Transient Voltage Suppressors for ESD Protection

0402

»Features

- 0402inch/ 1005mm foot print
- Ideal ESD protection for high frequency, low voltage applications.
- Exceeds testing requirements outlined in IEC 61000-4-2
- Ultra low capacitance (1.5pF typ.)
- Very low leakage current
- Fast response time
- Bi-directional
- MSL 3

Package Dimension

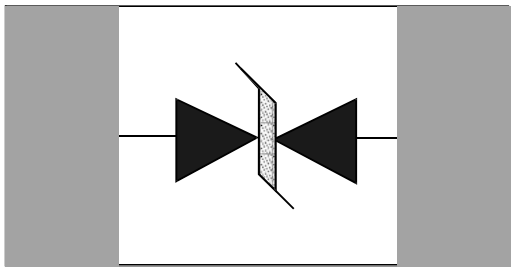
»Applications

- High Speed Data Ports (USB 2.0, IEEE 1394)
- Computers & Peripherals (Cell phone, PDA, HDTV, DVD players)

»Mechanical Data

- Surface mount
- RoHS Compliant

»Schematic & PIN Configuration



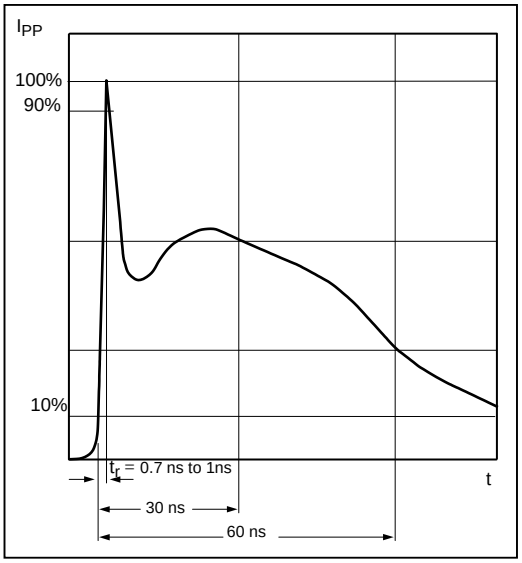
»Absolute Maximum Rating

Rating	Symbol	Conditions	Value	Units
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}		8 15	kV
Lead Soldering Temperature	T_L		260(10seconds)	℃
Operating Temperature	T_O		-55 to + 125	℃
Storage Temperature	T_{stg}		-40 to + 125	℃

»Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Continuous Operating Voltage	V_{DC}				24	V
Trigger Voltage	V_T	IEC61000-4-2 8KV contact discharge		140		V
Leakage Current	I_L	VDC=5V,T=25 ℃			500	nA
Clamping Voltage	V_C	IEC61000-4-2 8KV contact discharge		65	100	V
Capacitance	C_P	Measured at 10MHz		1.5		pF
ESD Pulse Withstand	Pulses	IEC61000-4-2 8KV contact discharge	1000			

»ESD Wave From



»Electrical Characteristics

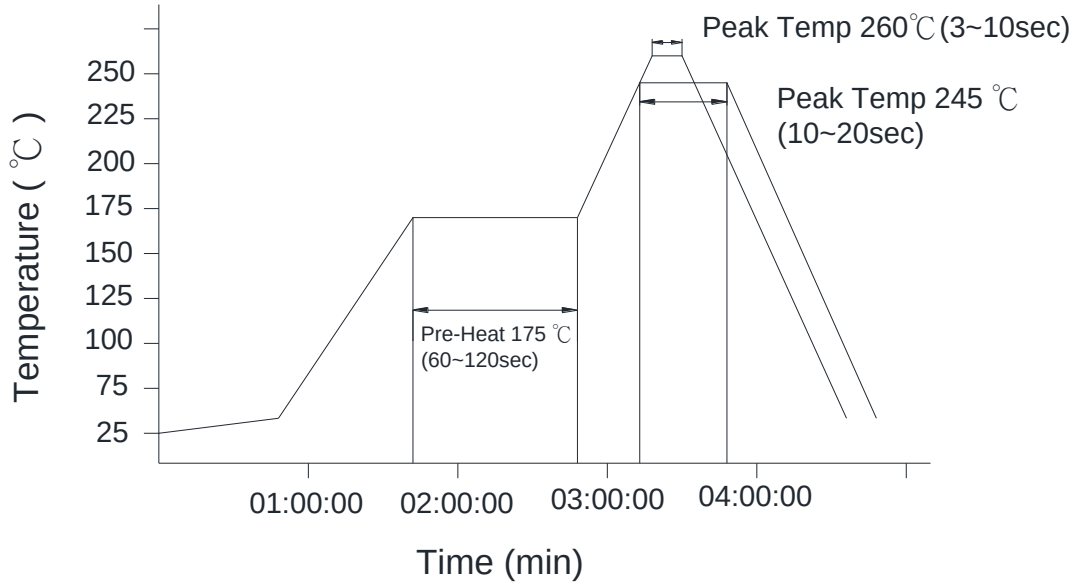
SEVERITY LEVEL	AIR DIRCHARGE	DIRECT DISCHARGE
1	2KV	2KV
2	4KV	4KV
3	8KV	6KV
4	15KV	8KV

IEC61000-4-2 compliant ESD current pulse waveform

»Environment Reliability Test

Characteristic	Test Method and Description			
High Temperature Storage	The specimen shall be subjected to 125±2℃ for 1000±2 hours without load and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%.			
Temperature Cycle	The temperature cycle of specified temperature shall be repeated five times and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10% and mechanical damage shall be examined.	Step	Temperature	Period
		1	-40±3℃	30±3min
		2	room temperature	1 hour
		3	125±3℃	30±3min
		4	room temperature	1 hour
High Temperature Load	After being continuously applied the maximum allowable voltage at 85±2℃ for 1000±2 hours, the specimen shall be stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%.			
Damp Heat Load/ Humidity Load	The specimen should be subjected to 40±2℃ and 90~95% RH, the maximum allowable voltage applied for 1000±2 hours and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%.			
Low Temperature Storage	The specimen should be subjected to -40±2℃ for 1000±2 hours without load and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%.			

»Soldering Parameters



☆ **IR reflow Pb free process suggestion profile**

(1) The solder recommend is Sn96.5/Ag3.5 and thickness recommend as shown in table 5.3

(2) Ramp-up rate (217℃ to peak) +3℃/second max.

(3) Temp. maintain at 175±25℃ 180 seconds max.

(4) Temp. maintain above 217℃ 60~150 seconds