

ESD Series SMD

Multilayer Ceramic Transient Voltage Suppressor for ESD Protection

Specifications

Packaging
 Tape and Reel 0402(10,000 pcs)
 T 7 inch reel 0603(4,000 pcs)
 0805-1206(3,000 pcs)

Material
 Body : Ceramic (ZnO)
 Terminals : Ni/Sn plated (code "P")
 Ag/Pt/Pd non plated
 (code "N" on request)

Operating Temperature
 -55 to +125°C

Solderability
 acc. to IEC 60068-2-58
 235°C, 2s

Soldering Heat Resistance
 260°C, 10 sec. (IEC 60068-2-58)
 280°C, 5 sec. (IEC 60068-2-58)

Temperature coefficient (α_V) of clamping voltage (V_C) @ specified test current
 <0.01%/°C

Standards
 IEC 61000-4-2
 MIL-STD-883C

Features

Thin layer, high precise techniques
 Lead free
 Bi-directional clamping
 Ultra low capacity
 Available with Nickel/Tin end termination

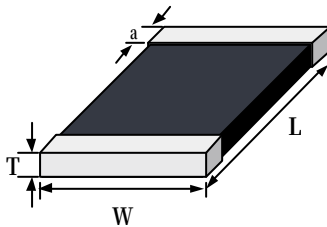
Applications

Circuit board and ESD, EFT

Protection of:

- USB ports
- Keyboards
- Cellular Phones
- IEEE ports
- PDA/Handheld
- Sensors

Dimensions



Maximum Ratings (125°C)						Specifications (25°C)			
Type	max. cont. working voltage $V_{M(DC)}$ (V)	max. non-repetitive surge current (8/20 μ s) I_{TM} (A)	max. non-repetitive surge energy (10/1000 μ s) W_{TM} (J)	max.ESD clamp voltage 8kV contact V_C (note2)	max. clamping voltage at spec. current (8/20 μ s) V_C (V@A)	nominal varistor voltage at 10mA (DC) test current $V_{NDC(min)}$ (V)		typ. capacitance 1MHz C_{typ} (pF)	typ. inductance L_{typ} (nH)
JE0402ML180L	18.0	15	0.03	120	50 @ 1A	22	28	30	1.0
JE0402ML180A	18.0	15	0.03	120	50 @ 1A	22	28	40	1.0
JE0603ML180L	18.0	20	0.05	120	50 @ 1A	22	28	40	1.0
JE0603ML180A	18.0	20	0.05	120	50 @ 2A	22	28	100	1.0
JE0805ML180L	18.0	30	0.10	100	50 @ 2A	22	28	100	1.0
JE0805ML180A	18.0	30	0.10	100	50 @ 5A	22	28	500	1.0
JE1206ML180L	18.0	30	0.10	80	50 @ 5A	22	28	500	1.0
JE1206ML180A	18.0	30	0.10	80	50 @ 10A	22	28	800	1.0

Maximum Leakage $V_{M(DC)}$								
	JE0402ML180L	JE0402ML180A	JE0603ML180L	JE0603ML180A	JE0805ML180L	JE0805ML180A	JE1206ML180L	JE1206ML180A
3.5V	μ A	μ A	μ A	μ A	μ A	μ A	μ A	μ A
5.5V	0.08	0.08	0.08	0.08	0.15	0.15	0.30	0.30
15V	0.20	0.20	0.20	0.20	0.30	0.30	0.80	0.80
18V	1.50	1.50	3.00	3.00	3.00	3.00	3.00	3.00
	6.00	6.00	15.0	15.0	15.0	15.0	15.0	15.0

Note 1 : For applications of 18 $V_{M(DC)}$ or less. Higher voltages, Please contact Jumbo Tek for availability.

Note 2 : Maximum ESD clamp voltage tested with IEC 1000-4-2 Human Body Model discharge test circuit and direct discharge to device terminals (IEC preferred test method) .

