

# Transient Voltage Suppressors Array for ESD Protection

Low Capacitance

## SE05T4L14HC

### Feature

- ◆ Protects four I/O lines
- ◆ Low clamping voltage
- ◆ Working voltages : 5V
- ◆ Low leakage current

### Applications

- ◆ USB OTG
- ◆ Video Graphics Cards
- ◆ High-Definition Multimedia Interface (HDMI)
- ◆ 10/100/1000 Ethernet
- ◆ IEEE 1394 Fire wire Ports

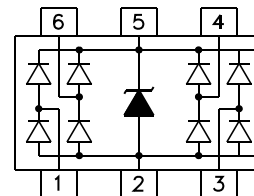
### Mechanical Characteristics

- ◆ JEDEC SOT-363 Package
- ◆ Molding Compound Flammability Rating : UL 94V-0
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch

SOT-363



### Functional Diagram

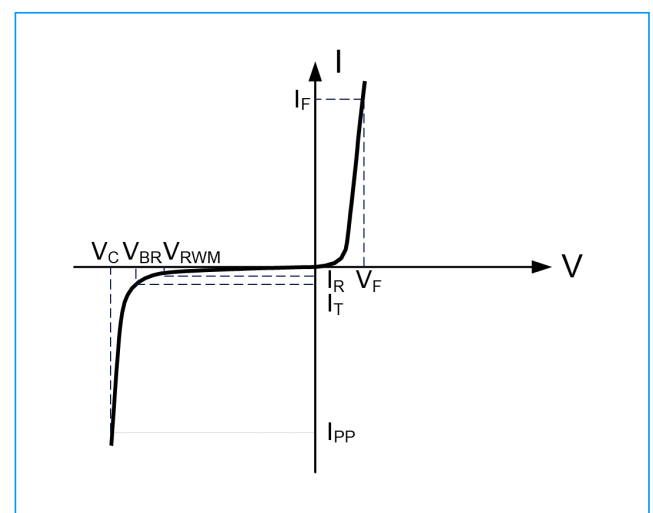


### Mechanical Characteristics

Symbol	Parameter	Value	Units
$T_L$	Lead Soldering Temperature	260 (10sec)	°C
$T_{STG}$	Storage Temperature Range	-55 to +150	°C
$T_{OP}$	Operating Temperature Range	-55 to +150	°C
	IEC61000-4-2 (ESD)	Air Discharge Contact Discharge	±27 ±16 KV

### Mechanical Characteristics

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_F$	Forward Current
$V_F$	Forward Current @ $I_F$



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### Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Symbol	Test Condition	Minimum	Typical	Maximum	Units
$V_{RWM}$	pin 5 to pin 2 $T=25^{\circ}C$	—	—	5.0	V
$V_{BR}$	$I_T=1mA$ pin 5 to pin 2	6.0	—	—	V
$I_R$	$V_{RWM}=5.0V, T=25^{\circ}C$ pin 5 to pin 2	—	—	5	$\mu A$
$V_F$	$I_T=10mA$	—	0.8	1	V
$V_C$	$I_{PP}=3A, t_p=8/20\mu s$ I/O pin to GND	—	—	20	V
$C_J$	$V_R=0V, f=1MHz$ I/O pin to GND	—	1.0	1.5	pF
$C_J$	$V_R=0V, f=1MHz$ Between I/O pins	—	0.5	—	pF

