

## ESD Protection Diode Array

### Features

- Protects up to 4 lines
- Low leakage: nA level
- Low clamping voltage
- Excellent surge protection (300W at 8/20 $\mu$ s)
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm$ 30kV
    - Contact discharge:  $\pm$ 30kV
  - IEC61000-4-5 (Lightning) 23A (8/20 $\mu$ s)
- RoHS Compliant
- AEC-Q101 qualified (Automotive grade with suffix "Q:")
- Exsemi technology

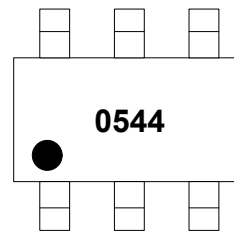
### Applications

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

### Mechanical Characteristics

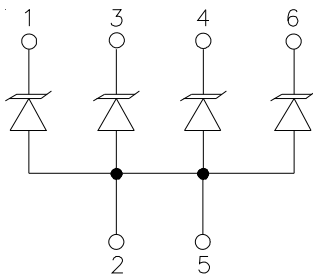
- Package: SOT23-6
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

### Marking Information

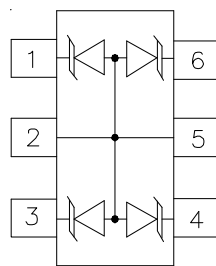


0544 = Device Marking Code  
Dot denotes Pin1

### Dimensions and Pin Configuration



Circuit Schematic



Pin Schematic

### Ordering Information

Part Number	Packaging	Reel Size
EP0504S2	3000/Tape & Reel	7 inch

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

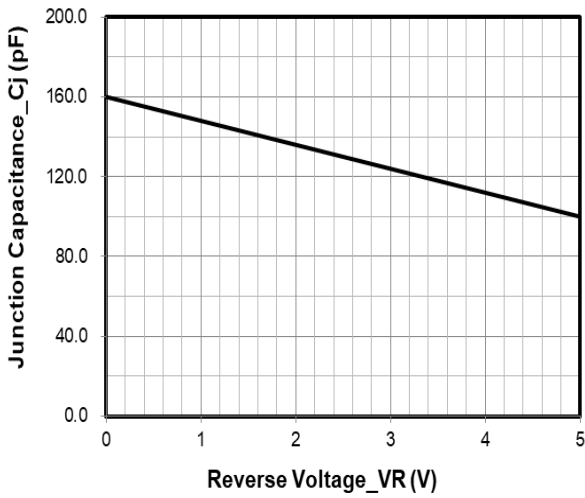
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	300	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	$\pm 30$ $\pm 30$	kV
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

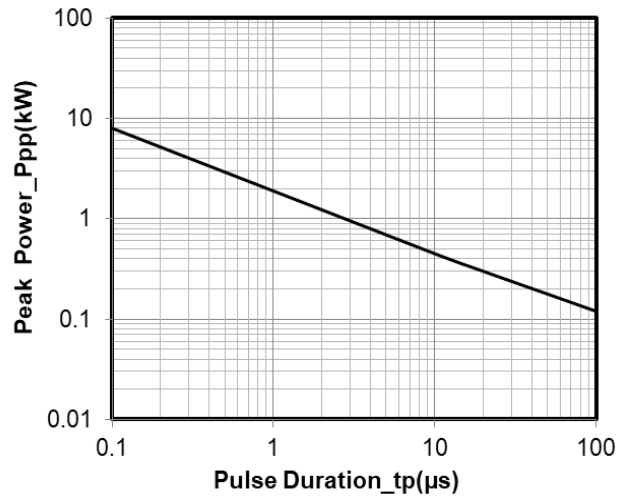
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.5	$\mu\text{A}$	VRWM = 5V
Forward Voltage	VF			1.2	V	$I_F = 10\text{mA}$
Clamping Voltage	Vc			8	V	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground
Clamping Voltage	Vc			13	V	$I_{PP} = 23\text{A}$ (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground
Junction Capacitance	CJ		160		pF	VR = 0V, f = 1MHz, any I/O pin to ground

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

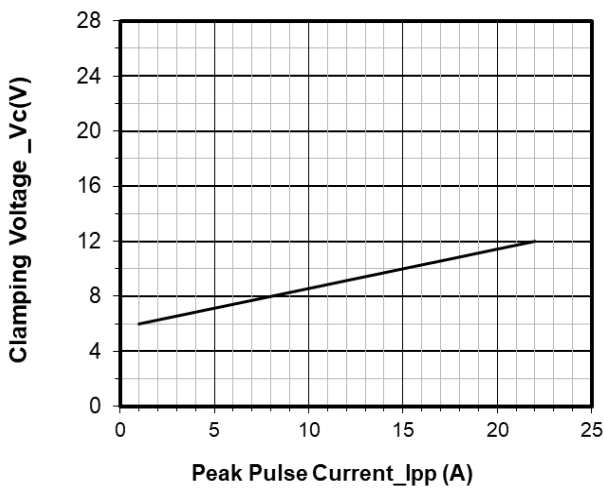
Typical Performance Characteristics (T<sub>A</sub>=25°C unless otherwise Specified)



