Eaton multilayer varistors (MLV)

Eaton MLVs provide overvoltage protection for wide range of applications

Eaton's multilayer varistors (MLV) provide reliable and cost effective protection against ESD, EFT and inductive switching transients

Product description

Eaton's surface mount multilayer varistors (MLV) provide reliable protection for electronic circuits against electrostatic discharge (ESD), electrically fast transients (EFT) and transients resulting from inductive load switching. They are ideal for the protection of I/O interfaces, as well as components and circuits sensitive to overvoltage as well as surge transients occurring on power supplies, control and signal lines. Eaton's broad range of MLVs are offered in working voltages ranging from 5.5 Vdc to 385 Vdc.

Eaton's Bussmann™ series MLVHV is a surface mount multilayer varistor that offers overvoltage as well as surge protection in a wide variety of applications. They offer industry-leading, high working voltage ratings in ultra-compact footprints, ranging from 0604 to 0806 EIA, that help reduce required PCB space in primary voltage (Vac) applications.

Multiple sizes are available, including common industry footprints. With the standard high-energy MLVC (including the MLVA & MLVB), and MLVHV, Eaton offers a complete product line of MLVs. The MLV line in addition to Eaton's overvoltage portfolio, TVS Diodes and PolySurg™, protects against a broad range of overvoltage threats.

Features and benefits

MLVA (compact)

- Low working voltage range; down to 5.5 Vdc
- EIA 0201 to 0603 footprints

MLVB (low capacitance)

- Low capacitance ESD protection; down to 0.5 pF
- EIA 0402 to 0603 footprints

MLVC (standard)

- Expanded working voltage range; up to 68 Vdc
- EIA 0402 to 1206 footprints

MLVC (high energy)

- High energy and working voltage protection; up to 200 Vdc / 150 Vac
- EIA 0805 to 4032 footprints

MLVHV (high voltage)

- Operating voltages up to 385 Vdc / 300 Vac
- EIA 0604 to 0806 footprints

AMLV (automotive grade)

- Operating voltages up to 56 Vdc
- EIA 0402 to 2220 footprints

Powering Business Worldwide

Multilayer varistors (MLV) selection guide

MLVA - Compact

Package size	Working voltage (Vdc)	Clamping voltage (V)	Max peak current (A) (8/20 µs)	Capacitance (pF) range
0201	5.5	26 to 30	-	33 to 64
0402	5.5 to 18	28 to 54	20	85 to 270
0603	5.5 to 26	31 to 70	30	100 to 270

MLVB - Low capacitance

Package size	Working voltage (Vdc)	Clamping voltage (V)	Max peak current (A) (8/20 µs)	Capacitance (pF) range
0402	9 to 18	35 to 250	-	0.5 to 5
0603	9 to 18	35 to 250	-	0.5 to 5

MLVC - Standard

Package size	Working voltage (Vdc)	Clamping voltage (V)	Max peak current (A) (8/20 µs)	Capacitance (pF) range
0402	12 to 18	34 to 44	20	90 to 150
0603	12 to 33	34 to 79	30	80 to 210
0805	12 to 48	34 to 110	35	80 to 220
1206	12 to 68	34 to 151	35	90 to 450

MLVC - High energy

Package size	Working voltage (Vdc)	Clamping voltage (V)	Max peak current (A) (8/20 µs)	Capacitance (pF) range
0805	12 to 33	34 to 79	120	230 to 420
1206	12 to 60	34 to 134	150	180 to 850
1210	11 to 65	33 to 144	300	400 to 1800
1812	11 to 60	33 to 134	500	650 to 2400
2220	18 to 68	44 to 151	600	700 to 4000
3225	18 to 200	44 to 425	400	250 to 3500
4032	14 to 200	35 to 422	1200	700 to 5000

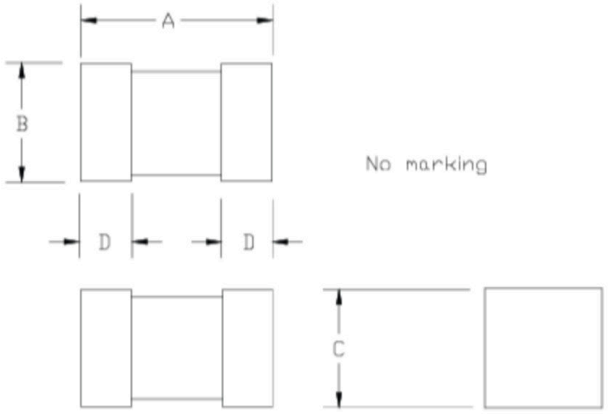
MLVHV - High voltage

Package size	Working voltage (Vdc)	Clamping voltage (V)	Max peak current (A) (8/20 µs)	Capacitance (pF) range
0604	225	450	20	20
0806	200 to 385	340 to 740	10 to 160	15 to 140

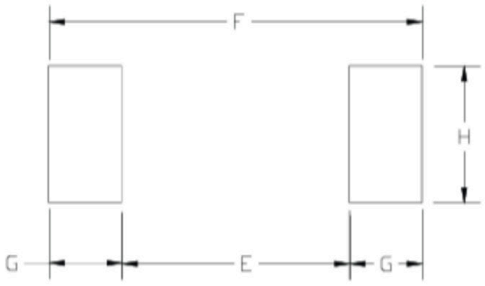
AMLV - Automotive grade

Package size	Working voltage (Vdc)	Clamping voltage (V)	Max peak current (A) (8/20 µs)	Capacitance (pF) range
0402	5.5 to 18	31 to 50	2 to 20	12 to 40
0603	9 to 32	29 to 120	2 to 30	10 to 490
0805	16 to 31	40 to 67	80 to 120	250 to 650
1206	18 to 56	42 to 110	100 to 200	250 to 1000
1210	18 to 45	42 to 90	250 to 500	600 to 3100
1812	16 to 30	40 to 77	600 to 800	1700 to 4500
2220	16 to 38	42 to 77	1000 to 1200	3000 to 20000

Dimensions - mm



Recommended pad layout



Package size	A	B	C	D	E	F	G	H
0201	0.60	0.30	0.30	0.20	0.30	0.80	0.25	0.30
0402	0.85 to 1.0	0.50	0.80	0.20 to 0.25	0.50 to 0.51	1.70 to 1.73	060 to 0.61	0.51 to 0.60
0603	1.60	0.80	0.80	0.30 to 0.35	0.50 to 0.80	1.7 to 2.8	1.0 to 1.02	0.76 to 1.0
0604	1.60	1.05	1.15	0.25	0.70	-	0.92	1.07
0805	2.00	1.2 to 1.25	0.90 to 1.0	0.4 to 0.5	1.00	3.40	1.20	1.40
0806	2.20	1.70	1.80	0.50	1.10	-	1.20	1.75
1206	3.20	1.60	1.1 to 1.5	0.50	2.10	4.50	1.20	1.80
1210	3.20	2.50	1.3 to 1.5	0.50	2.10	4.50	1.20	2.80
1812	4.50	3.20	1.5 to 2.0	0.50 to 0.60	3.00	6.00	1.50	3.60
2220	5.70	5.00	2.50	0.60 to 0.70	4.20	7.20	1.50	5.50
3225	8.00	6.30	1.00	0.70	-	-	-	-
4032	10.0	8.00	1.00	0.70	-	-	-	-

Dimensions are reference. See data sheets for actual dimensions.

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