



## Features

- ESD protection to IEC 61000-4-2 Level 4
- Extremely quick response time (<1 ns)
- Low capacitance (0.05 pF typ.)
- RoHS\* compliant

## Applications

- Antenna circuits
- USB 3.2 Gen 1 and Gen 2
- HDMI 1.3/1.4/2.0
- SATA and eSATA Interface
- SIM card ports
- Memory protection

# ChipGuard® CG0201MLU Series – ESD Protectors

### General Information

The ChipGuard® Model CG0201MLU Series has been specifically designed to protect sensitive electronic components from electrostatic discharge damage. This series is suitable for protecting equipment to IEC 61000-4-2, Level 4 ( $\pm 8$  kV Contact /  $\pm 15$  kV Air Discharge) ESD specifications targeted for high speed USB 3.2, HDMI 1.4/2.0 applications and antenna circuits.

The ChipGuard® MLU Series provides low capacitance (0.05 pF), and leakage currents less than 10 nA with excellent clamping qualities, making the components almost transparent under normal working conditions.

### Additional Information

Click these links for more information:



### Device Symbol

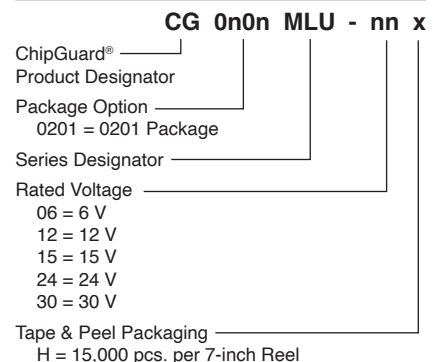


### Electrical Characteristics @ 25 °C (unless otherwise noted)

| Parameter   | Symbol    | CG0201MLU  |     |     |     |     | Unit |
|---|-----------|------------|-----|-----|-----|-----|------|
|   |           | 06H        | 12H | 15H | 24H | 30H |      |
| Rated Voltage (Max.)  | $V_{DC}$  | 6          | 12  | 15  | 24  | 30  | V    |
| Typical Clamping Voltage (Note 1)   | $V_C$     | 20         |     |     |     |     | V    |
| Typical Capacitance @ 1 MHz   | $C_O$     | 0.05       |     |     |     |     | pF   |
| Typical Leakage Current @ Max. VDC  | $I_L$     | 10         |     |     |     |     | nA   |
| Typical Trigger Voltage (Note 1)  | $V_T$     | 300        |     |     |     |     | V    |
| Maximum Response Time   | $R_T$     | 1          |     |     |     |     | ns   |
| ESD Protection per IEC 61000-4-2:<br>Min. Contact Discharge (>1000 Repts)<br>Min. Air Discharge (>1000 Repts) |           | $\pm 8$    |     |     |     |     | kV   |
|   |           | $\pm 15$   |     |     |     |     | kV   |
| Operating Temperature   | $T_{OPR}$ | -40 to +85 |     |     |     |     | °C   |
| Storage Temperature   | $T_{STG}$ | -40 to +85 |     |     |     |     | °C   |

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

### How To Order



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

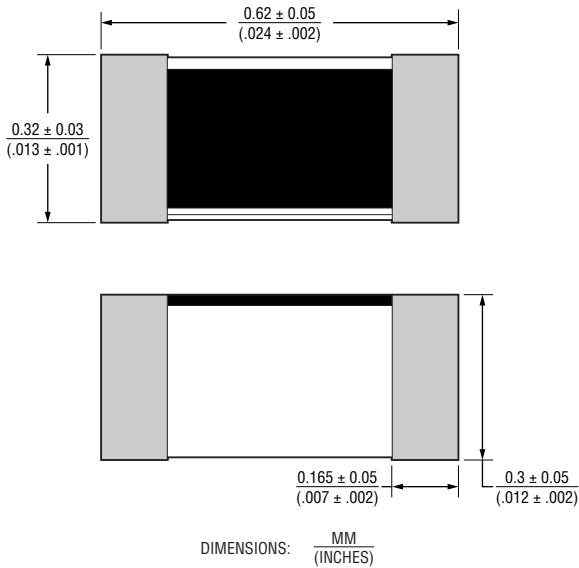
\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

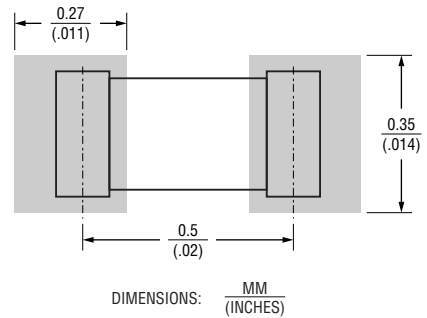
Users should verify actual device performance in their specific applications.

