

Features

- Ultra low leakage: nA level
- Low operating voltage: 12V
- Low clamping voltage
- Up to 4 data lines protects
- JEDEC SOT-563 package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: ±15kV
Contact discharge: ±12kV
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 3A (8/20µs)
- RoHS Compliant

Description

The ESD1240XO is a 12V bi-directional 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 ESD1240XO has low capacitance with a typical value at 4pF, and complies with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV contact discharge. It is assembled into a 6-pin lead-free SOT-563 package. The combination of small size, low capacitance and high level of ESD protection makes it ideal for cellular, notebooks, desktops, and other portable application.

Mechanical Characteristics

- Package: SOT-563
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram

Applications

- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Computers
- Printers
- Set Top Boxes

Part Number Code

E	S	D	0	5	1	1	L	1
1	2	3	4	5	6	7	8	9

Product Type	
ESD	TSK Electrostatic suppressor ESD Type

Reverse Working Voltage (V)	
3V3	3.3V
05	5V
16	16V

Line	
1	1-Line
2	2-Line
3	3-Line

Capacitance Type	
L	Low
X	Normal

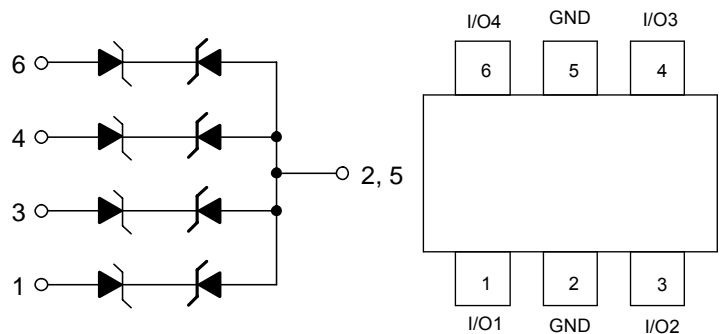
directional	
0	Bi
1	Uni

Size	
1	O201
2	O402
3	DFN0603
4	DFN1006

★ Code 4 to 9 is optional



Dimensions and Pin Configuration



Circuit Schematic

Pin Schematic

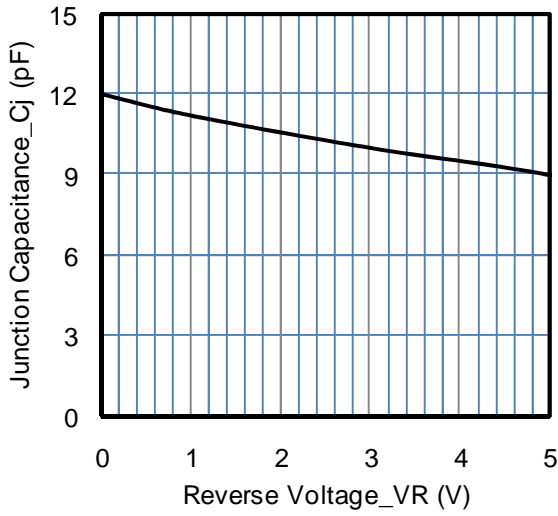
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Units
Peak Pulse Power (8/20 μs)	PPK	75	W
Peak Pulse Power (8/20 μs) _ Vcc Diode	IPP	3	A
ESD per IEC 61000-4-2 (Air)	VESD	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 12	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

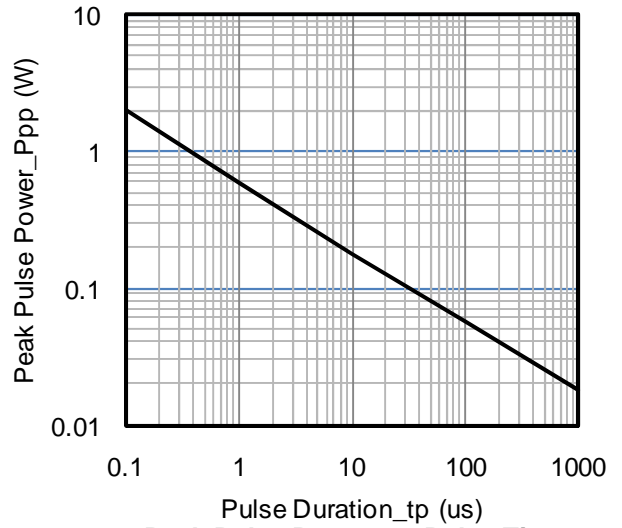
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	13.3		17.8	V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			0.05	μA	VRWM = 12V
Clamping Voltage	VC			15	V	IPP = 1A (8 x 20 μs pulse)
Clamping Voltage	VC			25	V	IPP = 3A (8 x 20 μs pulse)
Junction Capacitance	CJ		10	15	pF	VR = 3V, f = 1MHz, line to GND

