

## 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)

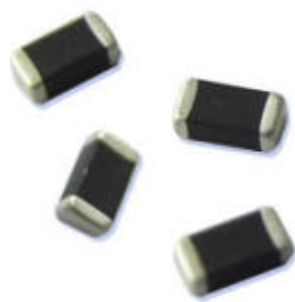
Operating Temperature  
-55 to +125°C

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 ( $\alpha V$ ) 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

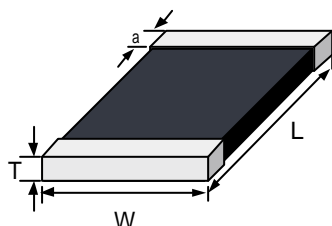
### Applications

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	max. non-repetitive surge current (8/20 $\mu$ s)	max. non-repetitive surge energy (10/1000 $\mu$ s)	max.ESD clamp voltage 8kV contact	max. clamping voltage at spec. current (8/20 $\mu$ s)	nominal varistor voltage at 10mA (DC) test current		typ. capacitance	typ. inductance
	$V_{M(DC)}$ (V)	$I_{TM}$ (A)	$W_{TM}$ (J)	$V_c$ (note2)	$V_c$ (V@A)	$V_{NDC(min)}$ (V)	$V_{NDC(max)}$ (V)	1MHz $C_{typ}$ (pF)	$L_{typ}$ (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	$\mu$ A	$\mu$ A	$\mu$ A	$\mu$ A	$\mu$ A	$\mu$ A	$\mu$ A	$\mu$ 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
18V	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.

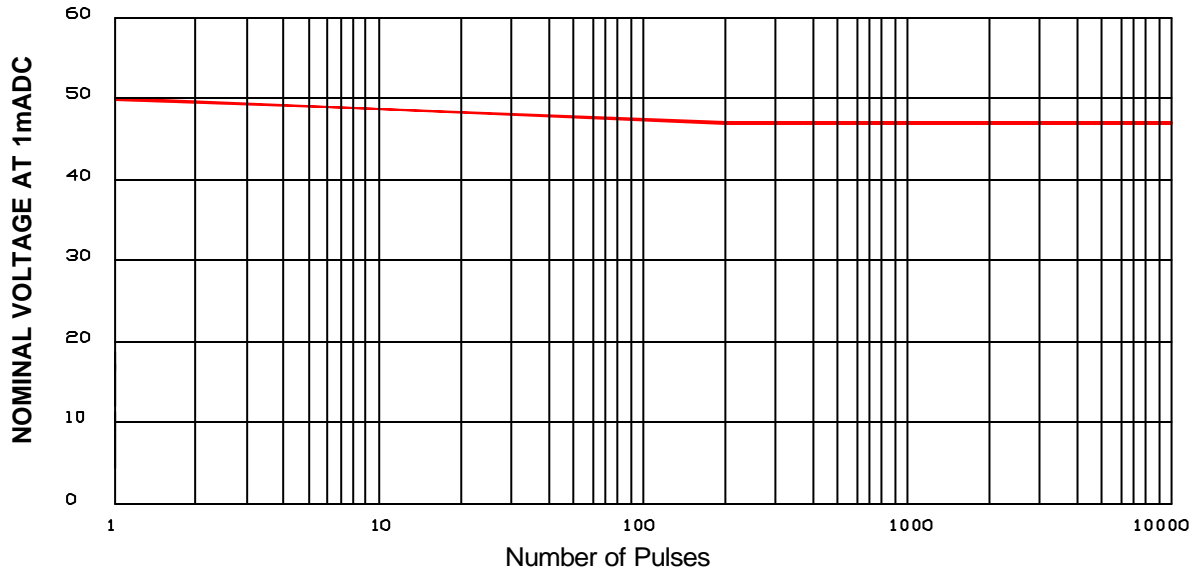
Note 2 : Maximum ESD clamp voltage tested with IEC 1000-4-2 Human Body Model discharge test circuit and direct discharge to device terminals ( IEC preferred test method ) .

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

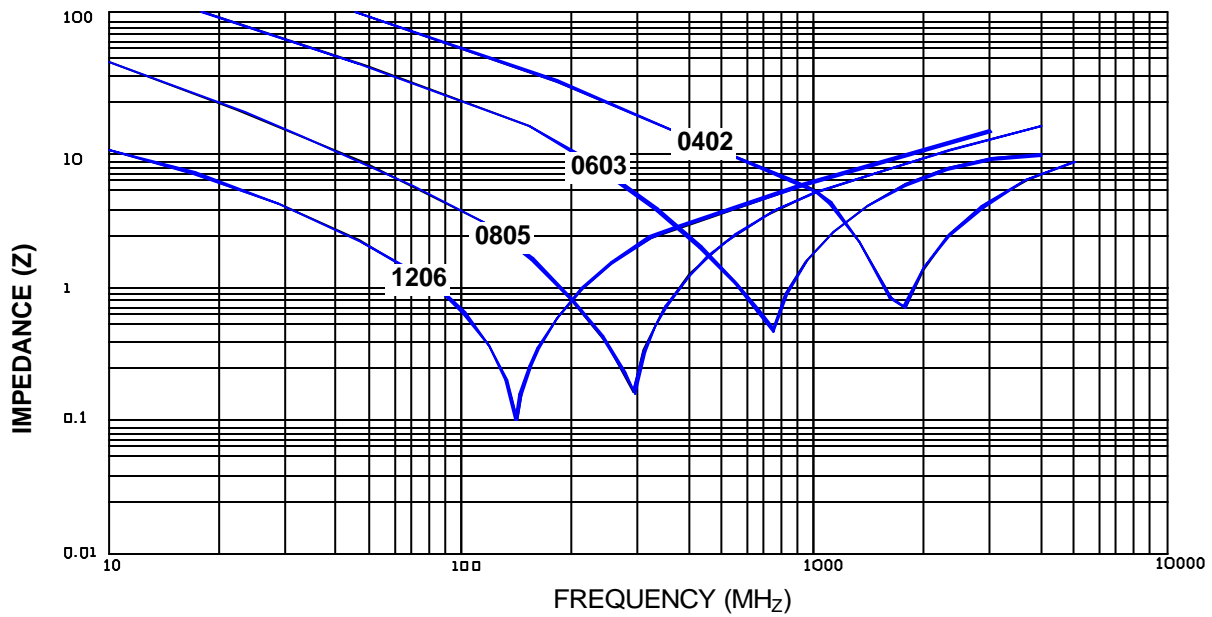
Order Information	Qty.	Order-Number	Type	Terminal Code	Packaging
				<b>JE0402ML180</b>	<b>L</b>

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**