

DESCRIPTION

The SESD033LCT6 is an ultra-low capacitance TVS array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The SESD033LCT6 has an ultra-low capacitance with a typical value at 0.3pF (I/O to I/O) , and complies with the IEC 61000-4-2 (ESD) standard with $\pm 25\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. It is assembled into a 6-pin lead-free SOT23-6 package. The low capacitance array make it ideal for four high speed data and transmission line. This device is optimized for ESD protection of portable electronics.

FEATURES

- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Ultra low operating voltage: 3.3V
- Low clamping voltage
- Up to 4 data lines and one power line protects

APPLICATIONS

- LAN Applications
- Fingerprint
- Video Lines Protection
- Handheld Electronics
- 3.3V Operating Systems
- Analog Input Lines Protection
- Data and I/O Lines Protection

MECHANICAL DATA

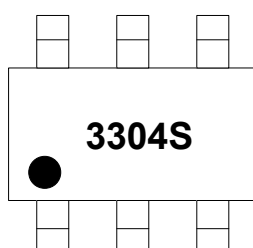
- Case : Molded, plastic SOT-23-6
- Polarity : Shown follows
- Epoxy : UL94-V0 rated flame retardant

IEC COMPATIBILITY

- IEC 61000-4-2 (ESD) $\pm 25\text{kV}$ (air), $\pm 20\text{kV}$ (contact)
- IEC 61000-4-5 (Lightning) 5A (8/20 μs)

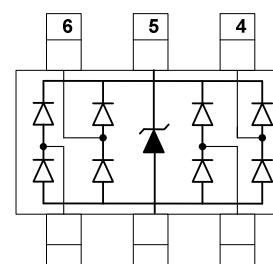
SOT-23-6 PACKAGE

Marking :



3304S = Device Marking Code
Dot denotes Pin1

SCHEMATIC & PIN CONFIGURATION



Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs)	PPP	100	W
Peak Pulse Current (tp=8/20µs)	IPP	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±25 ±20	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

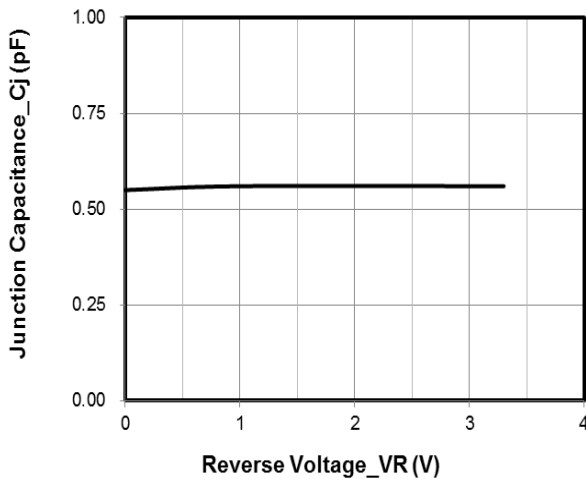
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			3.3	V	Any I/O pin to ground
Breakdown Voltage	VPT	3.5			V	It = 2µA, any I/O pin to ground
Snap-Back Voltage	VSB	2.8			V	It = 50mA, any I/O pin to ground
Reverse Leakage Current	IR			0.2	µA	VRWM = 3.3V, any I/O pin to ground
Clamping Voltage	VC			10	V	IPP = 1A (8 x 20µs pulse), any I/O pin to ground
Clamping Voltage	VC			20	V	IPP = 5A (8 x 20µs pulse), any I/O pin to ground
Junction Capacitance	CJ		0.3	0.4	pF	VR = 0V, f = 1MHz, between I/O pins
Junction Capacitance	CJ		0.6	0.8	pF	VR = 0V, f = 1MHz, any I/O pin to ground

