



## Features

- RoHS compliant\*
- ESD protection >25 kV
- Low capacitance <0.5 pF
- Low leakage current <10 nA

## Applications

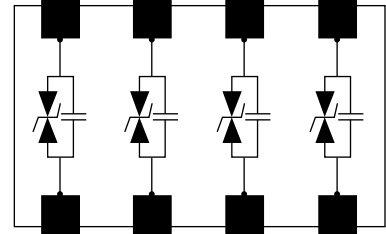
- HDMI 1.4
- Digital Visual Interface (DVI)
- USB 3.0 / USB OTG
- Memory protection
- SIM card ports

# ChipGuard® CG1206MLC Series - ESD Protector Array

## General Information

The ChipGuard® CG1206MLC Series has been specifically designed to protect sensitive electronic components from electrostatic discharge damage. The MLC family has been designed to protect equipment to IEC61000-4-2, Level 4 (±8 kV Contact / ±15 kV Air Discharge) ESD specifications targeted for high speed USB 3.0/USB OTG, HDMI 1.4, DVI or IEEE1394 applications.

The ChipGuard® CG1206MLC Series has been manufactured to provide low 0.5 pF capacitance and leakage currents less than 10 nA with excellent clamp qualities, making the family almost transparent under normal working conditions.



## Electrical & Thermal Characteristics @ T<sub>A</sub> = 25 °C (unless otherwise noted)

Parameter	Symbol	CG1206MLC-12E	Unit
Typical Continuous Operating Voltage	V <sub>DC</sub>	12	V
Typical Clamping Voltage (Note 1)	V <sub>C</sub>	30	V
Maximum Capacitance @ 1 VRMS 1 MHz	C <sub>O</sub>	0.5	pF
Maximum Leakage Current @ Max. VDC	I <sub>L</sub>	10	nA
Typical Trigger Voltage	V <sub>T</sub>	150	V
Maximum Response Time	R <sub>T</sub>	1	ns
ESD Protection: Per IEC 61000-4-2 Level 4			
Min. Contact Discharge (>100 Repts)		±8	kV
Min. Air Discharge (>100 Repts)		±15	kV
Operating Temperature	T <sub>OPR</sub>	-40 to +85	°C
Storage Temperature	T <sub>STG</sub>	-40 to +85	°C

Note 1: Per IEC 61000-4-2, 30 A @ 8 kV, level 4, clamp measurement made 30 ns after initiation of pulse, all tests in contact discharge mode.



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

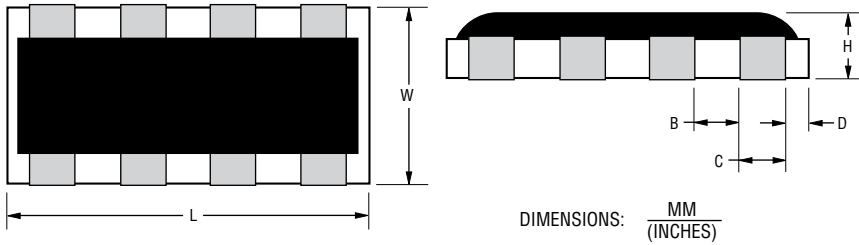
\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

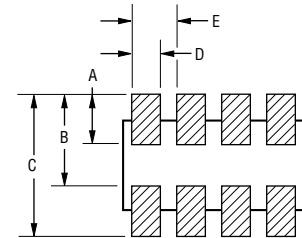
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**Product Dimensions**



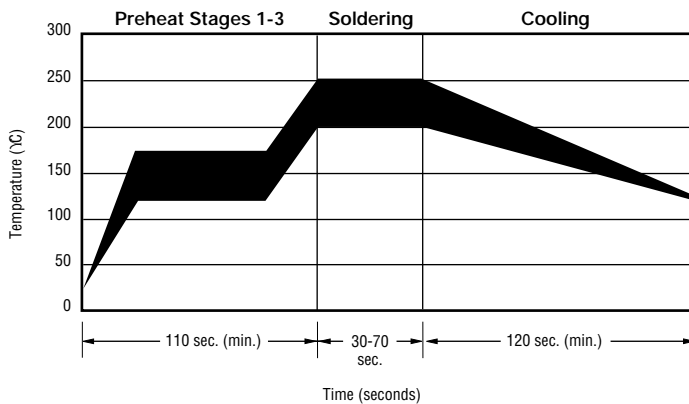
Dimension	CG1206 Series
B	$\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$
C	$\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$
D	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
H	$\frac{0.50 \pm 0.10}{(0.019 \pm 0.004)}$
L	$\frac{3.20 \pm 0.20}{(0.127 \pm 0.008)}$
W	$\frac{1.60 \pm 0.20}{(0.065 \pm 0.008)}$

