

MLVHV

Multilayer varistor ESD suppressor



Product features

- MLVHV0604V175: 0604 (1610 metric) package
- MLVHV0806VXXX: 0806 (2217 metric) package
- Bi-directional
- Meet 61000-4-5 standard
- Quick response time (<1ns)
- Meets moisture sensitivity level (MSL): 1

Applications

- Smart meters
- Vac driven LEDs (Acrich, driverless LEDs)
- GFCI and AFCIs
- Vac line protection
- Power supplies and converters
- Industrial equipment
- Commercial and home appliances

Agency information

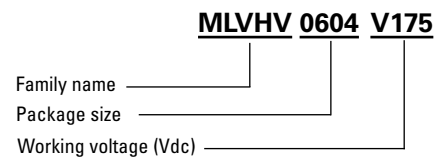
- cURus recognized:
File E340782, Guide VZCA2 and VZCA8



Environmental compliance



Ordering part number



Product specifications

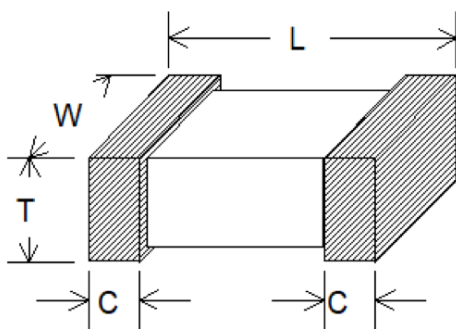
Part number	Working voltage maximum		Varistor voltage @ 1 mA _{dc} (V _v)	Leakage current V _v *80% (at initial state) (μA) maximum	Clamping voltage 1 A 8/20 μs (V) maximum	Typical capacitance @ 1 kHz (pF) maximum	Peak current 8/20 μs (1 time) (A) maximum	Peak current 8/20 μs (15 times) (A) maximum
	(Vac)	(Vdc)						
MLVHV0604								
MLVHV0604V175	180	225	270 ±10%	50	450	20	20	10
MLVHV0806								
MLVHV0806V150	150	200	240 ±10%	80	340	140	160	100
MLVHV0806V175	175	225	270 ±10%	80	390	100	100	50
MLVHV0806V250	250	320	390 ±10%	50	570	50	50	30
MLVHV0806V300	300	385	470 ±10%	50	740	15	10	10

V_v – Voltage across the device measured at 1 mA DC current.

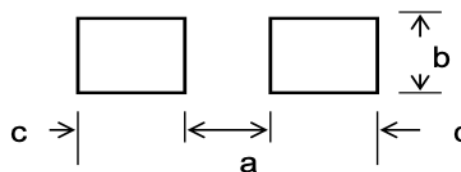
Equivalent to V_b, "Breakdown Voltage".

Operating temperature range: -40 °C to +125 °C.

Dimensions – mm



Pad layout



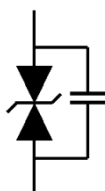
Dimension	Value
MLVHV0604	
L	1.60 ±0.15
W	1.05 ±0.10
T	1.15 maximum
C	0.25 ±0.10
MLVHV0806	
L	2.2 ±0.20
W	1.7 ±0.20
T	1.8 maximum
C	0.50 ±0.25

Dimension	Value
MLVHV0604	
a	0.7
b	1.07
c	0.92
MLVHV0806	
a	1.1
b	1.75
c	1.2

Print solder in a thickness of 150 to 200 μm

Terminal plating: Ni>4μm; Sn>4μm;
Part marking: (No marking)

