

Features

- Combined Protection Technology (CPT) design
- Common mode filter
- ESD protection
- Fast response time
- Low capacitance
- RoHS compliant*

Applications

- USB 2.0
- HDMI
- MIPI
- MHL

ChipGuard® CGF Series ESD/EMI Filter

Description

The Bourns® ChipGuard® CGF Series utilizes Combined Protection Technology (CPT) to create an ESD protection device and common mode filter in a single space-saving device. This series features very low capacitance and superior common mode noise rejection, making it ideal for use in high-speed differential data lines.

Electrical Characteristics @ 25 °C (unless otherwise noted)

| Parameter | Min. | Typ. | Max. | Unit |
|---|------|------|-------|---------|
| Common Mode Impedance @100 MHz | 67.5 | 90 | 112.5 | Ohms |
| Cut-off Frequency | | 3 | | GHz |
| DC Resistance | 1.8 | 2.7 | 3.5 | Ohms |
| Insulation Resistance | 10 | | | Megohms |
| Capacitance @ 1 MHz, Any Pin to Ground) | | 0.6 | | pF |
| Clamping Voltage @ 60 ns after ESD Event | | 20 | | V |
| Leakage Current @ 5 V, Any Pin to Ground) | | | 1 | μA |

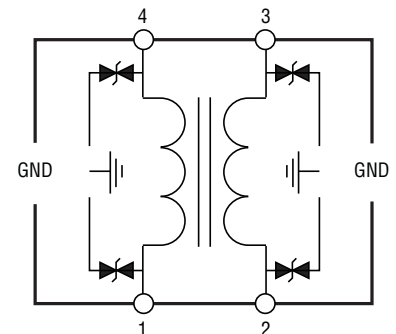
Absolute Maximum Ratings @ 25 °C (unless otherwise noted)

| Parameter | Symbol | Rating | Unit |
|---------------|----------|--------|------|
| Rated Voltage | V_{DC} | 5 | V |
| Rated Current | I_{DC} | 100 | mA |

General Characteristics

Operating Temperature.....-40 °C to +85 °C
 Storage Temperature.....-40 °C to +125 °C
 Response Time.....<1 ns
 Performance Standard IEC 61000-4-2, Level 4

Circuit Diagram



How to Order

CG F 0804 TFH - 900 - 2L

ChipGuard®
 Product Designator
 Common Mode Filter Designator
 Package Dimension Code
 Technology
 TFH = Thin Film High-Speed
 Common Mode Impedance @ 100 MHz (90x 10³)
 Lines
 2L = 2 Line (0804 Package)

BOURNS®

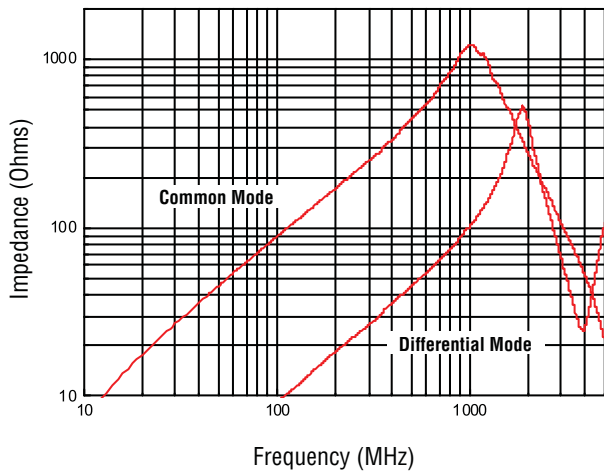
Asia-Pacific: Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116
EMEA: Tel: +36 88 520 390 • Fax: +36 88 520 211
The Americas: Tel: +1-951 781-5500 • Fax: +1-951 781-5700
www.bourns.com