**Recommended Pad Layout**



Dim.	CG1206 Series
A	$\frac{0.60}{(0.024)}$
B	$\frac{1.60}{(0.063)}$
C	$\frac{2.20}{(0.087)}$
D	$\frac{0.50}{(0.020)}$
E	$\frac{0.80}{(0.03)}$

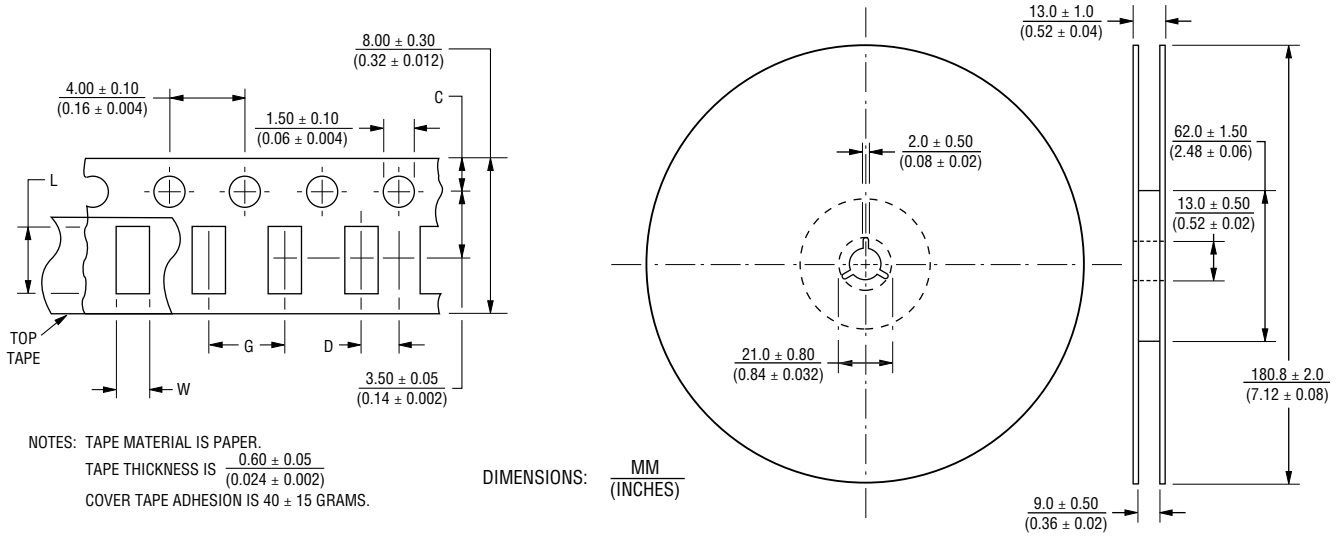
**Solder Reflow Recommendations**



A	Stage 1 Preheat	Ambient to Preheating Temperature	30 s to 60 s
B	Stage 2 Preheat	140 °C to 160 °C	60 s to 120 s
C	Stage 3 Preheat	Preheat to 200 °C	20 s to 40 s
D	Main Heating	200 °C 210 °C 220 °C 230 °C 240 °C	60 s to 70 s 55 s to 65 s 50 s to 60 s 40 s to 50 s 30 s to 40 s
E	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.

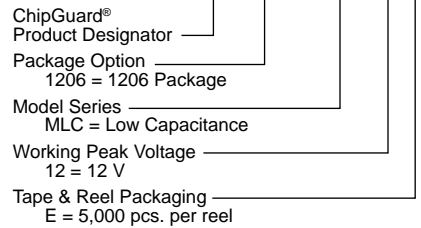
**Packaging Dimensions**



Dimension	CG1206 Series
C	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
D	$\frac{2.00 \pm 0.05}{(0.080 \pm 0.002)}$
L	$\frac{3.50 \pm 0.20}{(0.138 \pm 0.008)}$
W	$\frac{1.90 \pm 0.20}{(0.075 \pm 0.008)}$
G	$\frac{4.00 \pm 0.10}{(0.16 \pm 0.004)}$

**How to Order**

**CG 1206 - MLC 12 E**



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