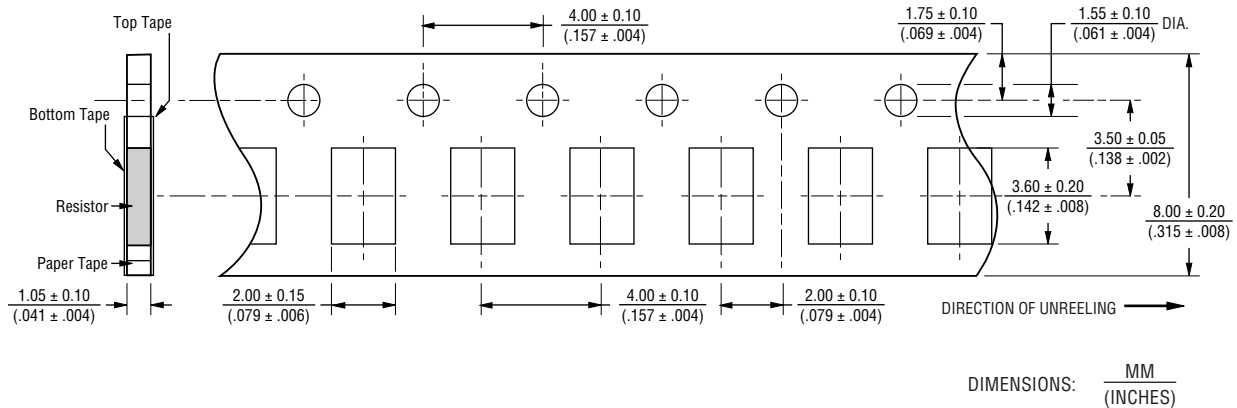
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# CFN Series Metal Foil, Current Sensing Chip Resistor

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## Packaging Dimensions (Conforms to EIA RS-481A)



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