

Features

- Protects one data or power line
- Ultra low leakage: nA level
- Working voltage: 12V
- Low clamping voltage
- 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) 10A (8/20µs)
- RoHS Compliant

Description

The ESD1211xH is a 12V uni-directional TVS diode,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 data and power line.The ESD1211xH complies with the IEC 61000-4-2 (ESD) standard with ±15 kV air and ±8 kV contact discharge. It is assembled into an ultra-small lead-free SOD-523 package. The small size and high ESD surge protection make ESD1211xH an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Mechanical Characteristics

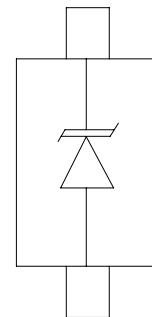
- Package: SOD-523
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players



Dimensions and Pin Configuration



SOD-523 (Top View)

Part Number Code

Circuit and Pin Schematic

E	S	D	0	5	1	1	L	1	
1	2	3	4	5	6	7	8	9	
Product Type		Reverse Working Voltage (V)			Line		Capacitance Type		Size
ESD	TSK Electrostatic suppressor ESD Type	3V3	5V	1	1-Line	L	Low		
		05	16V	2	2-Line	X	Normal		
		16		3	3-Line	directional			
						0	Bi	1	0201
						1	Uni	2	0402
								3	DFN0603
								4	DFN1006

★ Code 4 to 9 is optional

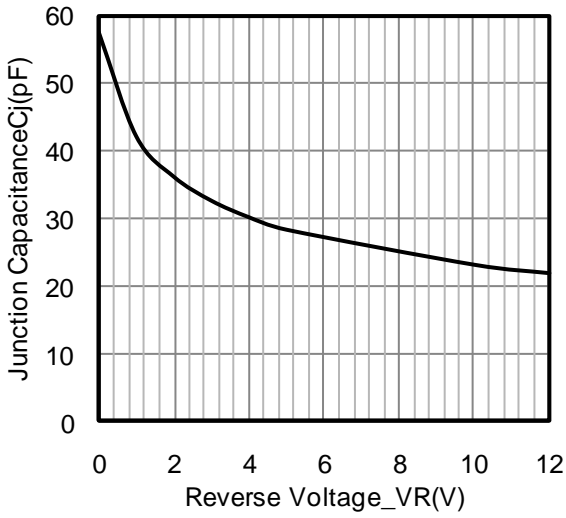
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	250	W
Peak Pulse Current (8/20 μs)	Ipp	10	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

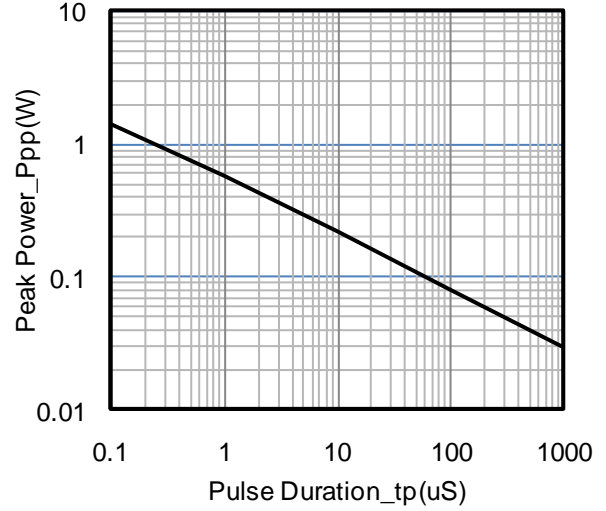
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	13.3		17.8	V	IT = 1mA
Reverse Leakage Current	IR			100	nA	VRWM = 12V
Forward Voltage	VF		1.0	1.2	V	IF = 10mA
Clamping Voltage	VC			18	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	VC			25	V	I _{PP} = 10A (8 x 20 μs pulse)
Junction Capacitance	CJ		70		pF	VR = 0V, f = 1MHz

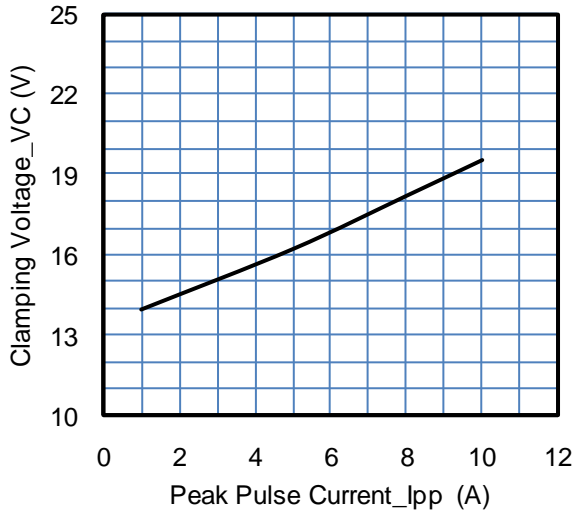
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