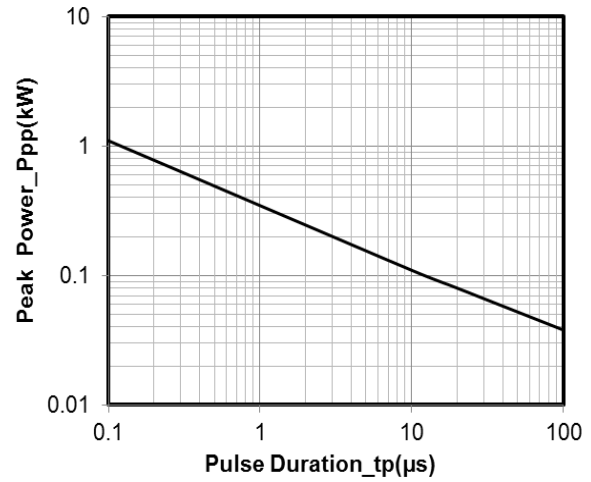
Note 1: I/O pins are Pin 1, 3, 4 and 6



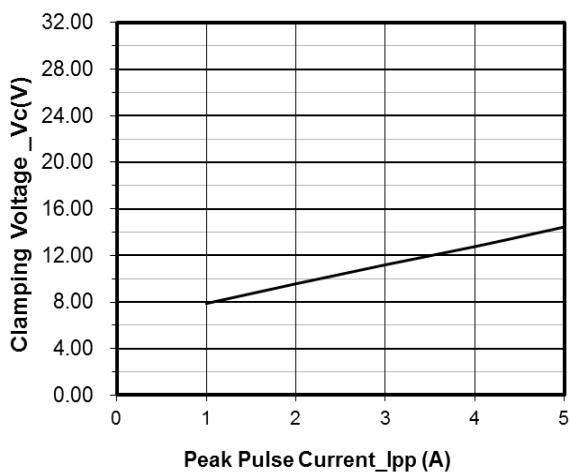
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



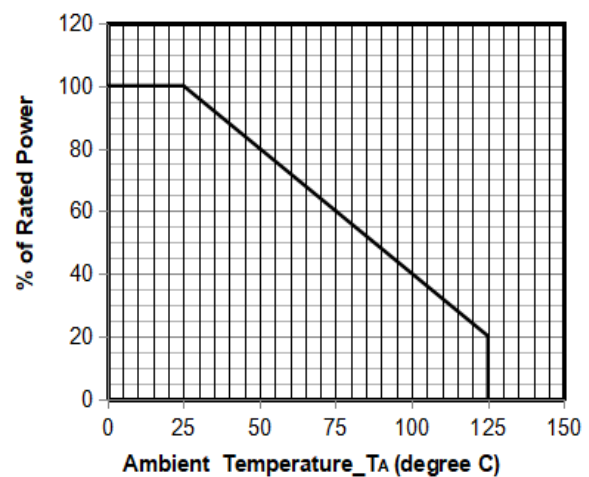
Junction Capacitance vs. Reverse Voltage



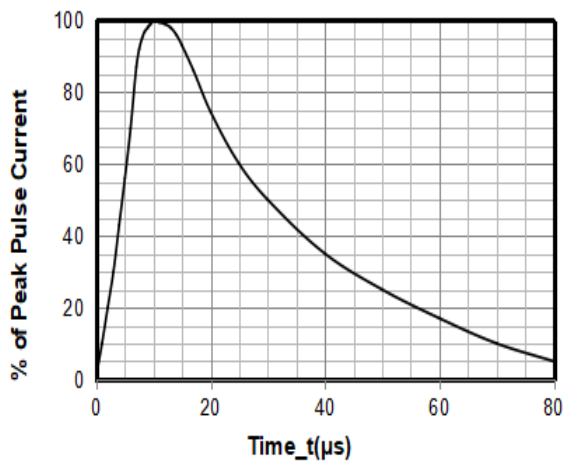
Peak Pulse Power vs. Pulse Time



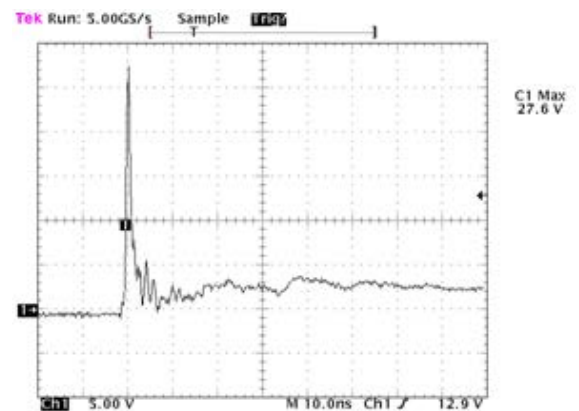
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



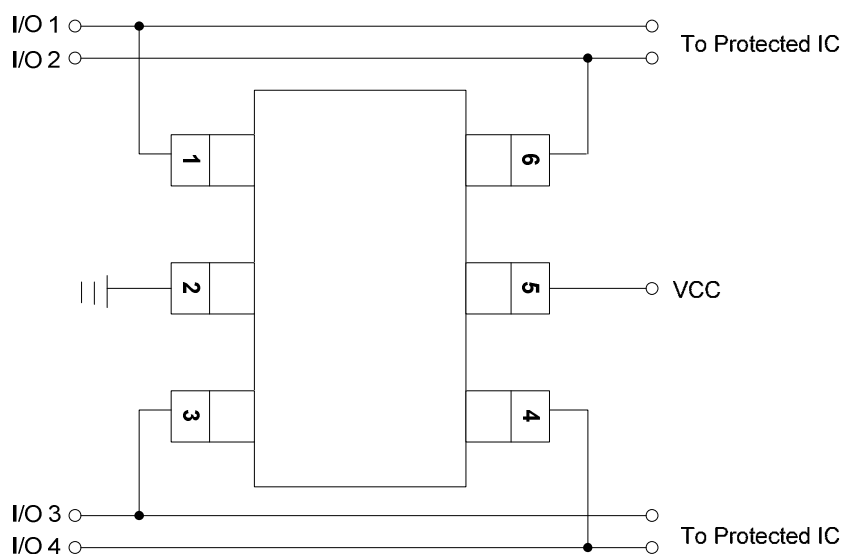
Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

