

Features

- Very low capacitance: 1.0pF typical (I/O to I/O)
- Low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- Up to 2 data lines protects
- JEDEC SOT-523 package
- 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) 15A (8/20µs)
- RoHS Compliant

Mechanical Characteristics

- Package: SOT-523
- 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

- Mobile Display Digital Interface (MDDI)
- USB 2.0
- Photodetector Protection
- HBT Power Amplifier Protection
- Infiniband Transceiver Protection
- Firewire Ports

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	0201
2	0402
3	DFN0603
4	DFN1006

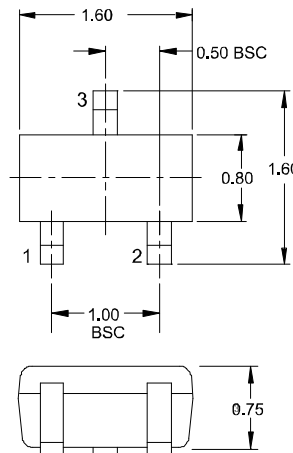
★ Code 4 to 9 is optional

Description

The ESD0521LM2 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 ESD0521LM2 has very low capacitance with a typical value at 1pF, and complies with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV contact discharge. It is assembled into a 3-pin lead-free SOT-523 package. The combination of small size, low capacitance and high level of ESD protection makes it ideal for HDMI, MDDI, antenna circuits, USB 2.0, and Infiniband circuits.



Dimensions and Pin Configuration



SOT-523 outline

Circuit and Pin Schematic

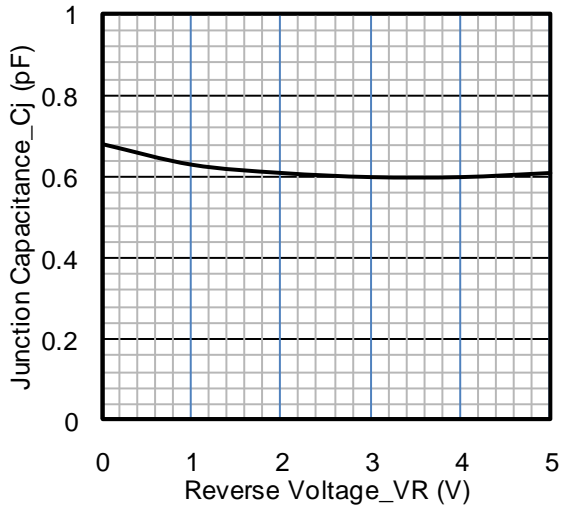
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	300	W
Peak Pulse Current (8/20 μs)	I _{PP}	15	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

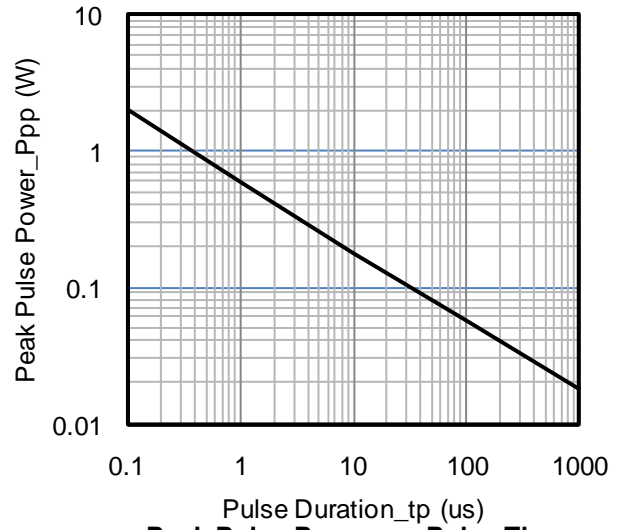
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	Pin 1 or pin 2 to pin 3 and between pin 1 and pin 2
Breakdown Voltage	V _{BR}	6			V	I _T = 1mA, pin 1 or pin 2 to pin 3
Reverse Leakage Current	I _R			0.5	μA	V _{RWM} = 5V, pin 1 or pin 2 to pin 3 and between pin 1 and pin 2
Clamping Voltage	V _C			10	V	I _{PP} = 1A (8 x 20 μs pulse), pin 1 pin 2
Clamping Voltage	V _C			20	V	I _{PP} = 15A (8 x 20 μs pulse), pin 1 or pin 2 to pin 3
Junction Capacitance	C _J			1.0	pF	V _R = 0V, f = 1MHz, pin 1 to pin 2
Junction Capacitance	C _J			2.0	pF	V _R = 0V, f = 1MHz, pin 1 or pin 2 to pin 3

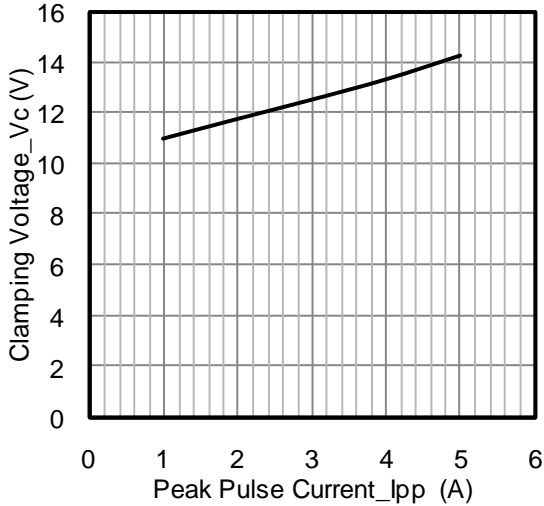
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



