

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

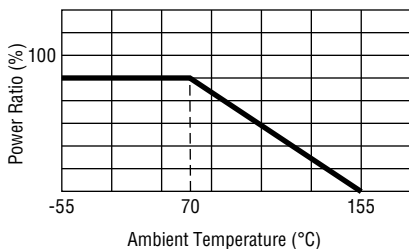
Electrical Characteristics

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

* 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.

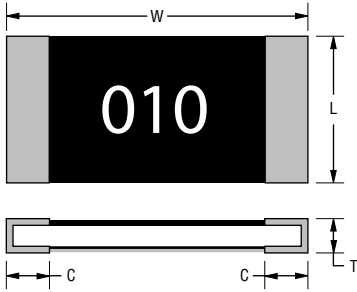
Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

CFN Series Metal Foil, Current Sensing Chip Resistor

BOURNS®

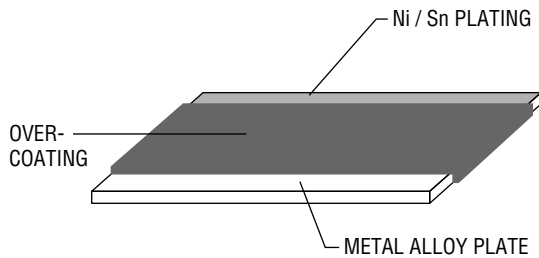
Product Dimensions



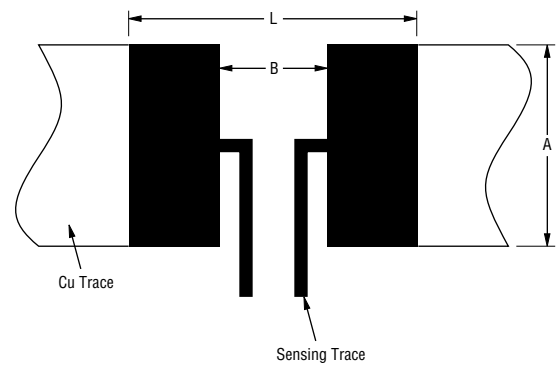
	W	L	D	t
CFN0805	2.00 ± 0.20 (.079 ± .008)	1.25 ± 0.20 (.049 ± .008)	0.40 ± 0.20 (.016 ± .008)	0.70 ± 0.20 (.028 ± .008)
CFN1206	3.20 ± 0.20 (.126 ± .008)	1.60 ± 0.20 (.063 ± .008)	0.50 ± 0.20 (.020 ± .008)	0.70 ± 0.20 (.028 ± .008)

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

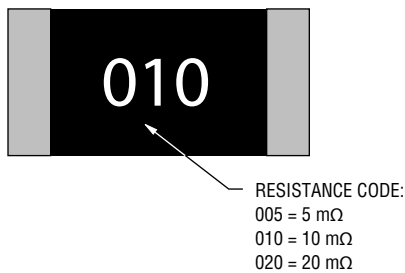
Construction



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
CFN0805	$6 \leq R < 10$	1.40 (.055)	3.20 (.126)	0.80 (.031)
	$10 \leq R \leq 30$			1.20 (.047)
CFN1206	$6 \leq R < 10$			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: $\frac{\text{MM}}{\text{(INCHES)}}$

Specifications are subject to change without notice.

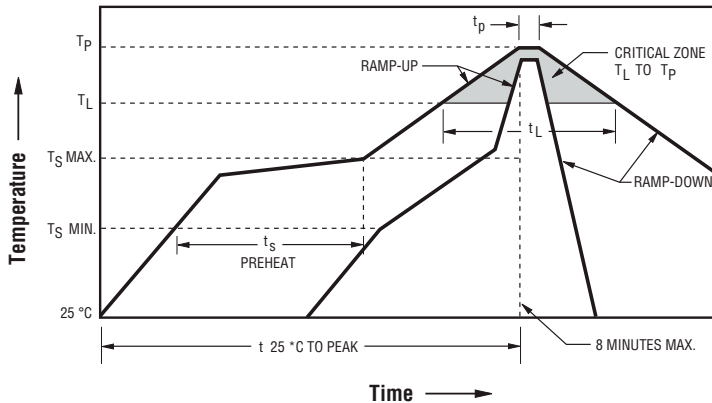
Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

CFN Series Metal Foil, Current Sensing Chip Resistor

BOURNS®

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

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)

Specifications are subject to change without notice.

