PESD12VS1UJ

Description

The PESD12VS1UJ is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computers and PDA's, using monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting sensitive semiconductor components from damage. The 12VS1UJ complies with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV contact discharge. The 12VS1UJ is assembled into a lead-free SOD-323 package and will protect one unidirectional line. These devices will fit on the same PCB pad area as an 0805 MLV device.

Features

- 500W peak pulse power (8/20μs)
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 12 V
- Ultra 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)
- RoHS Compliant

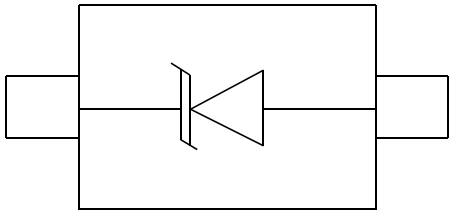
Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Threen" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Peripherals
- Pagers Peripherals
- Desktop and Servers

Dimensions and Pin Configuration



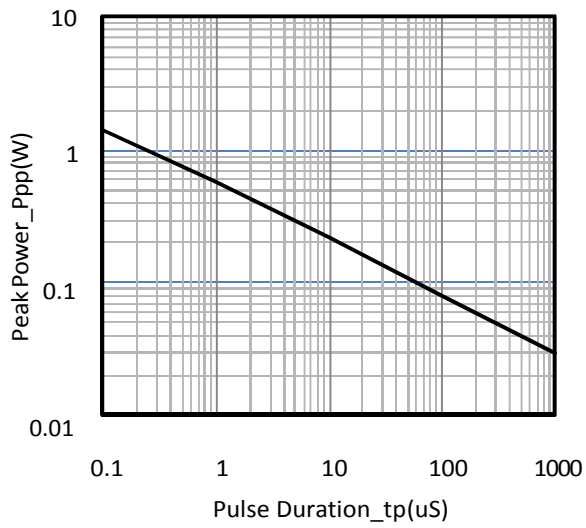
SOD-323

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

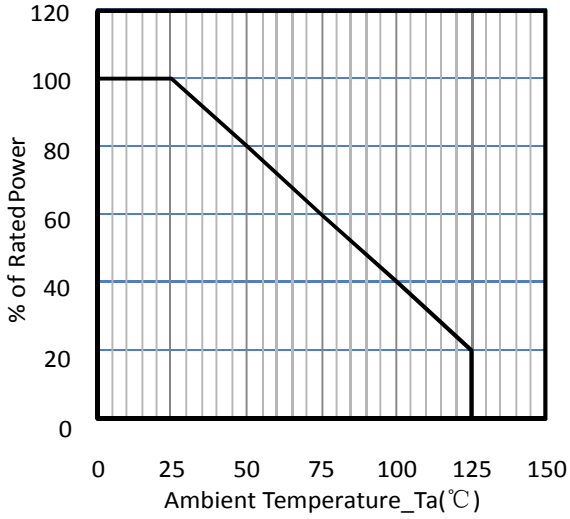
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	350	W
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			12	V	
Breakdown Voltage	V_{BR}	13.3			V	I_T = 1mA
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} = 12V
Forward Voltage	V_F		0.8	1.2	V	I_F = 10mA
Clamping Voltage	V_C			19	V	I_{PP} = 5A (8 x 20μs pulse)
Clamping Voltage	V_C			13.5	V	I_{PP} = 15A (8 x 20us pulse)
Peak Pulse Current	Ipp			15	A	tp = 8/20μs
Junction Capacitance	C_J			120	pF	VR = 0V, f = 1MHz

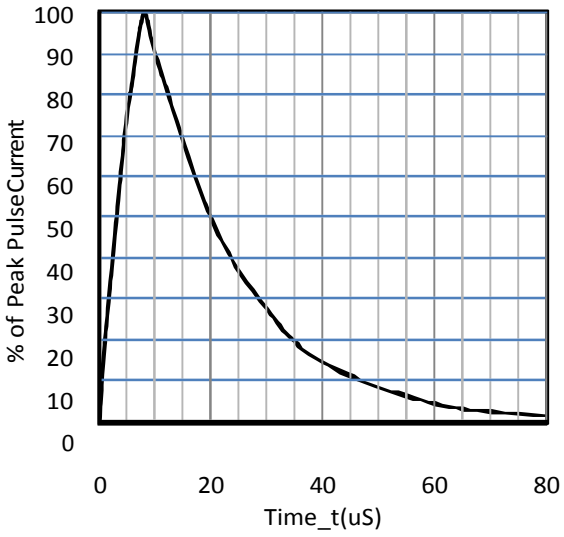
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



Peak Pulse Power vs. Pulse Time

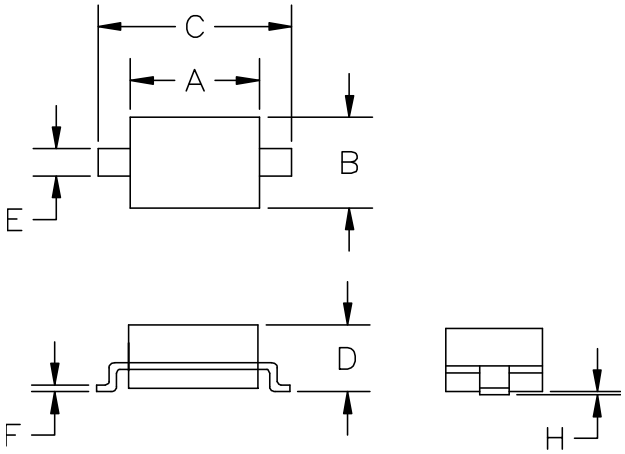


Power Derating Curve



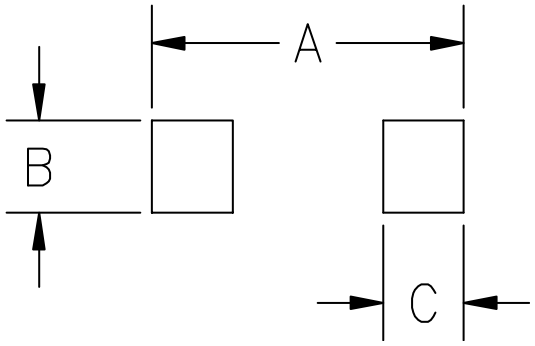
8 X 20uS Pulse Waveform

SOD-323 Package Outline Drawing



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031