

Features

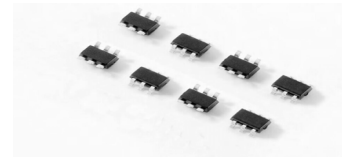
- Protects up to 4 lines
- Low leakage: nA level
- Low clamping voltage
- Excellent surge protection (300W at 8/20µs)
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: ±30kV
Contact discharge: ±30kV
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 20A (8/20µs)
- RoHS Compliant

Description

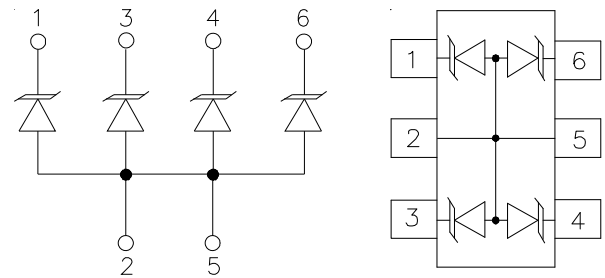
The ESD0541XP is a TVS array,utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive portable electronics.The ESD0541XP complies with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV contact discharge. It is assembled into a 6-lead SOT23-6 lead-free package. The leads are finished with lead-free matte tin. Each device will protect up to four lines.

Mechanical Characteristics

- Package: SOT23-6
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram



Dimensions and Pin Configuration



Circuit Schematic

Pin Schematic

Applications

- Audio Players
- Peripherals
- Portable Instrumentation
- Desktops PC and Servers
- Microprocessor Based Equipment
- Cell Phone Handsets and Accessories
- Notebook, Laptop, and Palmtop Computers

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

directional	
0	Bi
1	Uni

Capacitance Type	
L	Low
X	Normal

Size	
1	O201
2	O402
3	DFN0603
4	DFN1006

★ Code 4 to 9 is optional

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

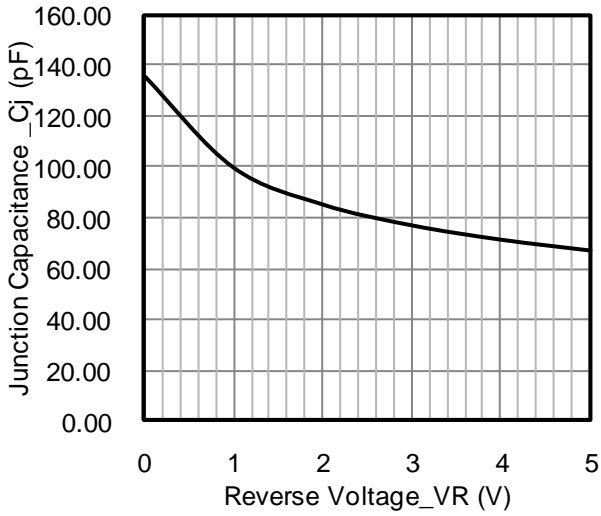
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	300	W
Peak Pulse Current (8/20 μs)	I _{PP}	20	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

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

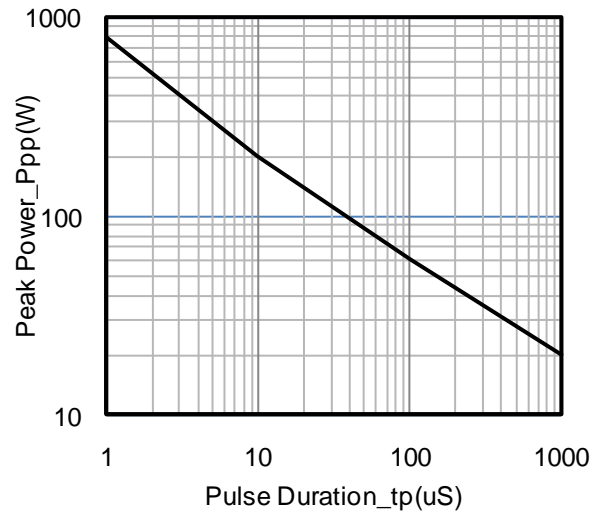
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	
Breakdown Voltage	V _{BR}	6			V	I _T = 1mA
Reverse Leakage Current	I _R			1.0	μA	V _{RWM} = 5V
Forward Voltage	V _F			1.2	V	I _F = 10mA
Clamping Voltage	V _C			8	V	I _{PP} = 1A (8 x 20 μs pulse), any I/O pin to ground
Clamping Voltage	V _C			15	V	I _{PP} = 20A (8 x 20 μs pulse), any I/O pin to ground
Junction Capacitance	C _J		140		pF	V _R = 0V, f = 1MHz, any I/O pin to ground

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

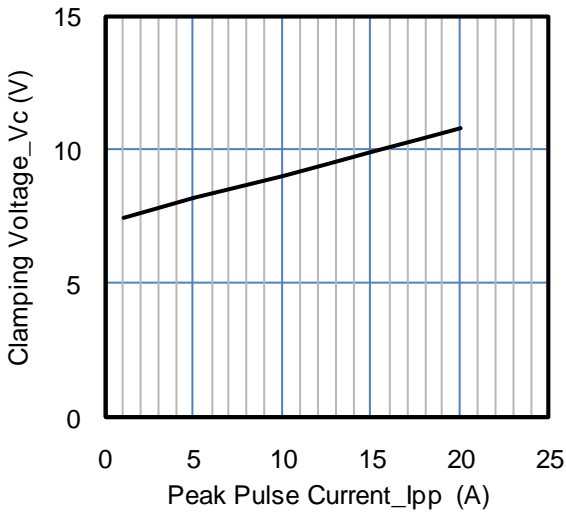
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



