

### Features

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



This model is currently available but not recommended for new designs.

### 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

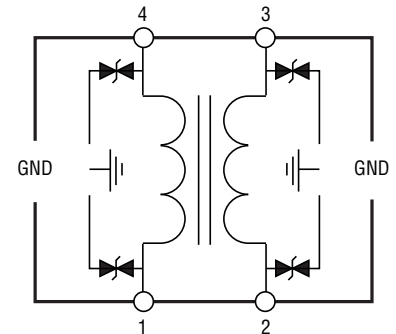
### Absolute Maximum Ratings @ 25 °C (unless otherwise noted)

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 10°)  
 Lines  
 2L = 2 Line (0804 Package)



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

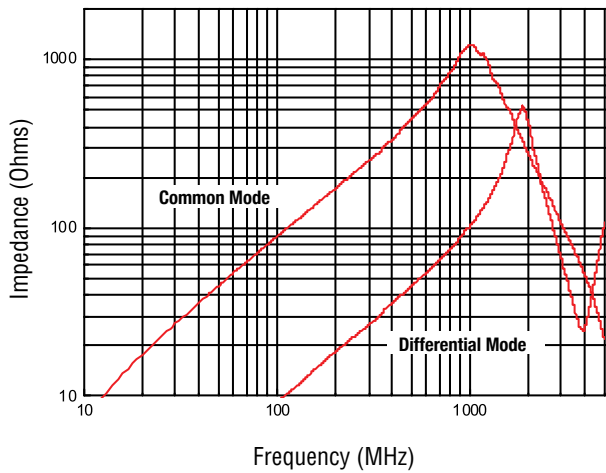
\*RoHS Directive 2015/863, Mar 31, 2015 and Annex. Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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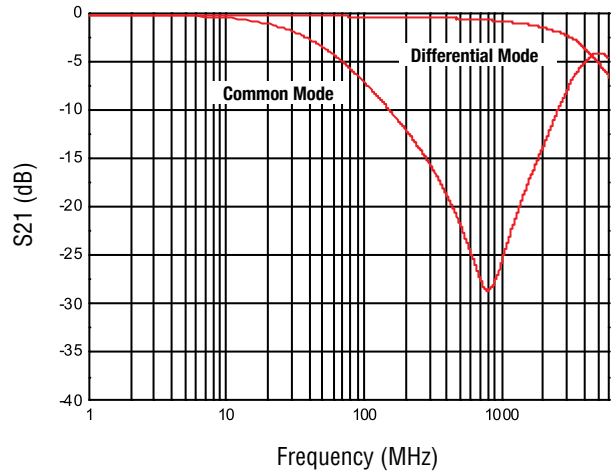
**Impedance vs. Frequency Characteristics**

Test Instrument: HP4291A Impedance/Material Analyzer

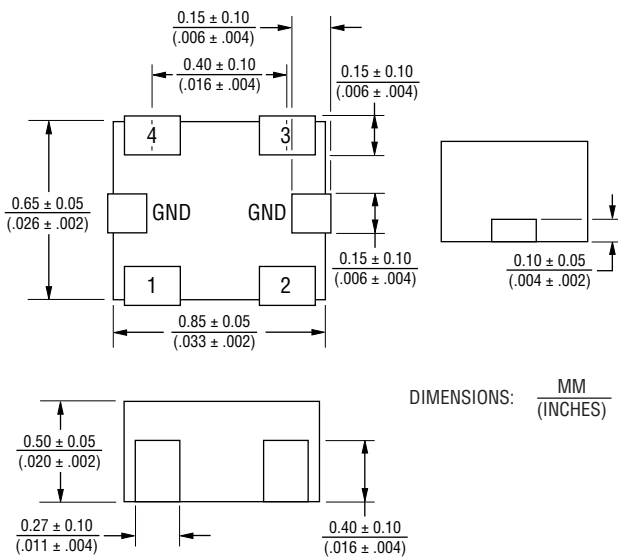


**Insertion Loss vs. Frequency Characteristics**

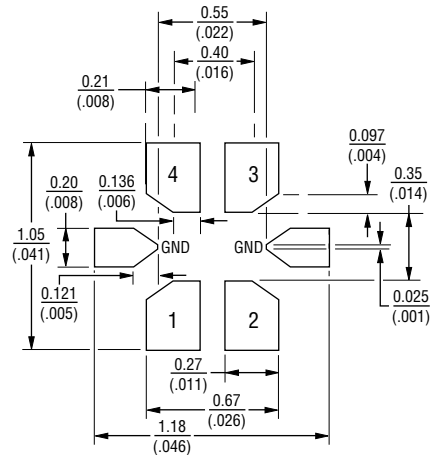
Test Instrument: Agilent E4071C ENA-L Network Analyzer