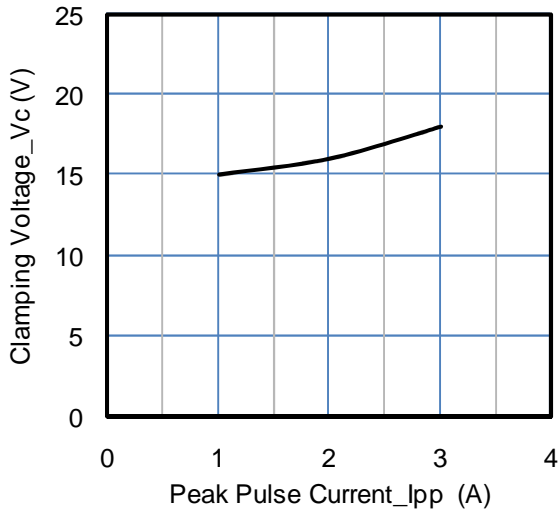
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



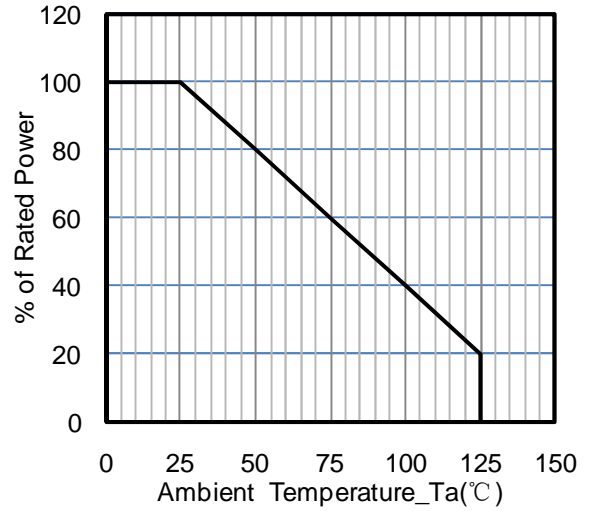
Junction Capacitance vs. Reverse Voltage



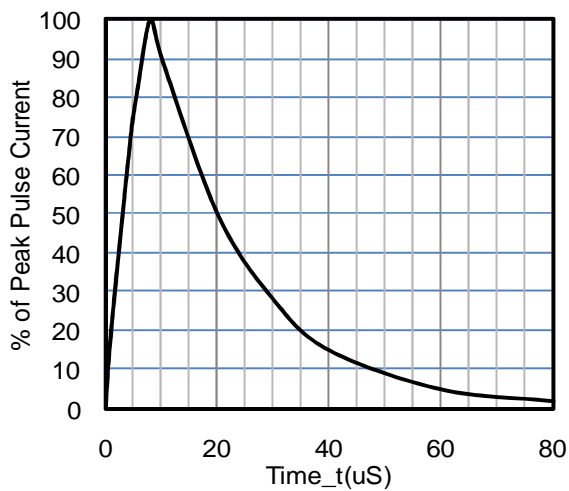
Peak Pulse Power vs. Pulse Time



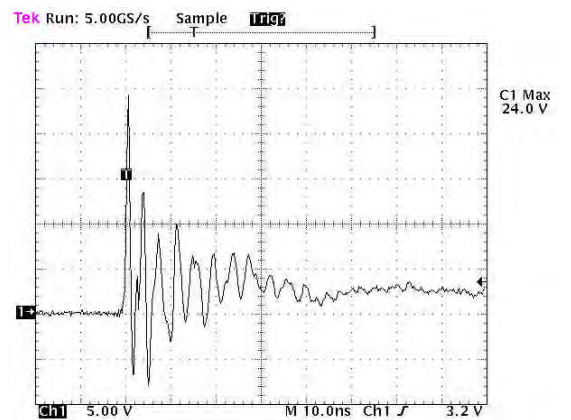
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



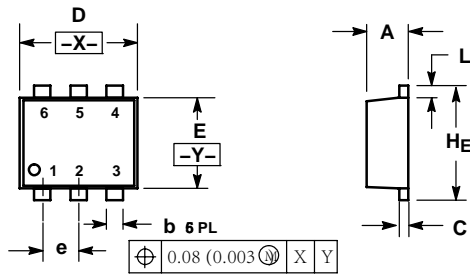
8 X 20uS Pulse Waveform



ESD Clamping Voltage

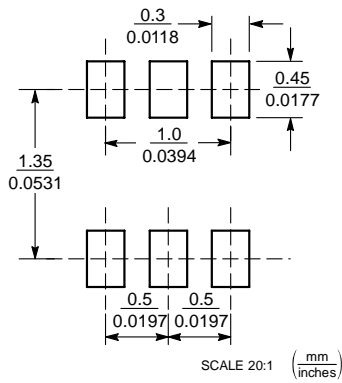
8 kV Contact per IEC61000-4-2

SOT-563 Package Outline Drawing



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.021	0.023
b	0.17	0.22	0.27	0.007	0.009	0.011
C	0.08	0.12	0.18	0.003	0.005	0.007
D	1.50	1.60	1.70	0.059	0.062	0.066
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.5 BSC			0.02 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
HE	1.50	1.60	1.70	0.059	0.062	0.066

Suggested Land Pattern



Ordering Information

Part Number	Packaging	Reel Size
ESD1240XO	3000/Tape & Reel	7 inch