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

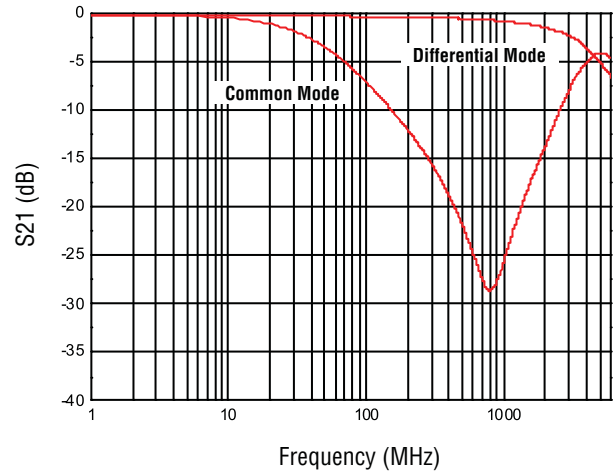
Impedance vs. Frequency Characteristics

Test Instrument: HP4291A Impedance/Material Analyzer

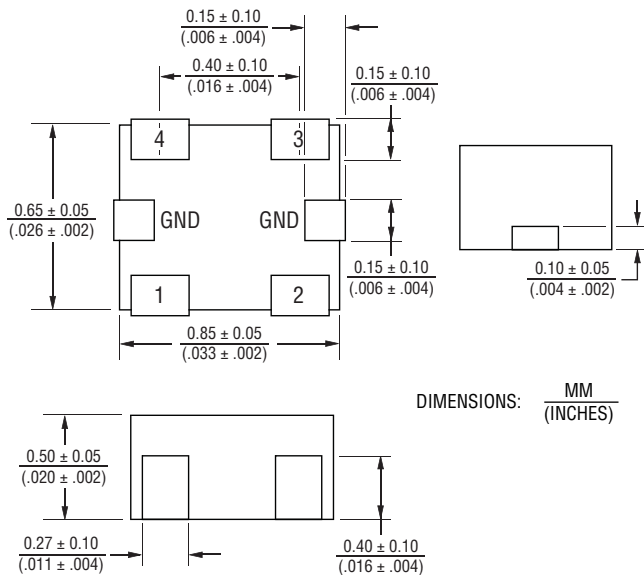


Insertion Loss vs. Frequency Characteristics

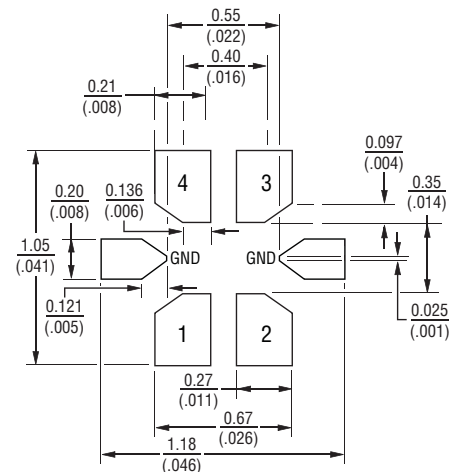
Test Instrument: Agilent E4071C ENA-L Network Analyzer