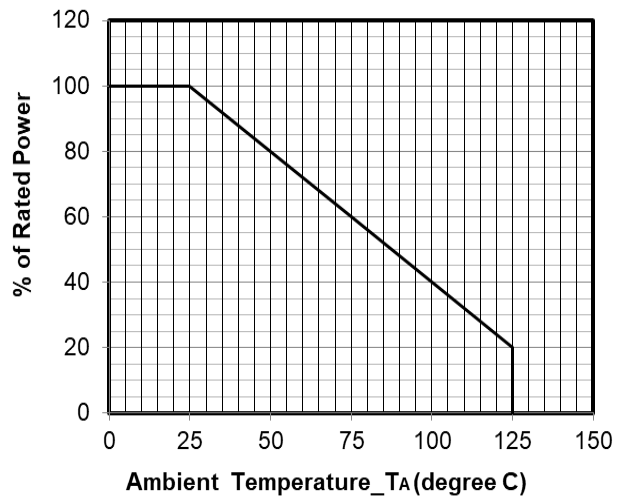
Junction Capacitance vs. Reverse Voltage



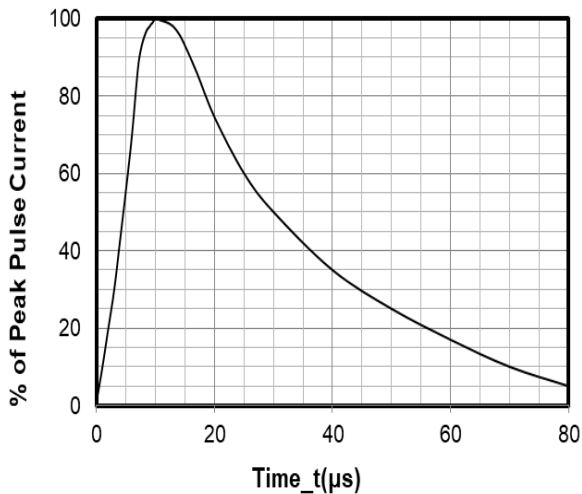
Peak Pulse Power vs. Pulse Time



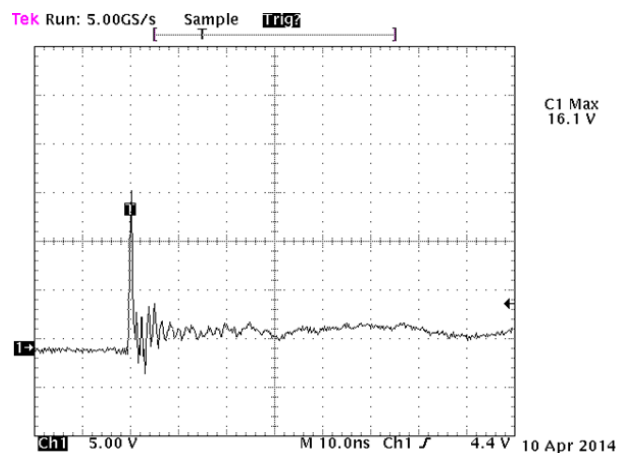
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform

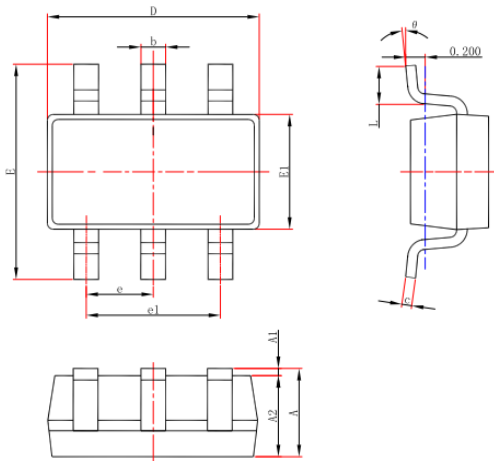


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

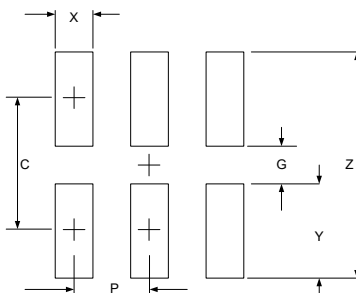
8 kV Contact per IEC61000-4-2

SOT23-6 Package Outline Drawing



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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