Typical Application

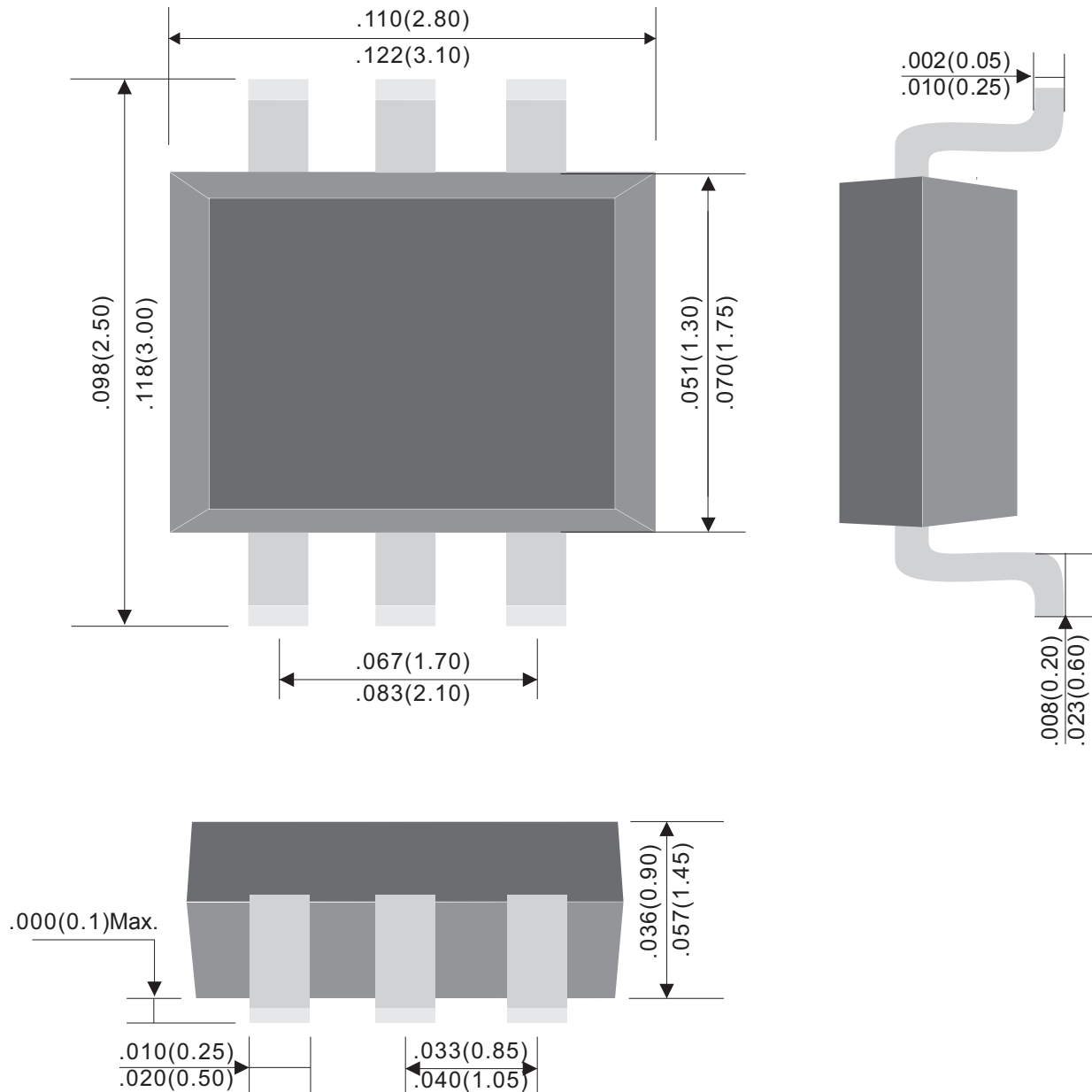
The SESD033LCT6 is designed to protect four data lines from transient over-voltages by clamping them to fixed reference. When the voltage on the protected line exceeds the reference voltage (plus diode VF) the steering diodes are forward biased, conducting the transient current away from the sensitive circuitry. Data lines are connected at pins 1, 3, 4 and 6. The negative reference (REF1) is connected at pin 2. This pin should be connected directly to a ground plane on the board for best results. The path length is kept as short as possible to minimize parasitic inductance. The positive reference (REF2) is connected at pin 5.





Outline Drawing

SOT-23-6



Dimensions in inches and (millimeters)

Rev.D

Ordering Information:

Device PN	Packing
SESD033LCT6 -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Halogen free product for packing code suffix "H"

(3) WS : Willas brand abbreviation, Label Type does not display

Disclaimer

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