

Features

- AEC-Q200 qualified
- Meets IEC 61000-4-2 standard
- Multilayered varistor technology
- Proprietary insulating overcoat provides low and stable leakage current
- Quick response time (<0.5 ns)
- High transient current capability
- High reliability
- RoHS compliant*

Applications

- HDMI
- CANbus
- Ethernet
- GPS
- Camera links
- Sensors
- Touchscreen interfaces
- Circuits sensitive to ESD

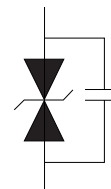
ChipGuard® Automotive MLA Series Varistor ESD Clamp Protectors

Description

Bourns® ChipGuard® Automotive MLA Series is a multilayered varistor designed specifically for use in automotive circuits requiring ESD protection. The CGA-MLA series is available in industry standard 0603, 0805 and 1206 packages. These robust protectors exhibit extremely fast response times to ESD events making them ideal for protecting a wide array automotive electronics.

ChipGuard® Automotive MLA Series products are fully AEC-Q200 qualified and supported.

Device Symbol



Electrical Characteristics @ 25 °C (unless otherwise noted)

Model	Package	Vrms (V)	VDC (V)	VN Min. (V)	VN Max. (V)	VC (V)	ITM (Max.) (A)	WTM (Max.) (J)	CP (pF) Typ.
		<10 μ A		1 mA DC		1 A @ 8/20 μ s	@ 8/20 μ s	10/1000 μ s	@ 1 KHz
CGA0603MLA-16150E	0603	14	16	23.0	34.2	70	5	0.030	15
CGA0603MLA-16121E		14	16	22.0	28.0	46	30	0.200	120
CGA0603MLA-17300E		14	17	21.6	34.4	70	2	0.050	30
CGA0603MLA-18101E		14	18	19.8	25.2	44	30	0.200	100
CGA0603MLA-19161E		14	19	24.0	32.0	64	20	0.100	160
CGA0603MLA-22750E		17	22	25.0	41.0	54	30	0.075	75
CGA0603MLA-22500E		17	22	24.3	30.7	54	10	0.100	50
CGA0603MLA-22101E		17	22	24.3	30.7	50	30	0.200	100
CGA0603MLA-22161E		17	22	24.3	30.7	50	30	0.200	160
CGA0603MLA-26800E		20	26	30.0	43.0	67	30	0.100	80
CGA0603MLA-31900E	0805	25	31	35.0	43.9	71	30	0.200	90
CGA0603MLA-32120E		25	32	51.9	71.0	124	5	0.250	12
CGA0805MLA-16401E		14	16	22.0	28.0	46	120	0.3	400
CGA0805MLA-18351E		14	18	19.8	25.2	44	120	0.3	350
CGA0805MLA-22101E		17	22	25.0	34.0	54	30	0.1	100
CGA0805MLA-22401E		17	22	24.3	30.7	50	120	0.3	400
CGA0805MLA-26221E		20	26	29.7	37.3	56	80	0.4	220
CGA0805MLA-31251E		25	31	35.1	43.9	71	80	0.3	250
CGA0805MLA-38201E	1206	30	38	42.3	52.7	81	80	0.3	200
CGA1206MLA-16801E		14	16	22.0	28.0	44	200	0.60	800
CGA1206MLA-16701E		14	16	19.8	25.2	42	200	0.50	700
CGA1206MLA-22651E		17	22	24.3	30.7	48	200	0.30	650
CGA1206MLA-22841E		17	22	24.3	29.7	50	100	0.40	840
CGA1206MLA-26601E		20	26	29.7	37.3	58	200	0.70	600
CGA1206MLA-31551E		25	31	35.1	43.9	69	200	1.00	550
CGA1206MLA-38501E		30	38	42.3	52.7	81	200	1.10	500
CGA1206MLA-40181E		40	56	63.0	77.0	110	200	1.00	180

General Characteristics

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



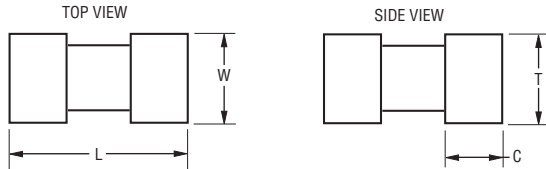
WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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

Specifications are subject to change without notice.

