

## Features

- ESD protection to IEC 61000-4-2 Level 4
- <1 ns response time to ESD strike; more than one ESD-strike capability
- Low leakage current
- Extremely low capacitance (0.2 pF typ.)
- Bidirectional device
- RoHS\* compliant

## Applications

- USB 2.0 / 3.0
- IEEE 1394
- HDMI 1.4 / 2.0
- GPS
- Antennas
- High-speed communications buses
- Wearables

# CG0201MLC-05H - ChipGuard® ESD Protector

## General Information

The Bourns® ChipGuard® Model CG0201MLC-05H has been specifically designed to protect sensitive electronics from electrostatic discharge damage. The Model CG0201MLC-05H has been manufactured to provide low 0.2 pF capacitance and 10 nA typical leakage currents with excellent clamp qualities, making the model almost transparent under normal working conditions.

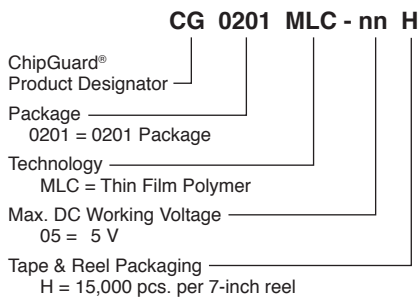
The MLC family has been designed to protect equipment to IEC 61000-4-2, Level 4 (±8 kV Contact / ±15 kV Air Discharge) ESD specifications targeted for high speed USB 3.0/USB OTG, HDMI 1.4/2.0, DVI or IEEE 1394 applications.

## Electrical Characteristics @ 25 °C (unless otherwise noted)

Parameter	Symbol	CG0201MLC-05H	Unit
Maximum DC Working Voltage	$V_{DC}$	5	V
Typical Leakage Current @ Max. VDC	$I_L$	0.01	$\mu A$
Typical Trigger Voltage (Note 1)	$V_T$	250	V
Typical Clamping Voltage (Note 1)	$V_C$	30	V
Typical Capacitance @ 1 MHz, 1 Vrms	$C_O$	0.2	pF
Response Time	$R_T$	< 1	ns
ESD Protection: Per IEC 61000-4-2 Level 4			
Min. Contact Discharge		±8	kV
Min. Air Discharge		±15	kV
Min. ESD Withstand		500	Pulses
Operating Temperature	$T_{OPR}$	-55 to +125	°C
Storage Temperature	$T_{STG}$	-55 to +125	°C

Note 1:  $V_T$  and  $V_C$  measured using TLP (Transmission Line Pulse) method.

## How to Order



## Environmental Characteristics

Moisture Sensitivity Level..... 1  
ESD Classification (HBM)..... 3B



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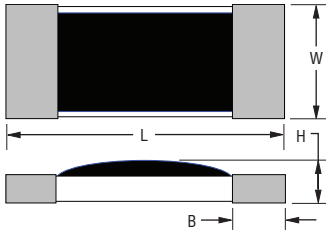
\*RoHS Directive 2015/863, Mar 31, 2015 and Annex. Specifications are subject to change without notice.

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.

# CG0201MLC-05H - ChipGuard® ESD Protector

**BOURNS®**

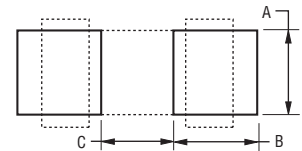
## Product Dimensions



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

Dimension	CG0201MLC-05H
L	$\frac{0.63 \pm 0.05}{(0.025 \pm 0.002)}$
W	$\frac{0.3 \pm 0.03}{(0.012 \pm 0.001)}$
H	$\frac{0.23 \pm 0.05}{(0.009 \pm 0.002)}$
B	$\frac{0.165 \pm 0.05}{(0.006 \pm 0.002)}$

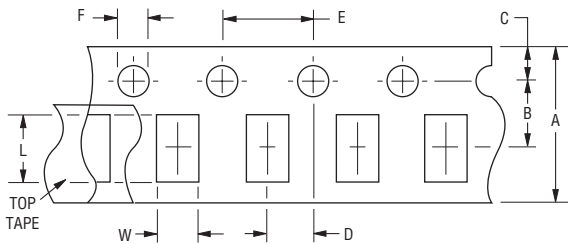
## Recommended Pad Layout



Dim.	CG0201MLC-05H
A	$\frac{0.35 \pm 0.05}{(0.014 \pm 0.002)}$
B	
C	

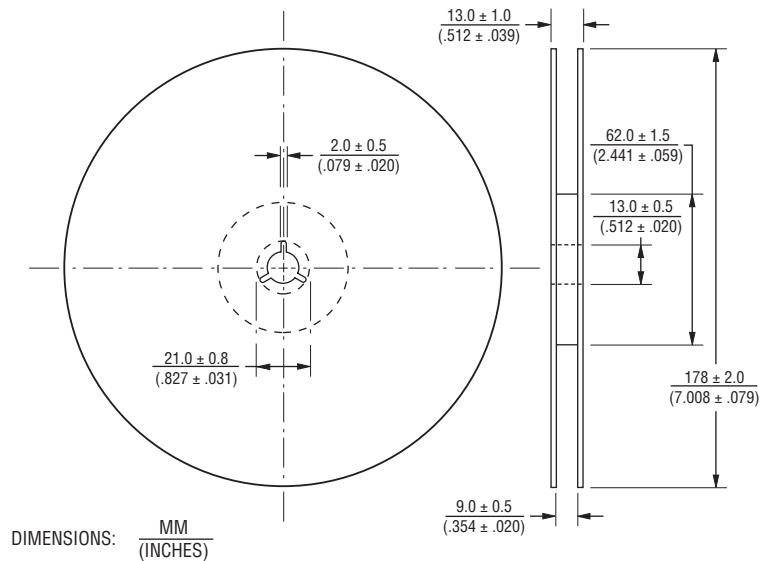
- This product can be damaged by rapid heating, cooling or localized heating.
- Heat shocks should be avoided. Preheating and gradual cooling is recommended.
- Excessive solder can damage the device. Print solder thickness of 150 to 200 um is recommended.
- Solder gun tip temperature should be kept below 280 °C and should not touch the device directly. Contact should be less than 3 seconds. A solder gun under 30 watts is recommended.

## Packaging Information



Dim.	CG0201MLC-05H
A	$\frac{8.00 \pm 0.30}{(0.315 \pm 0.012)}$
B	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$
C	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
D	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
E	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$

Dim.	CG0201MLC-05H
F	$\frac{1.50 \pm 0.10}{(0.059 \pm 0.004)}$
L	$\frac{0.71 \pm 0.02}{(0.028 \pm 0.001)}$
W	$\frac{0.37 \pm 0.02}{(0.015 \pm 0.001)}$
T	$\frac{0.42 \pm 0.03}{(0.017 \pm 0.001)}$



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

REV. A 02/18

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