

TVS Diode Array

ESD05V14T-LC

Features

- ◆ 100 Watts peak pulse power per line ($t_p=8/20\mu s$)
- ◆ Protects four I/O lines
- ◆ Low clamping voltage
- ◆ Low operating voltage
- ◆ Low capacitance: $<1.0pF$ typical
- ◆ ROHS compliant

Main Applications

- ◆ Fire Wire & USB
- ◆ Sensitive Analog Inputs
- ◆ Notebook Computers
- ◆ Portable Electronics
- ◆ LAN/WAN equipment
- ◆ Video Line Protection
- ◆ Microcontroller Input Protection

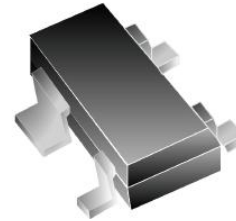
Protection Solution to Meet

- ◆ IEC61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (Lightning) 6.5A (8/20 μs)

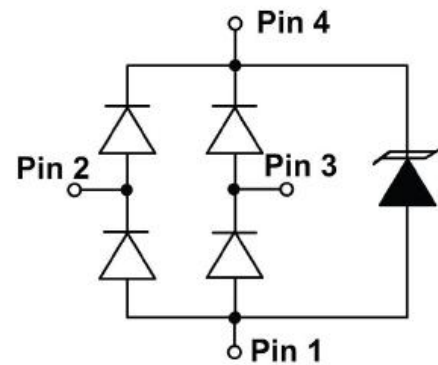
Mechanical Characteristics

- ◆ JEDEC SOT-143 Package
- ◆ Molding Compound Flammability Rating : UL 94V-0
- ◆ Quantity Per Reel : 3, 000pcs
- ◆ Lead Finish : Lead Free

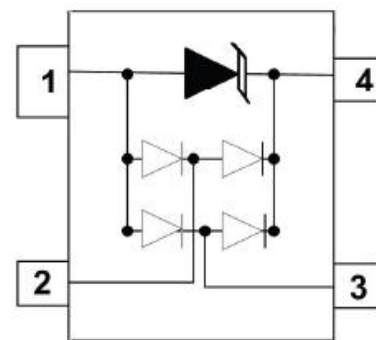
SOT-143



Circuit Diagram



SOT-143 Top View



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Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Units
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-55 to +125	$^{\circ}\text{C}$
Lead Soldering Temperature	T_L	260 (10 sec.)	$^{\circ}\text{C}$
Peak Pulse Power dissipation on 8/20 μs waveform)	P_{PP}	100	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 8	

Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_R				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.0			V
Reverse Leakage Current	I_R	$V_R = 5\text{V}$ pin4 to pin1			1	μA
Clamping Voltage (I/O pin to Ground)	V_C	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$		9.2	10	V
		$I_{PP} = 4\text{A}$, $t_p = 8/20\mu\text{s}$		12.5	15	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Any I/O pin to Ground		0.8	1.0	pF
		$V_R = 0\text{V}$, $f = 1\text{MHz}$ Between I/O pins		0.4	0.6	

Ratings and V-I Characteristics Curves ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Fig1. V-I Curve Characteristics

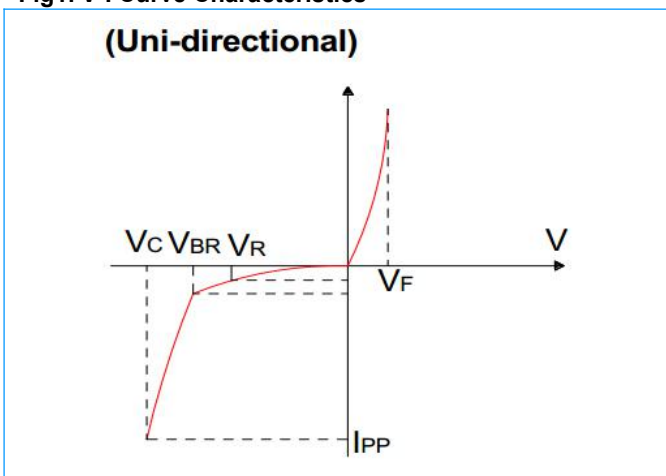
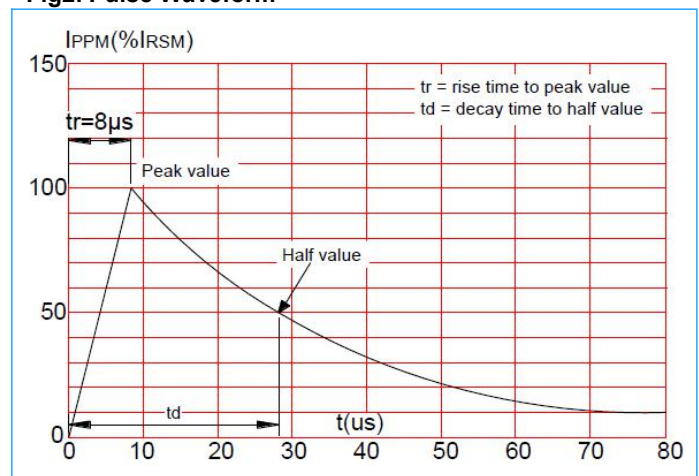