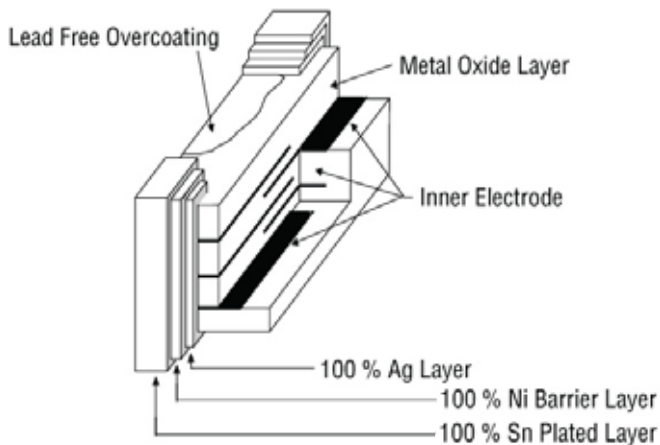
Users should verify actual device performance in their specific applications.

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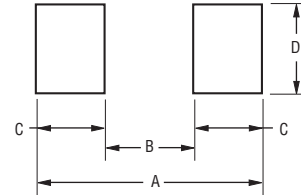
Product Dimensions

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

Dim.	CGA0603MLA Series	CGA0805MLA Series	CGA1206MLA Series
L	$\frac{1.60 \pm 0.15}{(0.063 \pm 0.006)}$	$\frac{2.00 \pm 0.20}{(0.079 \pm 0.008)}$	$\frac{3.20 \pm 0.30}{(0.126 \pm 0.012)}$
W	$\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$	$\frac{1.25 \pm 0.20}{(0.049 \pm 0.008)}$	$\frac{1.60 \pm 0.20}{(0.063 \pm 0.008)}$
T	$\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$	$\frac{0.90 \pm 0.10}{(0.035 \pm 0.004)}$	$\frac{1.70}{(0.067)}$ MAX.
C	$\frac{0.30 \pm 0.15}{(0.012 \pm 0.006)}$	$\frac{0.50 \pm 0.25}{(0.020 \pm 0.010)}$	$\frac{0.50 \pm 0.25}{(0.020 \pm 0.010)}$

Construction**Environmental Characteristics**

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

Recommended Pad Layout

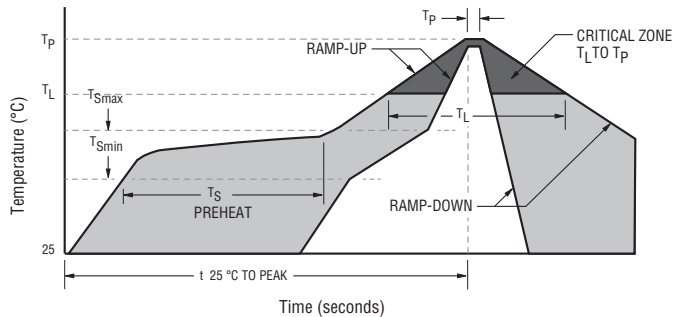
Note: Print solder to a recommended thickness of 150 to 200 μm .

Dim.	CGA0603MLA Series	CGA0805MLA Series	CGA1206MLA Series
A	$\frac{2.54}{(0.100)}$	$\frac{3.50}{(0.137)}$	$\frac{4.06}{(0.160)}$
B	$\frac{0.50}{(0.020)}$	$\frac{1.10}{(0.043)}$	$\frac{2.02}{(0.080)}$
C	$\frac{1.02}{(0.040)}$	$\frac{1.20}{(0.047)}$	$\frac{1.02}{(0.040)}$
D	$\frac{0.76}{(0.030)}$	$\frac{1.20}{(0.047)}$	$\frac{1.65}{(0.065)}$