### Characteristic Curves

Fig1. 8/20 $\mu s$  Pulse Waveform

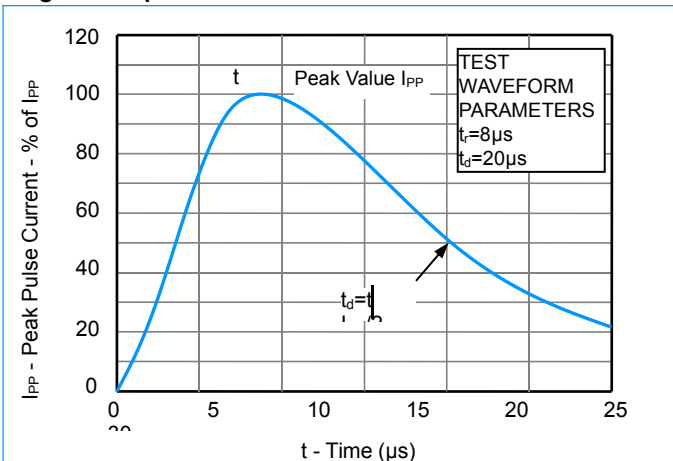


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

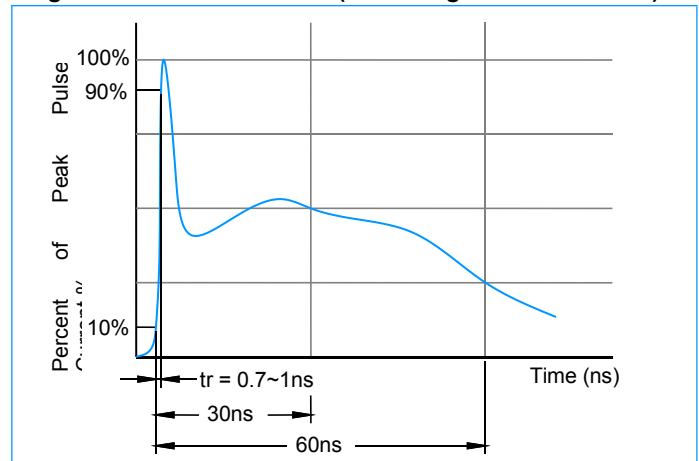
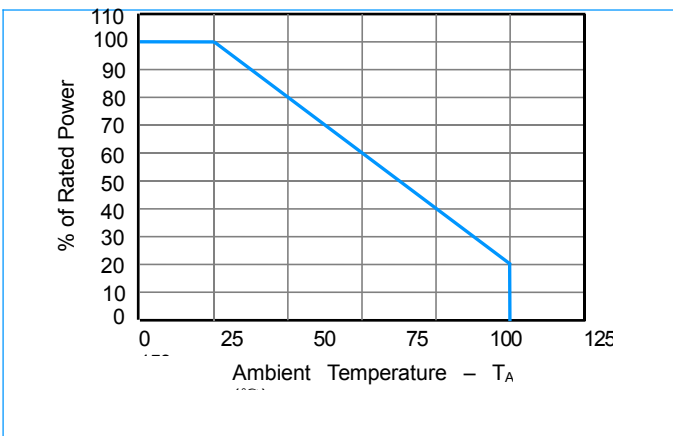


Fig3. Power Derating Curve



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## Characteristic Curves

Fig4. Normalized Capacitance Vs. Reverse Voltage

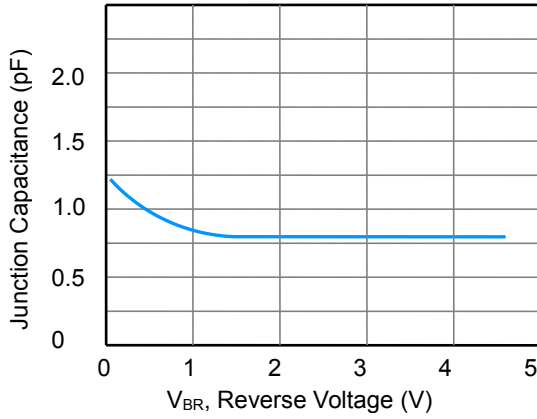
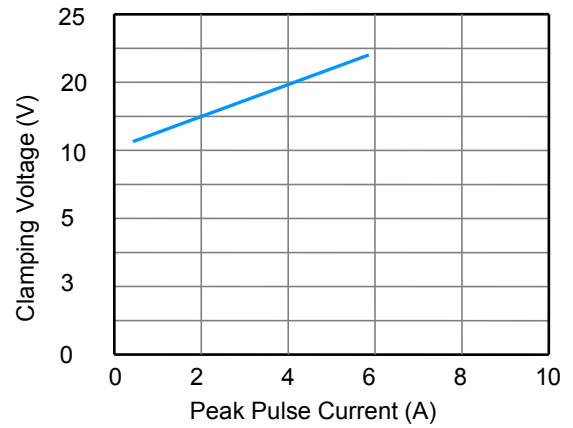
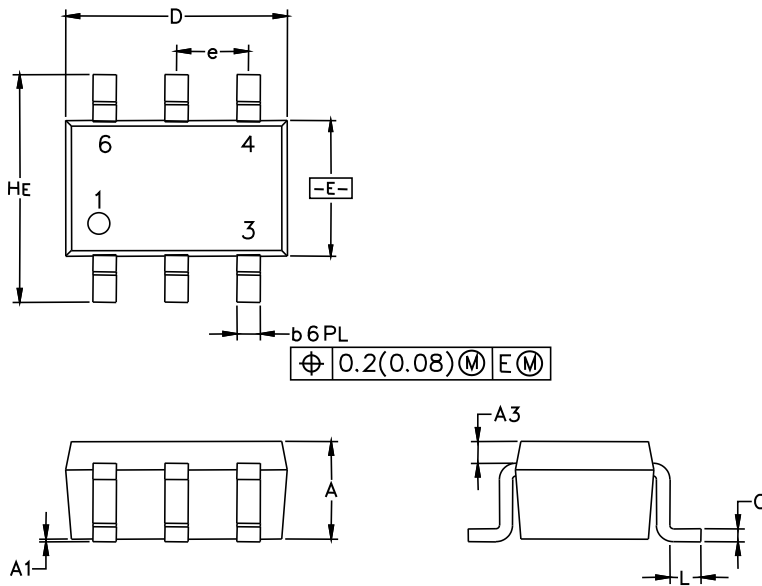


Fig5. Clamping Voltage Vs. Peak Pulse Current

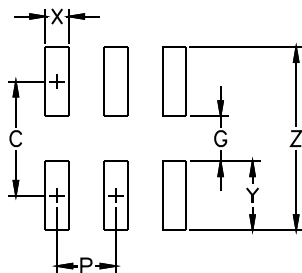


## SOT-363 Package Outline & Dimensions



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.031	0.037	0.043	0.80	0.95	1.10
A1	0.000	0.002	0.004	0.00	0.05	0.10
A3	0.08 REF			0.2 REF		
b	0.004	0.008	0.012	0.10	0.21	0.30
C	0.004	0.005	0.010	0.10	0.14	0.25
D	0.070	0.078	0.086	1.80	2.00	2.20
E	0.045	0.049	0.053	1.15	1.25	1.35
e	0.026 BSC			0.65 BSC		
L	0.004	0.008	0.012	0.10	0.20	0.30
HE	0.078	0.082	0.086	2.00	2.10	2.20

## Soldering Footprint



Symbol	Inches	Millimeters
C	0.0748	1.9
G	0.055	1.40
P	0.025	0.65
X	0.0157	0.40
Y	0.019	0.50
Z	0.0945	2.4