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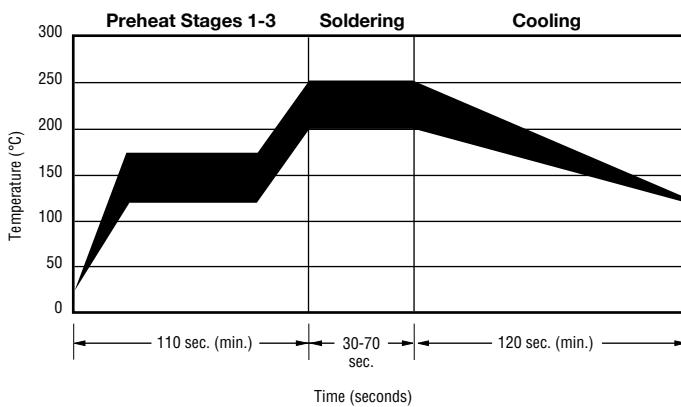
**Product Dimensions**



**Recommended Pad Layout**



**Solder Reflow Recommendations**



|          |                 |                                   |                  |
|----------|-----------------|-----------------------------------|------------------|
| <b>A</b> | Stage 1 Preheat | Ambient to Preheating Temperature | 30 s to 60 s     |
| <b>B</b> | Stage 2 Preheat | 140 °C to 160 °C                  | 60 s to 120 s    |
| <b>C</b> | Stage 3 Preheat | Preheat to 200 °C                 | 20 s to 40 s     |
| <b>D</b> | Main Heating    | 200 °C                            | 60 s to 70 s     |
|          |                 | 210 °C                            | 55 s to 65 s     |
|          |                 | 220 °C                            | 50 s to 60 s     |
|          |                 | 230 °C                            | 40 s to 50 s     |
|          | 240 °C          | 30 s to 40 s                      |                  |
| <b>E</b> | Cooling         | 200 °C to 100 °C                  | 1 °C/s to 4 °C/s |

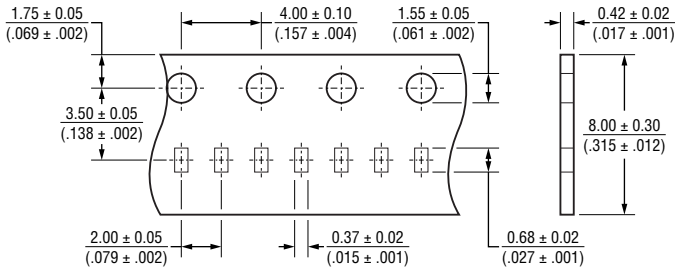
- This product can be damaged by rapid heating, cooling or localized heating.
- Heat shocks should be avoided. Preheating and gradual cooling recommended.
- Excessive solder can damage the device. Print solder thickness of 150 to 200 um recommended.
- Solder gun tip temperature should be kept below 280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

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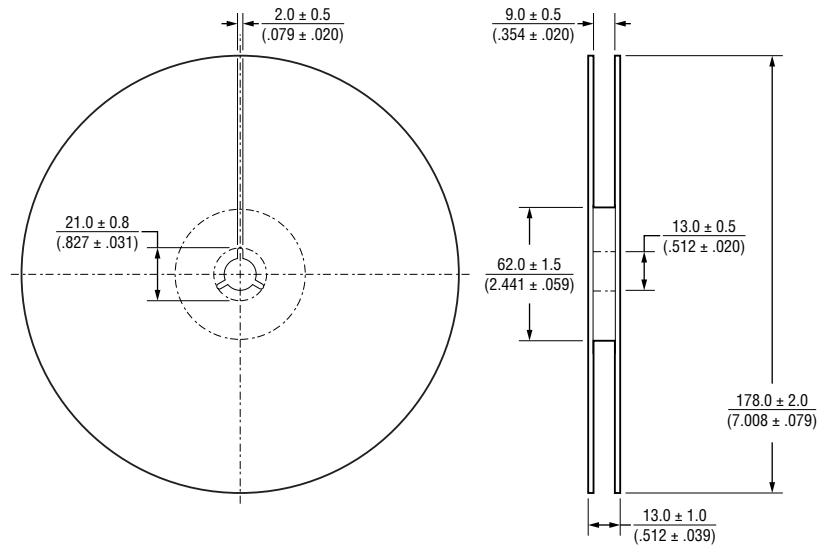
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**Packaging Dimensions**



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



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