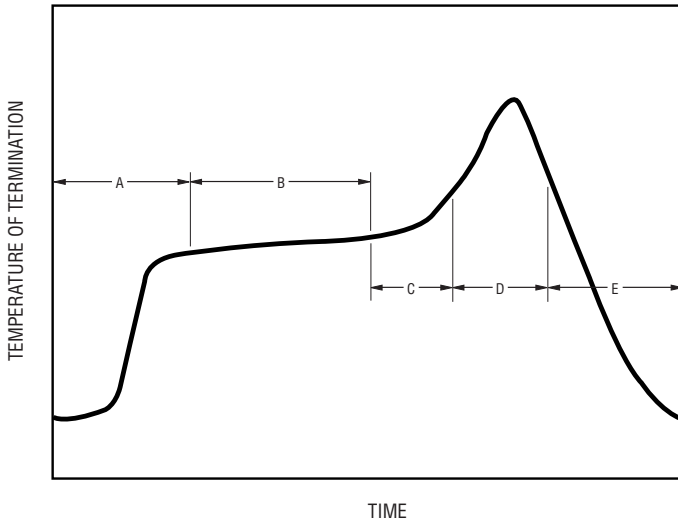
**Product Dimensions**



**Recommended Pad Layout**



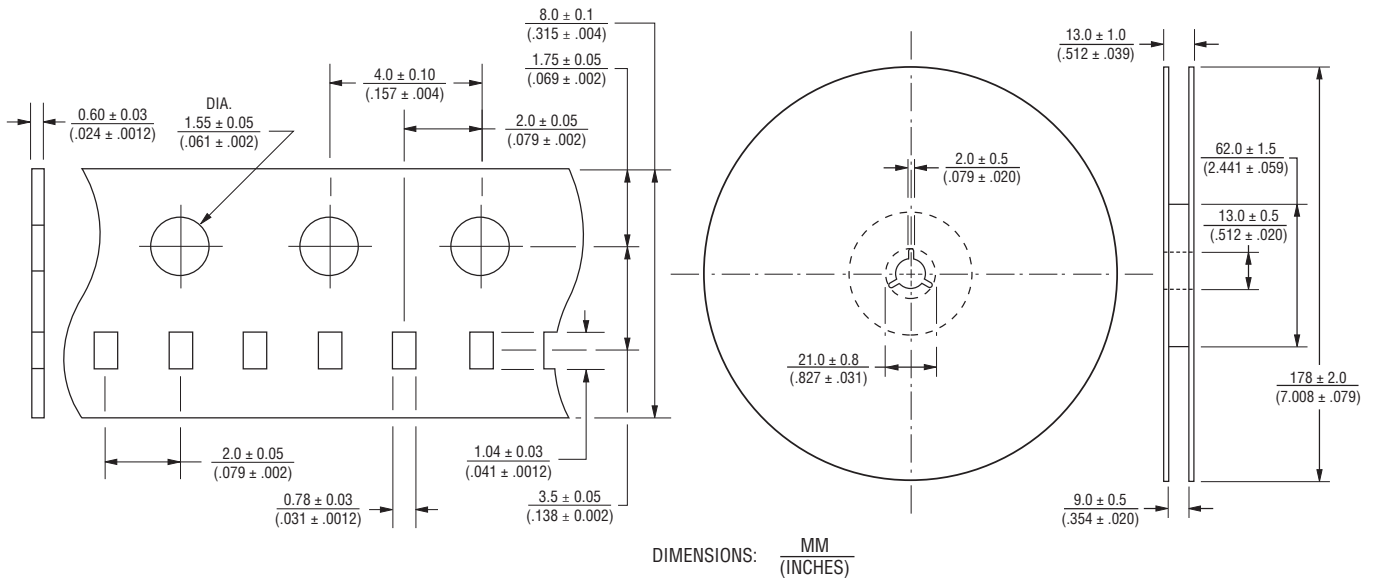
**Solder Reflow Recommendations**



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

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