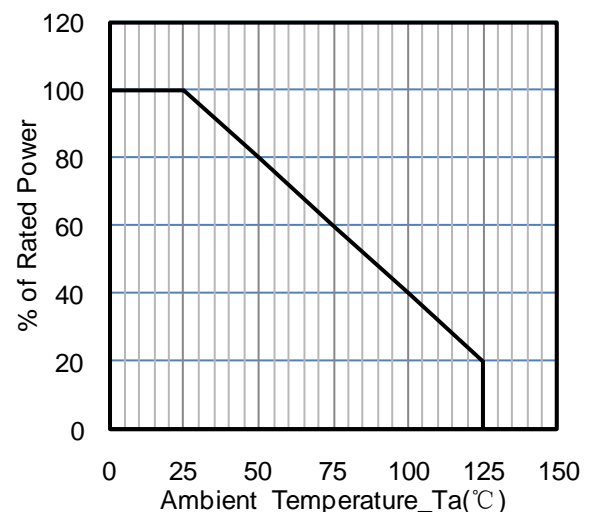
Junction Capacitance vs. Reverse Voltage



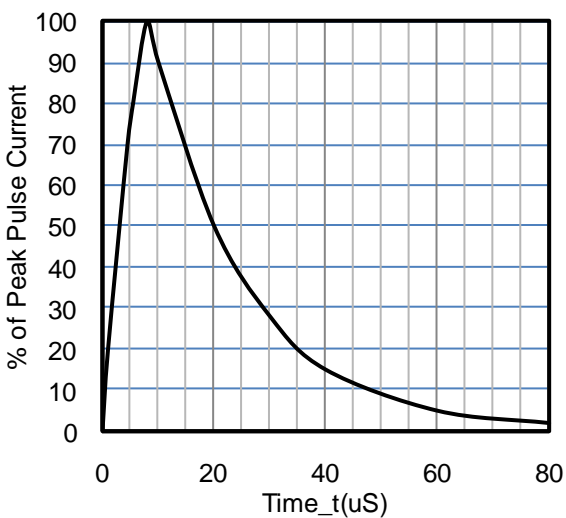
Peak Pulse Power vs. Pulse Time



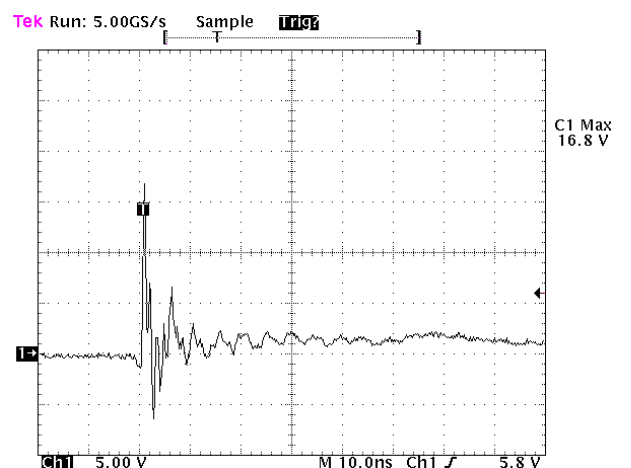
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



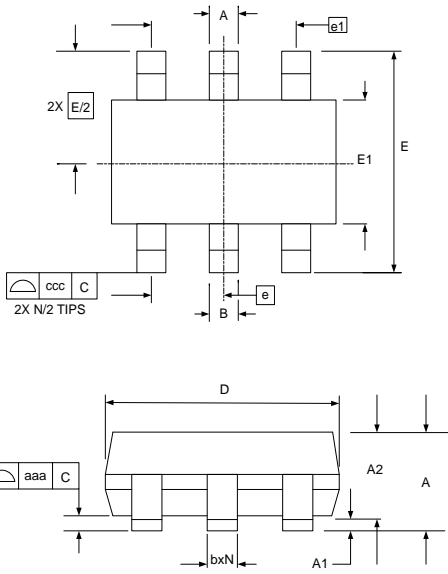
8 X 20uS Pulse Waveform



ESD Clamping Voltage

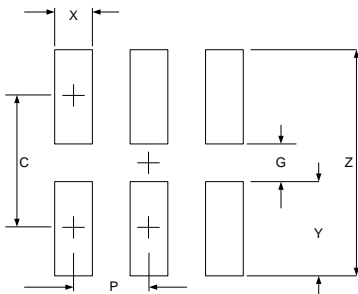
8 kV Contact per IEC61000-4-2

SOT23-6 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90		1.45	0.035		0.057
A1	0.00		0.15	0.000		0.006
A2	0.90	1.15	1.30	0.035	0.045	0.051
b	0.25		0.50	0.010		0.020
c	0.08		0.22	0.003		0.009
D	2.80	2.90	3.10	0.110	0.114	0.122
E	2.80 BSC			0.110 BSC		
e	0.95 BSC			0.037 BSC		
e1	1.90 BSC			0.075 BSC		
N	6			6		
aaa	0.10			0.004		
ccc	0.20			0.008		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.50	0.098
G	1.40	0.055
P	0.95	0.037
X	0.60	0.024
Y	1.10	0.043
Z	3.60	0.141

Ordering Information

Part Number	Packaging	Reel Size
ESD0541XP	3000/Tape & Reel	7 inch