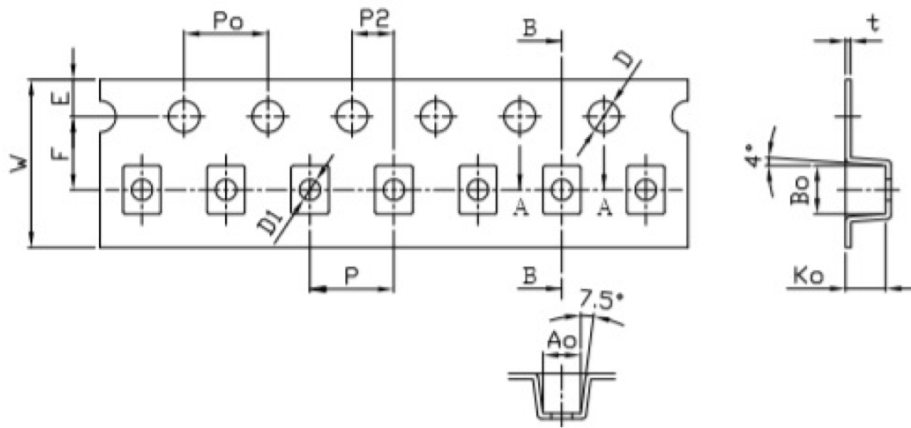
Circuit diagram



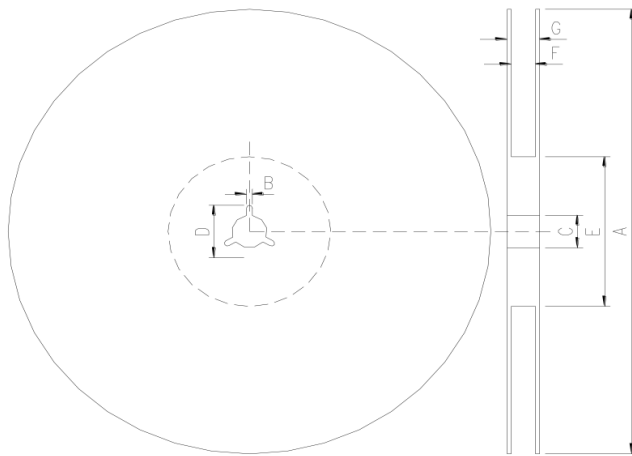
Packaging information - mm

MLVHV0604: 3,000 parts on a 7" diameter tape and reel (EIA-481 compliant)

MLVHV0806: 2,000 parts on a 7" diameter tape and reel (EIA-481 compliant)



Dimension	Millimeter	Tolerance
W	8	± 0.10
P	4	± 0.10
E	1.75	± 0.10
F	3.5	± 0.05
P2	2	± 0.05
D	1.5	$+0.01/-0$
D1	1	± 0.10
Po	4	± 0.10
10Po	40	± 0.2
A0	1.8	± 0.10
B0	2.3	± 0.10
K0	1.9	± 0.10
t	0.26	± 0.05



Dimension	Millimeter	Tolerance
A	178	± 2.0
B	2	± 0.5
C	13	± 0.5
D	21	± 0.8
E	62	± 1.5
F	9	± 0.5
G	13	± 1.0

Solder reflow profile

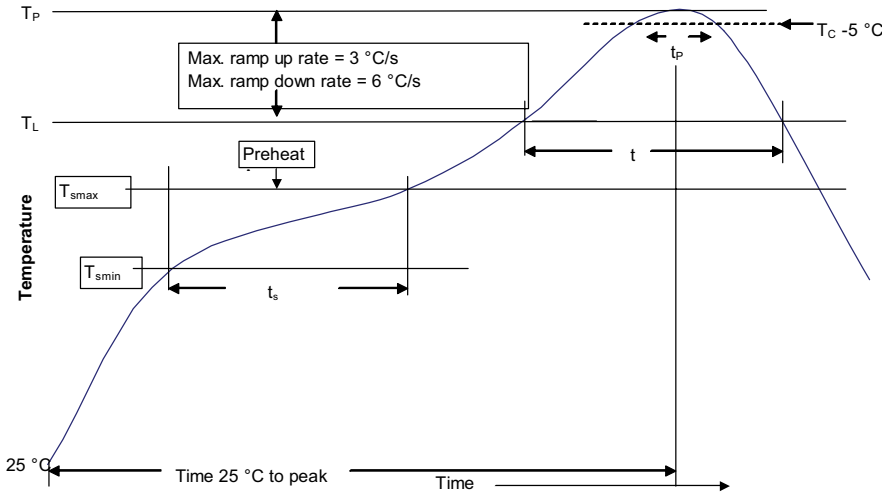


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm^3 <350	Volume mm^3 \geq 350
<2.5 mm	235 °C	220 °C
\geq 2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm^3 <350	Volume mm^3 350 - 2000	Volume mm^3 >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T_{smin})	100 °C	150 °C
• Temperature max. (T_{smax})	150 °C	200 °C
• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_P	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L)	183 °C	217 °C
Time (t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature (T_P)*	Table 1	Table 2
Time (t_p)* within $5\text{ }^\circ\text{C}$ of the specified classification temperature (T_C)	20 seconds*	30 seconds*
Ramp-down rate (T_P to T_L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.

Manual solder

+330 °C, 6 seconds maximum, 30 W maximum soldering iron, generally manual/hand soldering is not recommended

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Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

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