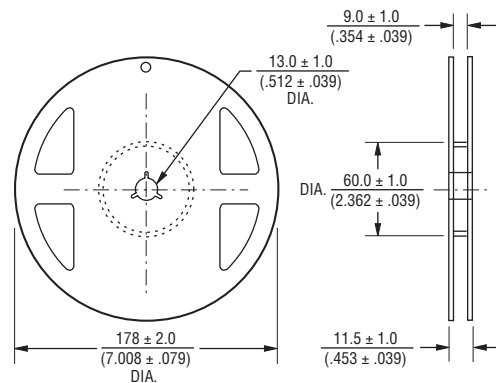
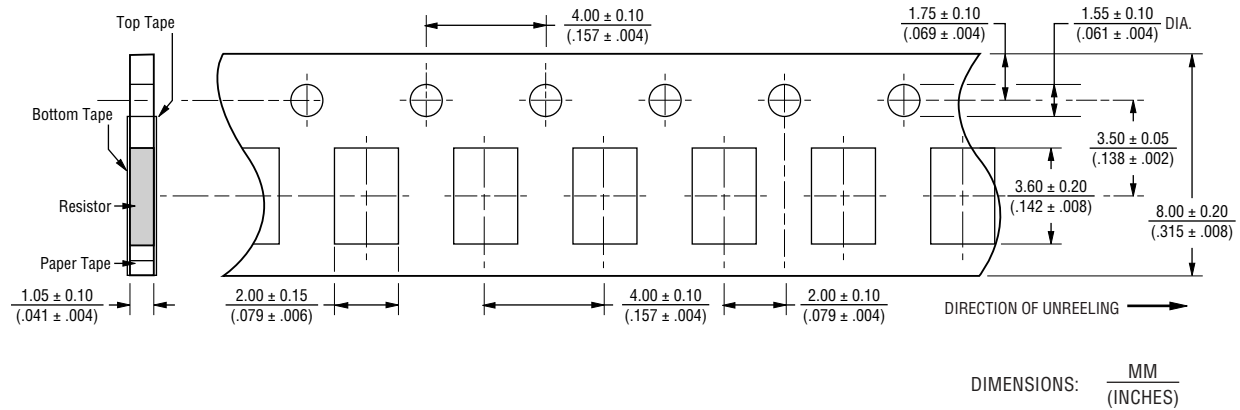
Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

CFN Series Metal Foil, Current Sensing Chip Resistor

BOURNS®

Packaging Dimensions (Conforms to EIA RS-481A)



BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com

EMEA: Tel: +36 88 885 877 • Email: eurocus@bourns.com

The Americas: Tel: +1-951 781-5500 • Email: americus@bourns.com

www.bourns.com

Legal Disclaimer Notice

BOURNS®

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, “Bourns”).

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns’ knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user’s application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., ISO/TS 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in nuclear, lifesaving, life-critical or life-sustaining applications, nor in any other applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage. Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any Bourns® products in such unauthorized applications might not be safe and thus is at the user’s sole risk. Life-critical applications include devices identified by the U.S. Food and Drug Administration as Class III devices and generally equivalent classifications outside of the United States.

Bourns expressly identifies those Bourns® standard products that are suitable for use in automotive applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard products in an automotive application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk. If Bourns expressly identifies a sub-category of automotive application in the data sheet for its standard products (such as infotainment or lighting), such identification means that Bourns has reviewed its standard product and has determined that if such Bourns® standard product is considered for potential use in automotive applications, it should only be used in such sub-category of automotive applications. Any reference to Bourns® standard product in the data sheet as compliant with the AEC-Q standard or “automotive grade” does not by itself mean that Bourns has approved such product for use in an automotive application.

Bourns® standard products are not tested to comply with United States Federal Aviation Administration standards generally or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aircraft or space applications. Bourns expressly identifies Bourns® standard products that are suitable for use in aircraft or space applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard product in an aircraft or space application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Users shall not sell, transfer, export or re-export any Bourns® products or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology in any facility which engages in activities relating to such devices. The foregoing restrictions apply to all uses and applications that violate national or international prohibitions, including embargos or international regulations. Further, Bourns® products and Bourns technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products may not, without prior authorization from Bourns and/or the U.S. Government, be resold, transferred, or re-exported to any party not eligible to receive U.S. commodities, software, and technical data.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties, including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: <http://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>