

Three-Lines ESD Protection -ESD5V0L3

Description

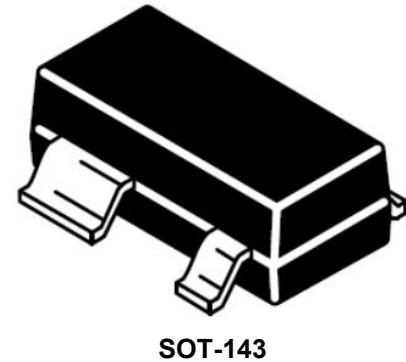
The ESD5V0L3 TVS arrays are designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage-induced transient events. They are designed for use in applications where board space is at a premium. Each device will protect up to three lines. They are unidirectional devices and may be used on lines where the signal polarities are above ground. TVS diodes are solid-state devices designed specifically for transient suppression. They feature large cross-sectional area junctions for conducting high transient currents. They offer desirable characteristics for board level protection including fast response time.

Feature

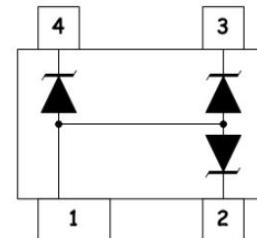
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 15\text{kV}$ Contact discharge: $\pm 8\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- RoHS Compliant

Applications

- USB 2.0 power and data line
- Set-top box and digital TV
- Digital video interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100 Ethernet



Schematic & PIN Configuration



Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
IEC61000-4-2(ESD) Air Contact		± 15 ± 8	KV
Peak Power Dissipation @ 8 X 20 ms @ $\text{TA} \leq 25^\circ\text{C}$ (Note 1)	P_{pp}	100	W
Operating Temperature Range	T_J	-55 ~ +125	°C/W
Junction and Storage temperature range	T_J, T_{stg}	-55 ~ +150	°C

Electrical Characteristics (T =25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	6			V
Reverse Leakage Current	I_R	$V_R = V_{RWM}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}, t_P = 8/20\mu\text{s}$			9.8	V
		$I_{PP}=5\text{A}, t_P = 8/20\mu\text{s}$			15	V
Junction Capacitance	C_J	$V_R=0\text{V}, f = 1\text{MHz}$ Between I/O pins and GND		30		pF

Rating & Characteristic Curves

Figure 1- Power Derating Curve

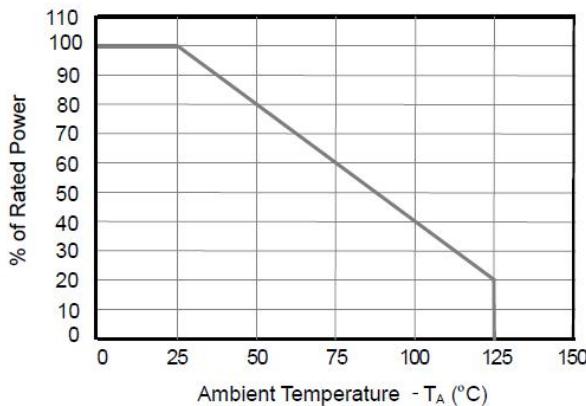
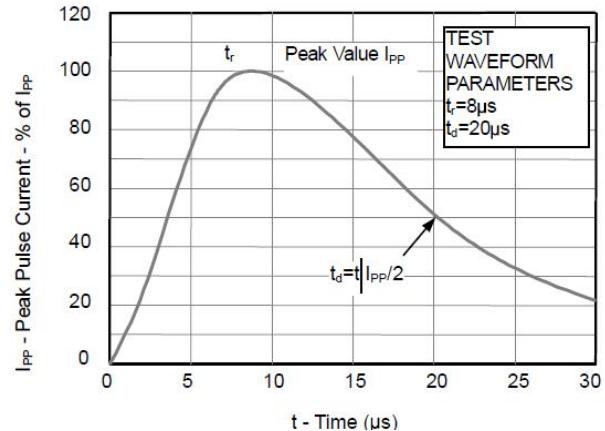
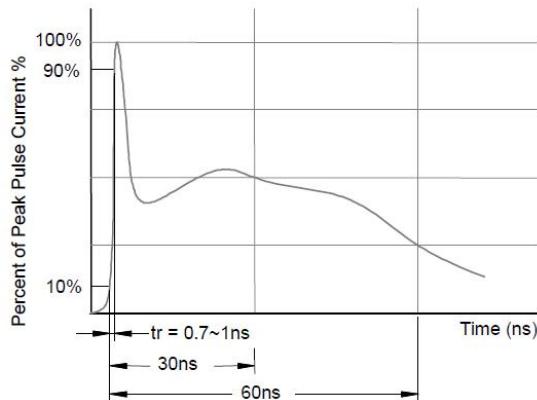
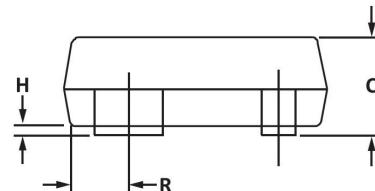
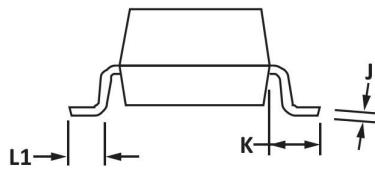
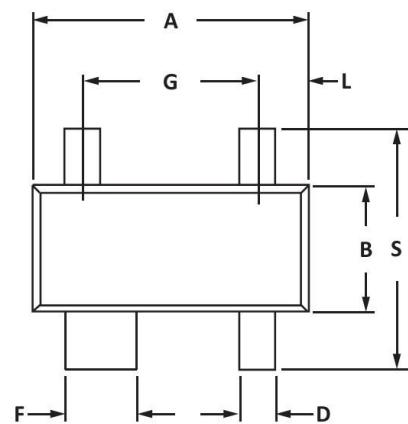


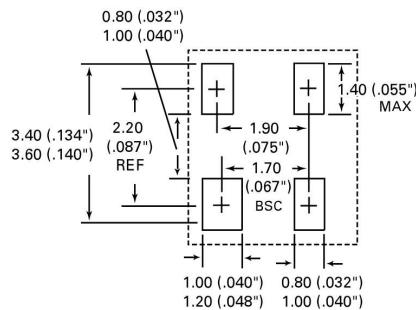
Figure 2- 8/20μs Pulse Waveform


 Figure3- ESD Pulse Waveform
(according to IEC 61000-4-2)


PACKAGE OUTLINE DIMENSIONS : SOT - 143



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.110	0.120
B	1.20	1.39	0.047	0.055
C	0.84	1.14	0.033	0.045
D	0.39	0.50	0.015	0.020
F	0.79	0.93	0.031	0.037
G	1.78	2.03	0.070	0.080
J	0.08	0.15	0.003	0.006
K	0.46	0.60	0.018	0.024
L	0.045	0.60	0.0175	0.024
L1	0.4	0.60	0.016	0.024
R	0.72	0.83	0.028	0.033
S	2.11	2.48	0.083	0.098



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.