How to Order**CG A xx0x MLA - xx yyy E**

ChipGuard® Product Designator _____
 Automotive Series _____
 Package Option _____
 0603 = 1608 Package
 0805 = 2012 Package
 1206 = 3216 Package
 Multilayer Series Designator _____
 Maximum DC Working Voltage, V _____
 (Current <10 μA)
 Capacitance, pF _____
 (Example: 151 = 15×10^1 (150 pF))
 Tape & Reel Packaging _____
 E = 4,000 pcs. per reel

Solder Reflow Recommendations

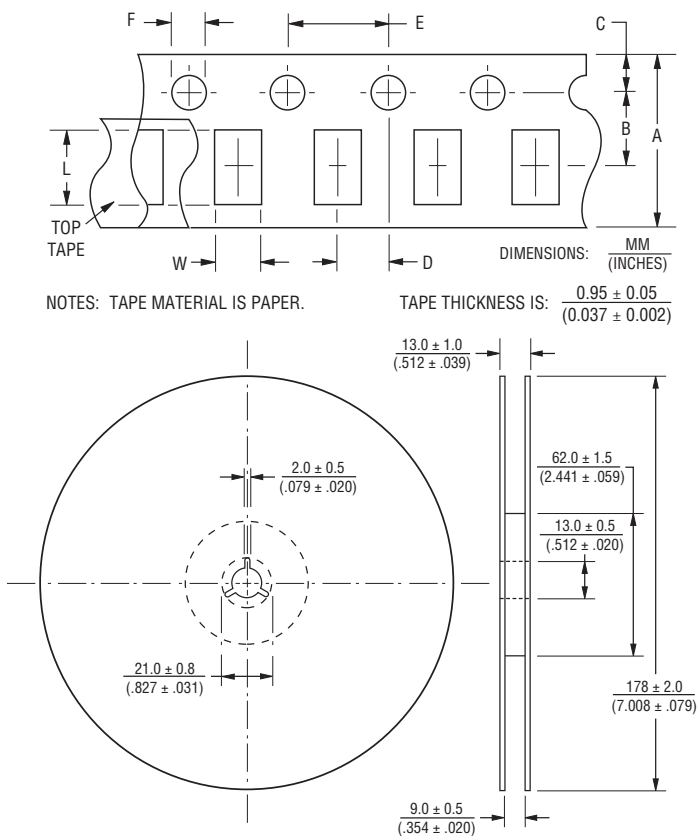


A	Stage 1 Preheat Ramp	Ambient to Preheating Temperature	3 °C / s max.
B	Stage 2 Preheat	Preheat min./max. Temperature Range	150 °C to 200 °C 60 s to 180 s
C	Stage 3 Preheat to Main Heating	Max. Time Above Stated Temperature	217 °C 60 s to 150 s
D	Main Heating	Max. Time Within 5 °C of Peak Temperature (260 °C)	255 °C 20 s to 40 s
E	Cool Down	Rate from Peak Temperature	6 °C / s max.

CAUTION:

- Rapid heating and cooling in excess of stated maximum rates will easily damage this product.
- Localized heating can also damage product.
- Do not thermally shock product in excess of 100 °C.
- Use a 30 W or less solder gun/iron for product repairs. Tip temperature maximum is 280 °C for less than 3 seconds.
- Do not touch the component directly with the soldering gun/iron.
- Excess solder volumes can damage the body of the product.

Packaging Dimensions



Dim.	CGA0603MLA Series	CGA0805MLA Series	CGA1206MLA Series
A		8.00 ± 0.30 (0.315 ± 0.012)	
B		3.50 ± 0.05 (0.138 ± 0.002)	
C		1.75 ± 0.10 (0.069 ± 0.004)	
D		2.00 ± 0.05 (0.079 ± 0.002)	
E		4.00 ± 0.10 (0.157 ± 0.004)	
F		1.50 ± 0.10 (0.059 ± 0.004)	
L	1.90 ± 0.15 (0.075 ± 0.006)	2.30 ± 0.15 (0.091 ± 0.006)	3.50 ± 0.15 (0.138 ± 0.006)
W	1.05 ± 0.15 (0.041 ± 0.006)	1.55 ± 0.15 (0.061 ± 0.006)	1.90 ± 0.15 (0.075 ± 0.006)

REV. C 08/19

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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