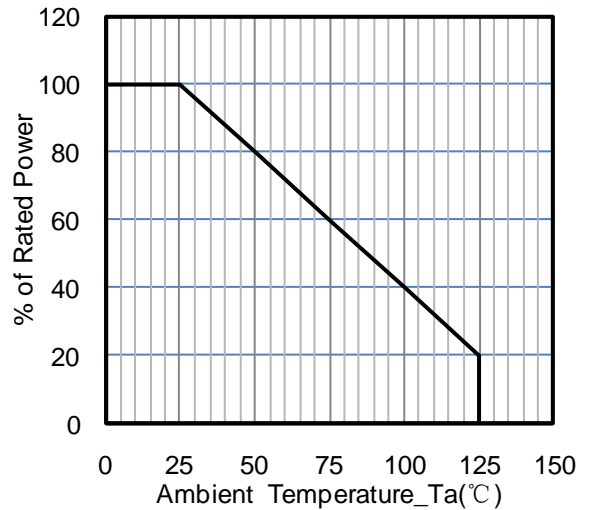
Junction Capacitance vs. Reverse Voltage



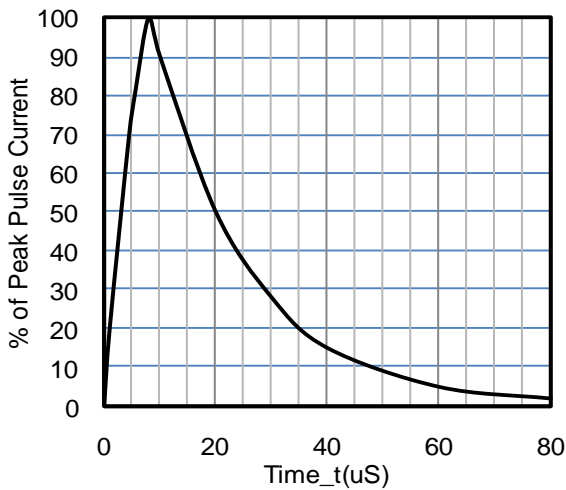
Peak Pulse Power vs. Pulse Time



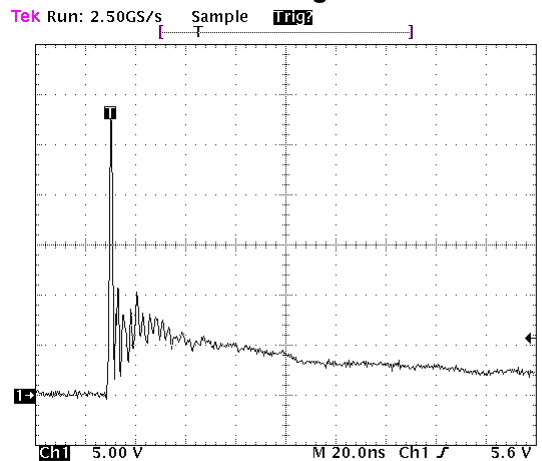
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



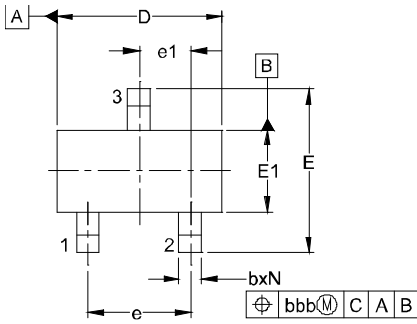
8 X 20uS Pulse Waveform



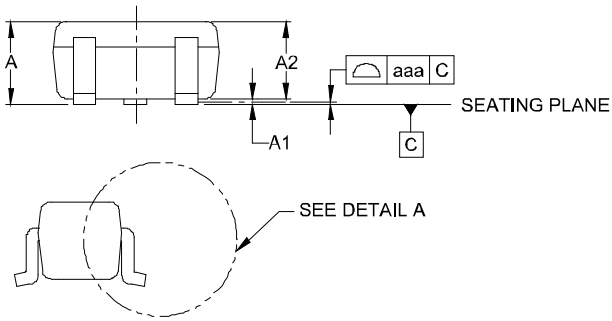
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

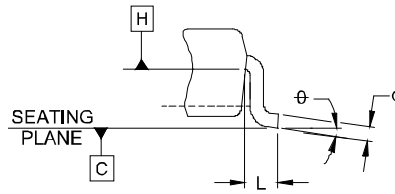
SOT-523 Package Outline Drawing



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.023	-	.035	0.60	-	0.90
A1	.000	-	.004	0.00	-	0.10
A2	.023	.030	.031	0.60	0.75	0.80
b	.005	-	.012	0.15	-	0.30
c	.003	-	.008	0.10	-	0.20
D	.059	.063	.067	1.50	1.60	1.70
E	.057	.063	.069	1.45	1.60	1.75
E1	.029	.031	.033	0.75	0.80	0.85
e	.039 BSC			1.00 BSC		
e1	.020 BSC			0.50 BSC		
L	(.009)			(0.22)		
N	3			3		
θ	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.008			0.20		

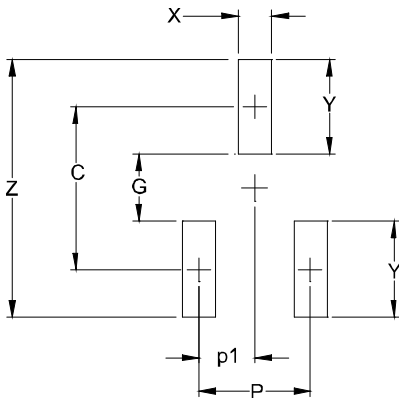


SIDE VIEW



DETAIL A

Suggested Land Pattern



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.055)	(1.40)
P	.039	1.00
p1	.020	0.50
G	.024	0.60
X	.016	0.40
Y	.031	0.80
Z	.087	2.20

Ordering Information

Part Number	Packaging	Reel Size
ESD0521LM2	3000/Tape & Reel	7 inch