

Features

- Ultra low capacitance: 0.4pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- 2 data lines and one power line protects
- JEDEC SOT-23 6L package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: ±30kV
Contact discharge: ±25kV
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 10A (8/20µs)
- RoHS Compliant

Description

The ESD0521Lk2 is a 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 ESD0521Lk2 has an ultra-low capacitance with a typical value at 0.4pF, 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 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.

Mechanical Characteristics

- Package: SOT23-6
- 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

- USB 2.0 Ports
- Digital Video Interface (DVI)
- Monitor and Flat Panel Displays
- Gigabit Ethernet

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

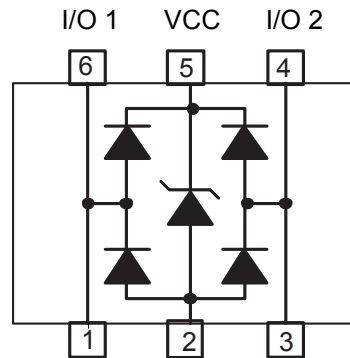
directional	
0	Bi
1	Uni

Size	
1	O201
2	O402
3	DFN0603
4	DFN1006

★ Code 4 to 9 is optional



Dimensions and Pin Configuration



I/O 1 GND I/O 2
Circuit and Pin Schematic

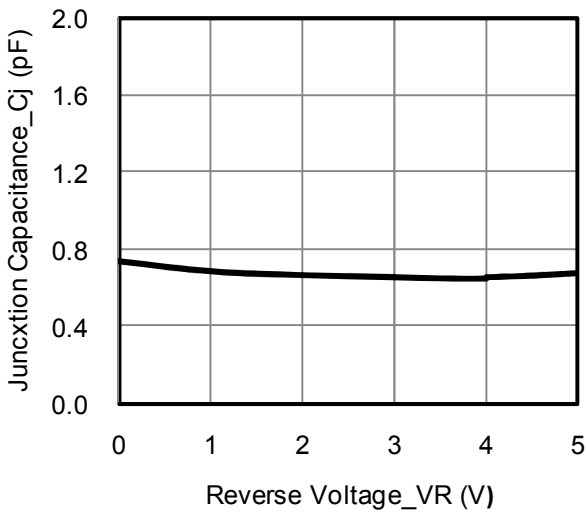
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	200	W
Peak Pulse Current (8/20 μs)	I _{PP}	10	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 25	
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

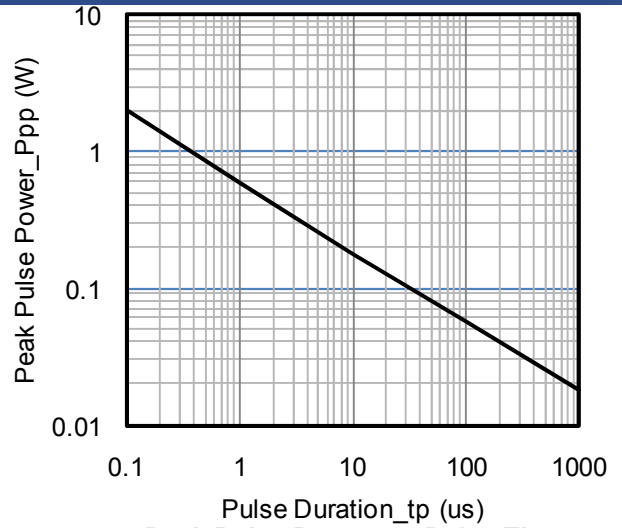
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

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			0.5	μA	V _{RWM} = 5V
Clamping Voltage	V _C			12.5	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C			20	V	I _{PP} = 10A (8 x 20 μs pulse)
Junction Capacitance	C _J		0.6	0.8	pF	V _R = 0V, f = 1MHz, any I/O pin to ground
Junction Capacitance	C _J		0.3	0.4	pF	V _R = 0V, f = 1MHz, between I/O pins

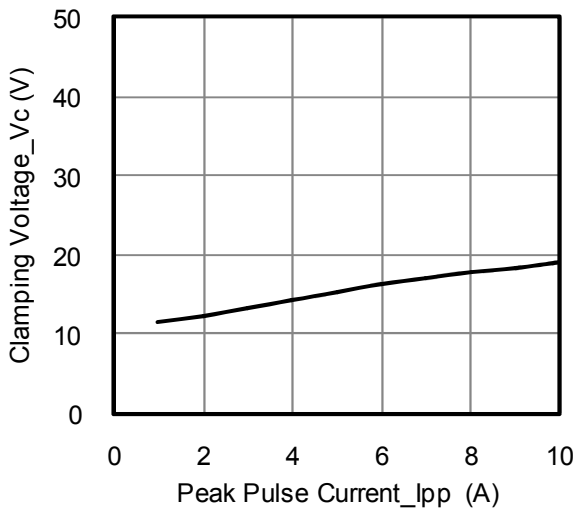
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