Fig2. Pulse Waveform



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Fig3. Pulse Derating Curve

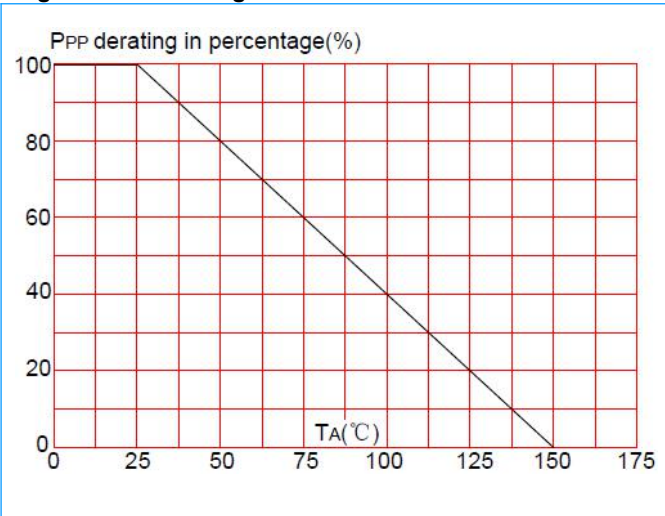
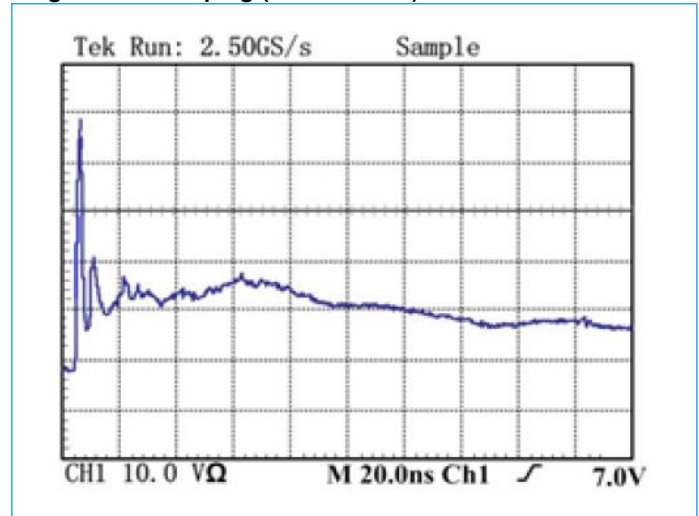
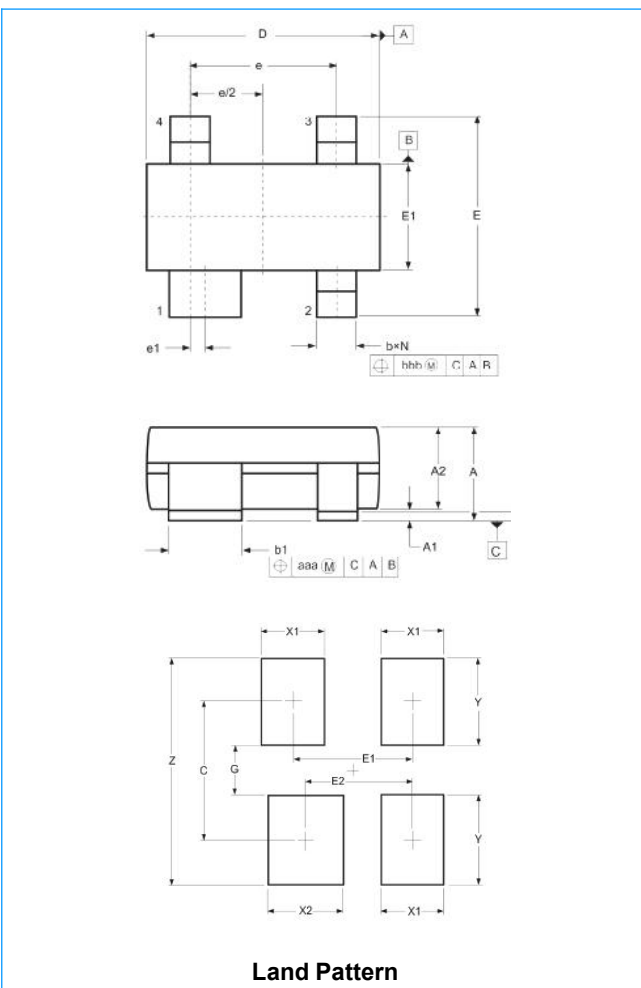


Fig4. ESD Clamping (8KV Contact)



SOT-143 Package Mechanical Data



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
b1	0.75	0.90	0.030	0.035
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
e	1.80	2.00	0.071	0.079
e1	0.20TYP		0.008TYP	
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
C	2.20		0.087	
E2	1.92		0.076	
G	0.80		0.031	
X1	1.00		0.039	
X2	1.20		0.047	
y	1.40		0.055	
z	3.60		0.141	