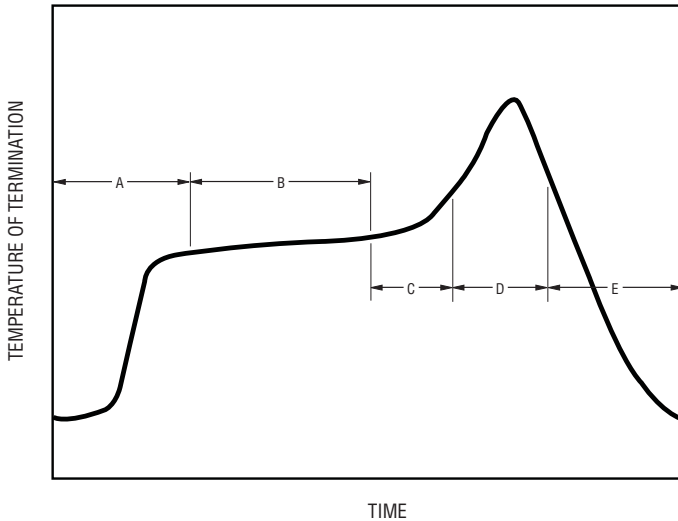
Product Dimensions



Recommended Pad Layout



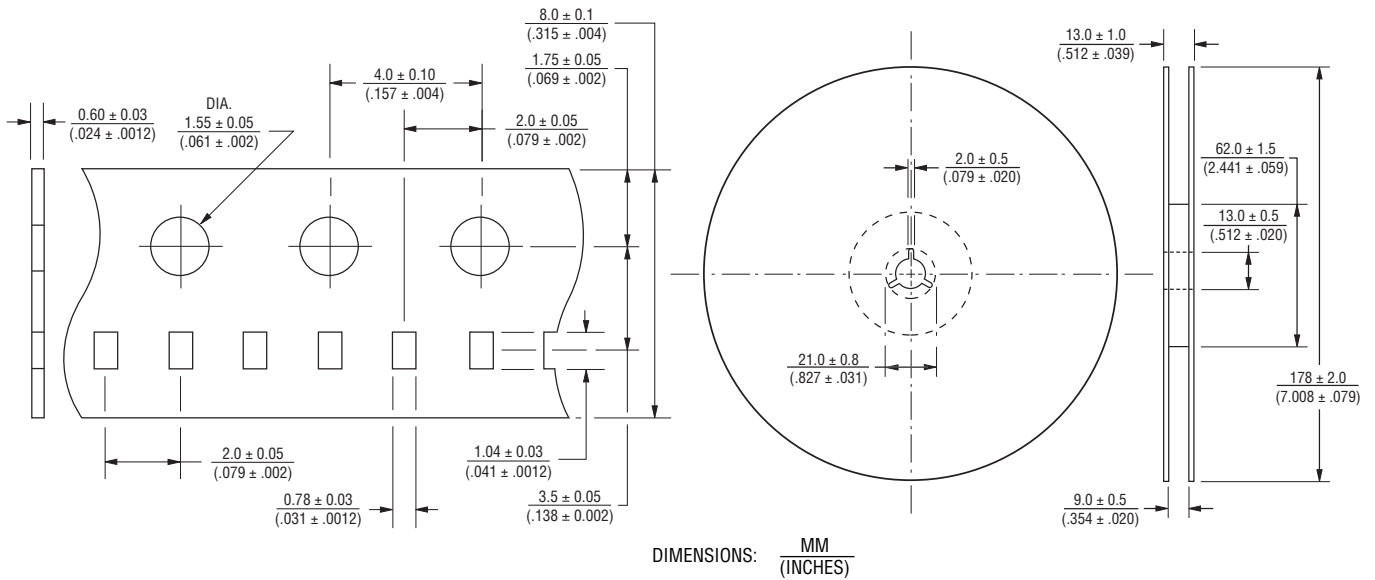
Solder Reflow Recommendations



| | | | |
|---|------------------------|---|---|
| A | 1st Rising Temperature | The Normal to Preheating Temperature | 30 s to 60 s |
| B | Preheating | 140 °C to 160 °C | 60 s to 120 s |
| C | 2nd Rising Temperature | Preheating to 200 °C | 20 s to 40 s |
| D | Main Heating | if 220 °C if 230 °C if 240 °C if 250 °C if 260 °C | 50 s ~ 60 s 40 s ~ 50 s 30 s ~ 40 s 20 s ~ 40 s 20 s ~ 40 s |
| E | Regular Cooling | 200 °C to 100 °C | 1 °C/s ~ 4 °C/s |

Per J-STD-020C

Packaging Dimensions



STANDARD = 10,000 pieces per reel

REV. B 08/14

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