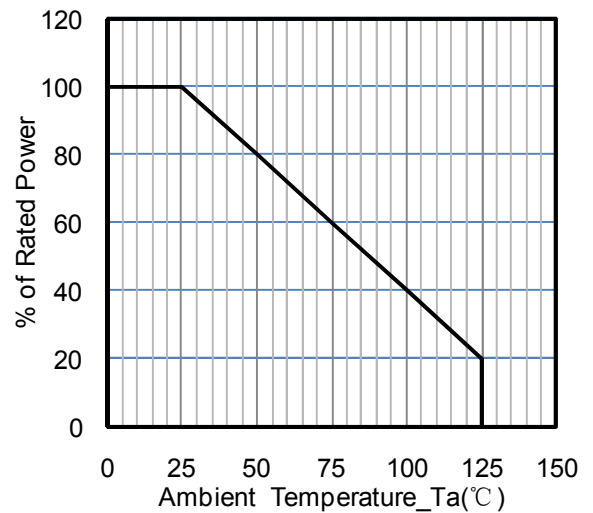
Junction Capacitance vs. Reverse Voltage



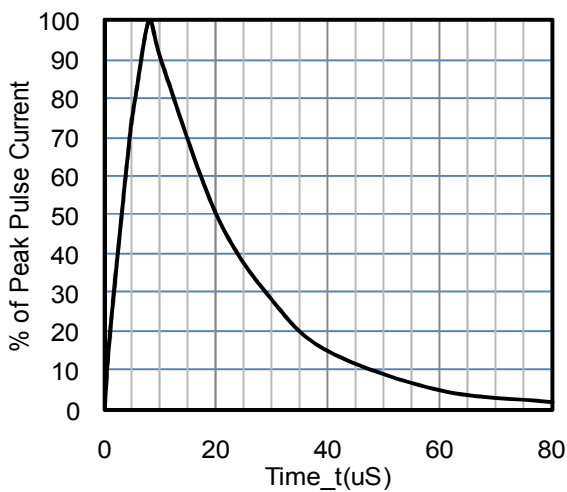
Peak Pulse Power vs. Pulse Time



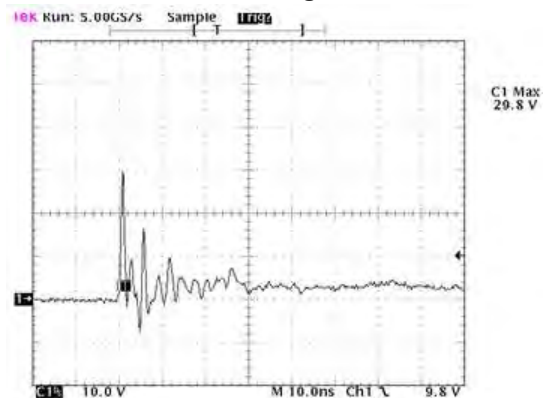
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



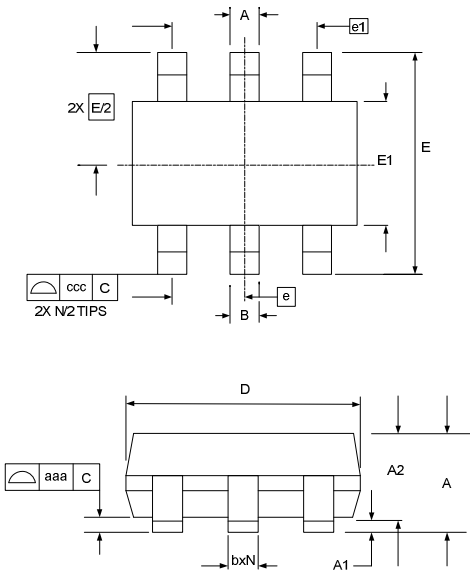
8 X 20uS Pulse Waveform



ESD Clamping Voltage

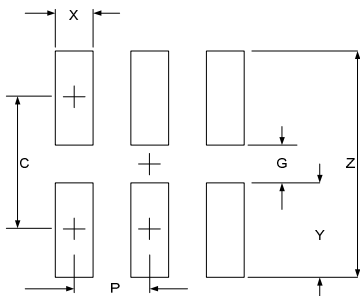
8 kV Contact per IEC61000-4-2

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
E1	1.50	1.60	1.75	0.060	0.063	0.069
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
ESD0521LK2	3000/Tape & Reel	7 inch