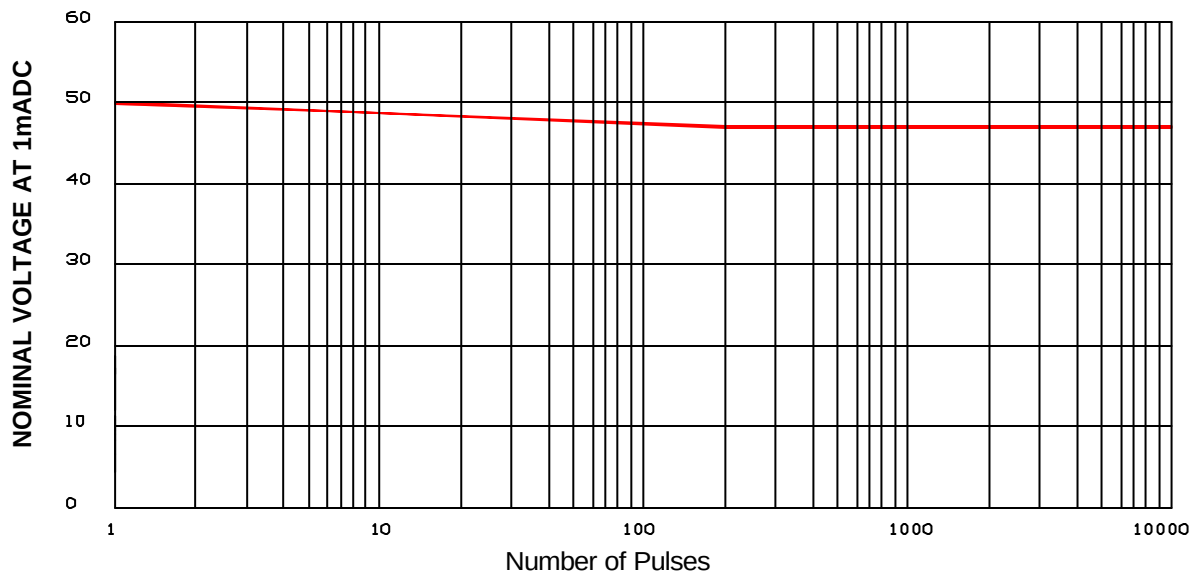
Note 3 : Capacitance may be customized, please contact Jumbo Tek for availability.

Order
Information

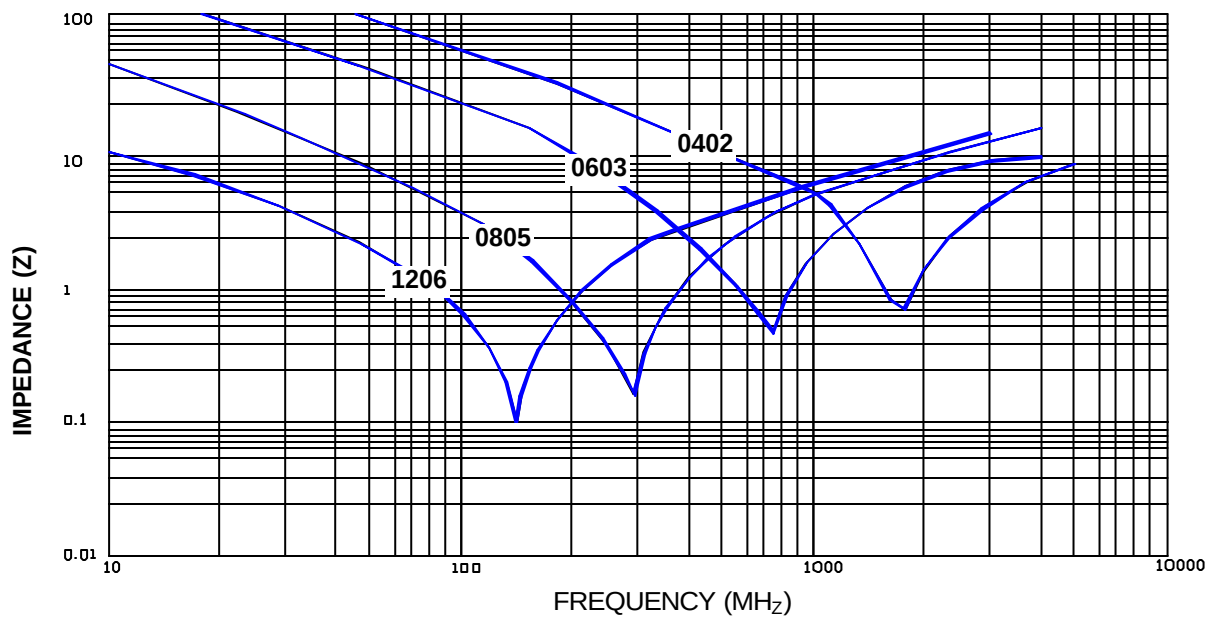
Qty.	Order- Number	Type	Terminal Code	Packaging
		JE0402ML180	L	P
				T

Specifications are subject
to change without notice

ESD Series SMD



**NOMINAL VOLTAGE STABILITY TO MULTIPLE ESD IMPULSES
(8KV CONTACT DISCHARGES PER IEC 61000-4-2)**



IMPEDANCE (Z) vs FREQUENCY TYPICAL CHARACTERISTIC