Surface Mount Multilayer Varistors

HA Series (High Surge Protection, 1206 ~ 1812 Size)

Features:

- Fast Response < 0.5 ns
- Low Capacitance
- Low Clamping Voltage and High Energy Absorption

Applications:

- Telecommunications
- Automotive Systems
- Data Systems
- Power Supplies

Product Identification:

MLV 1206 HA 014V 0200

(1) (2) (3) (4) (5)

(1) Series Code: Surface Mount Multilayer Varistors

(2) Size Code: L x W (inch), the first two digits - L (length), the last two digits - W (width)

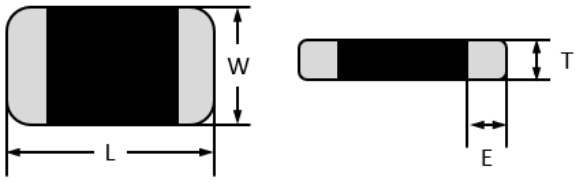
(3) Characteristic Code: HA - High Surge Protection

(4) Working Voltage Code: 014V - 14V DC

(5) Surge Current Code: 0200 - 200A

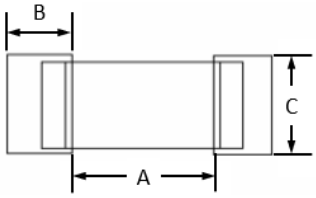
Shape and Dimensions:

Unit (mm)	1206	1210	1812
L	3.20 ± 0.20	3.20 ± 0.20	4.50 ± 0.20
W	1.60 ± 0.15	2.50 ± 0.20	3.20 ± 0.20
T	1.20 max.	1.50 max.	2.00 max.
B	0.50 ± 0.20	0.50 ± 0.20	0.60 ± 0.20



Recommended Land Patterns:

Unit (mm)	1206	1210	1812
A	1.8~2.5	1.8~2.5	2.5~3.3
C	1.2~1.8	2.2~3.0	2.8~3.6
B	1.0~1.4	1.0~1.4	1.2~1.8



Operating Temperatures:

- -55°C to +85°C for size 0603 or smaller
- -55°C to +125°C for size 0805 or larger

Packaging:

Chip Size	Parts on 7 inch (178 mm) Reel
1206	2,000
1210	2,000
1812	1,000

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Ordering Information:

Part Number	Working Voltage (max)		Breakdown Voltage	Clamping Voltage (max)	Surge Current (max)	Typical Capacitance
	AC (V_{RMS})	DC (V)	1 mA (V)	(V)	8/20 µs (A)	1 kHz (pF)
MLV1206HA014V0200	11	14	18 (15.3~20.7)	30	200	1200
MLV1206HA018V0200	14	18	24 (21.6~26.4)	39	200	780
MLV1206HA022V0200	17	22	27 (24.3~29.8)	44	200	750
MLV1206HA026V0200	20	26	33 (29.7~36.3)	54	200	700
MLV1206HA030V0200	25	30	39 (35.1~42.9)	65	200	510
MLV1206HA038V0200	30	38	47 (42.3~51.7)	77	200	440
MLV1210HA018V0400	14	18	24 (21.6~26.4)	39	400	1600
MLV1210HA022V0400	17	22	27 (24.3~29.7)	44	400	1500
MLV1210HA026V0400	20	26	33 (29.7~36.3)	54	400	880
MLV1210HA030V0400	25	30	39 (35.1~42.9)	65	400	800
MLV1210HA038V0400	30	38	47 (42.3~51.7)	77	400	530
MLV1812HA038V0800	30	38	47 (42.3~51.7)	77	800	1600
MLV1812HA045V0800	35	45	56 (50.4~61.6)	90	800	1200

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AEM COMPONENTS

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Reliability Tests:

No.	Item	Requirement	Condition	Criteria
1	Soldering heat resistance	BDV change ≤ ±10% No mechanical damage	One dip at 260°C for 5 sec.	MIL-STD-202 Method 210 IEC 60068-2-20
2	Solderability	New solder coverage ≥ 80%	One dip at 255°C for 5 sec. Non-active flux	MIL-STD-202 Method 208 IEC 60068-2-20
3	Maximum surge current	BDV change ≤ ±10% No mechanical damage	100 pulses of 8/20 μs with maximum surge current and 30 sec. interval at 25° C and 30 ~ 65% RH	CECC 42000 IEC 1051-1 Test 4.5
4	Maximum surge energy	BDV change ≤ ±10% No mechanical damage	100 pulses of 10/1000 μs with maximum surge current and 90 sec. interval at 25° C and 30 ~ 65% RH	CECC 42000
5	Thermal cycling	BDV change ≤ ±10% No mechanical damage Leakage current ≤ 200 μA	5 cycles between -40°C and 125ºC with 30 min. dwell time at the temperature extremes and 60 min. dwell time at 25°C	CECC 42000 IEC 60068-2-14
6	Low temperature resistance	BDV change ≤ ±10% No mechanical damage Leakage current ≤ 200 μA	1000 hr at -50°C	IEC 60068-2-1
7	Low temperature load resistance	BDV change ≤ ±10% No mechanical damage Leakage current ≤ 200 μA	1000 hr at -50°C with working voltage applied	IEC 60068-2-1
8	High temperature resistance	BDV change ≤ ±10% No mechanical damage Leakage current ≤ 200 μA	1000 hr at 150°C	MIL-STD-202 Method 108 CECC 42000
9	High temperature load resistance	BDV change ≤ ±10% No mechanical damage Leakage current ≤ 200 μA	1000 hr at 85°C with working voltage applied	CECC 42000
10	Humidity resistance	BDV change ≤ ±10% No mechanical damage Leakage current ≤ 200 μA	500 hr at 40°C and 90 ~ 95% RH	MIL-STD-202 Method 103 IEC 60068-2-3 CECC 42000;
11	Humidity load resistance	BDV change ≤ ±10% No mechanical damage Leakage current ≤ 200 μA	500 hr at 40°C and 90 ~ 95% RH with working voltage applied	MIL-STD-202 Method 103 IEC 60068-2-3 CECC 42000
12	ESD contact test*	Varistor voltage change > 115% working voltage	Contact electrostatic discharge 100 times with 1 second intervals at 8 KV (Level 4) and polarity: +,-	IEC 61000-4-2
13	ESD air test*	Varistor voltage change > 115% working voltage	Air contact electrostatic discharge 100 times with 1 second intervals at 15 KV (Level 4) and polarity:+,-	IEC 61000-4-2

* For ES series only.

Disclaimer

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