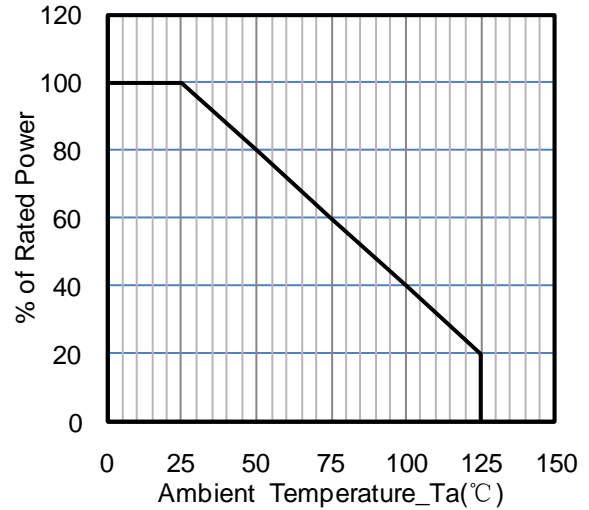
Junction Capacitance vs. Reverse Voltage



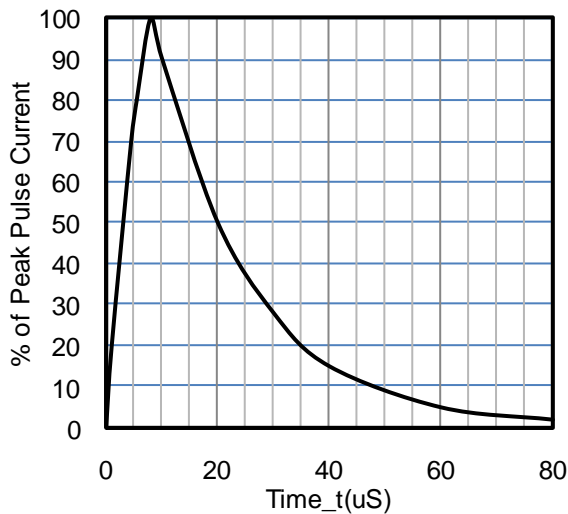
Peak Pulse Power vs. Pulse Time



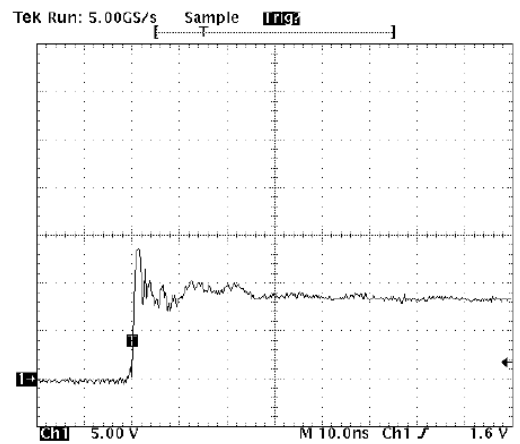
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



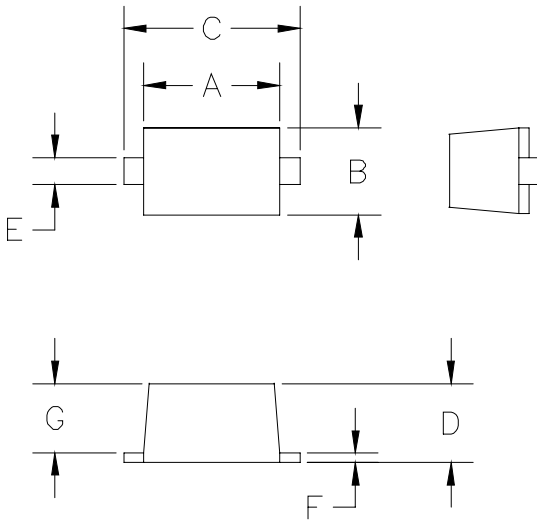
8 X 20uS Pulse Waveform



ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

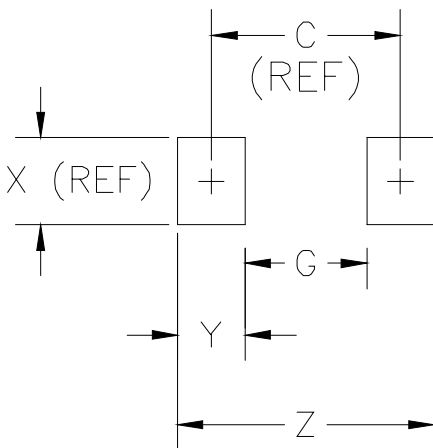
SOD-523 Package Outline Drawing



DIMENSIONS					
DIM ^N	INCHES		MM [1]		NOTE
	MIN	MAX	MIN	MAX	
A	.043	.051	1.10	1.30	—
B	.028	.035	0.70	0.90	—
C	.059	.067	1.50	1.70	—
D	.020	.028	0.50	0.70	—
E	.010	.014	0.25	0.35	—
F	.004	.008	0.10	0.20	—
G	.020	.028	0.50	0.70	—

[1] CONTROLLING DIMENSION: MILLIMETERS

Suggested Land Pattern



DIMENSIONS					
DIM ^N	INCHES		MM [1]		NOTE
	MIN	MAX	MIN	MAX	
C	—	.067	—	1.70	REF
G	—	.043	—	1.10	—
X	—	.031	—	0.80	REF
Y	—	.024	—	0.60	—
Z	—	.091	—	2.30	—

[1] CONTROLLING DIMENSION: MILLIMETERS

Ordering Information

Part Number	Packaging	Reel Size
ESD1211XH	3000/Tape & Reel	7 inch