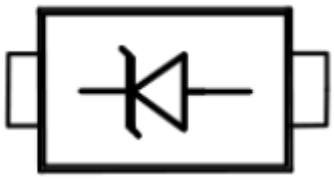
JS05U1GS10-2

1-Line Uni-directional High Power TVS Diode

Description

The JS05U1GS10-2 is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ide-al solution for protecting voltage sensi-tive data and power lines. The JS05U1GS10-2 complies with the IEC 61000-4-2 (ESD) standard with ± 30kV air and ± 30kV contact discharge. It is as-sembled into a SOD -123FL lead-free package. The small size and high ESD/ surge protection make JS05U1GS10-2 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Circuit Diagram



Circuit and Pin Schematic

Marking Diagram

Transparent top view

5A:Device Marking Code

Features

* 3000W peak pulse power (8/20μs)
* Low leakage
* Operating voltage: 5V
* Ultra low clamping voltage
* One power line protects
* Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  – IEC61000-4-5 (Lightning) 200A (8/20μs)
* RoHS Compliant
* Package: SOD-123FL

Applications

* Fast-charge battery chargers
* Power management system
* Cellular Handsets and Accessories
* Personal Digital Assistants
* Notebooks and Handhelds
* Portable Instrumentation
* Digital Cameras

Ordering Information

Part Number	Packaging	Reel Size
JS05U1GS10-2	3000/Tape & Reel	7 inch

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

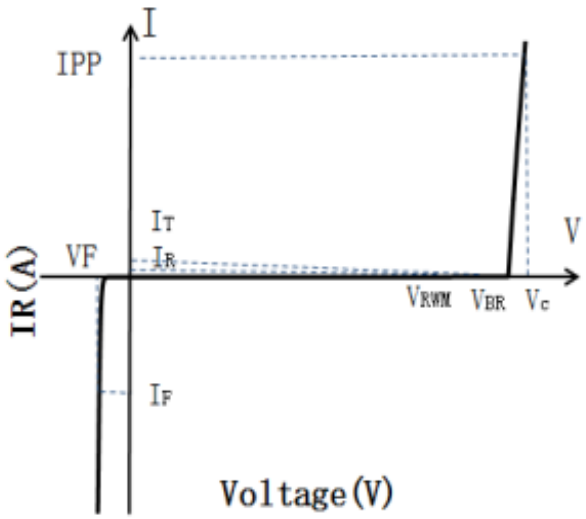
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	3000	W
Peak Pulse Current (8/20μs)	IPP	200	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−55to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

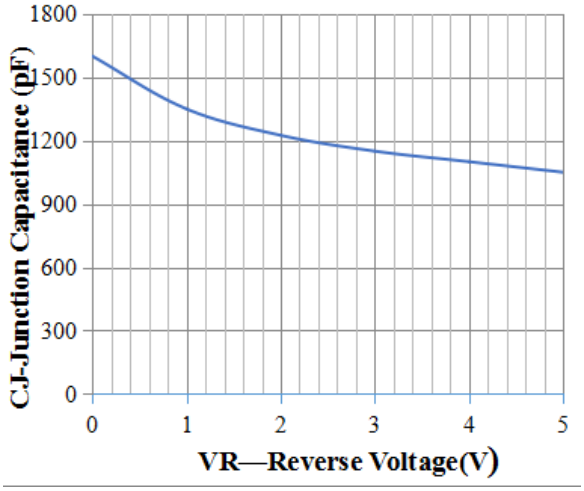
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	I_T = 1mA		6.7		V
Reverse Leakage Current	I_R	V_{RWM} = 5V			5	μA
Clamping Voltage	V_C	I_{PP} = 200A (8 x 20μs pulse)			15	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz		1600		pF

Portion Electronics Parameter

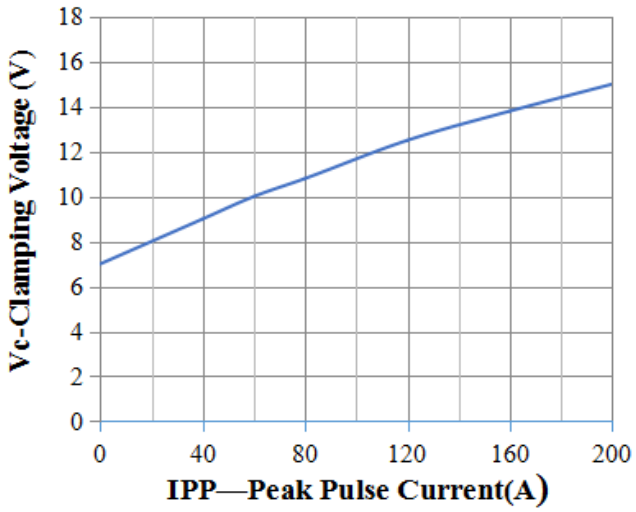
Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



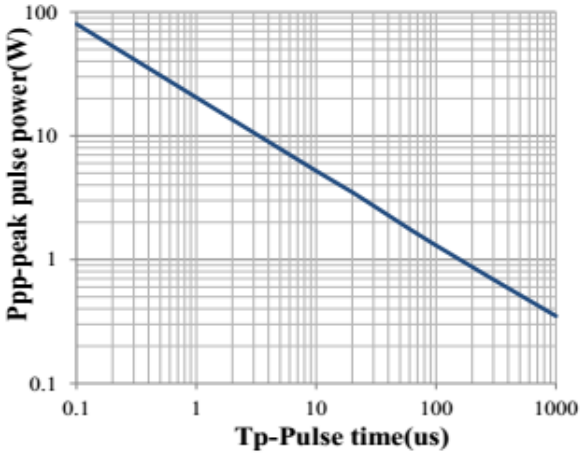
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



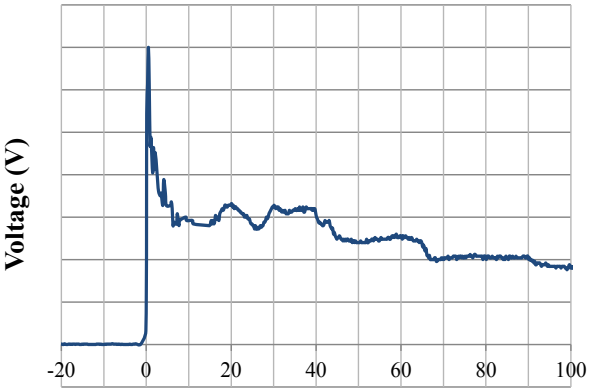
Junction Capacitance vs. Reverse Voltage



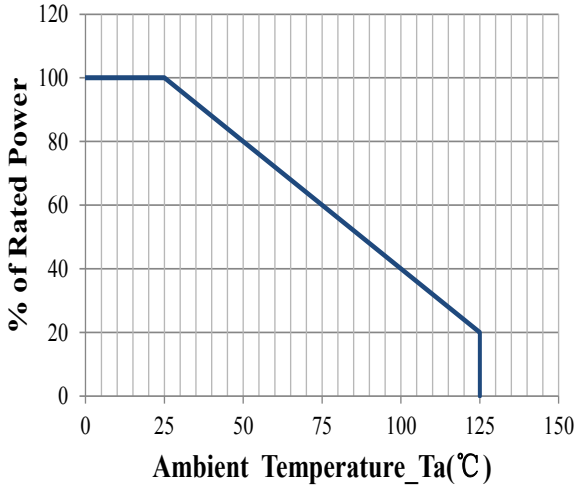
Clamping Voltage vs. Peak Pulse Current



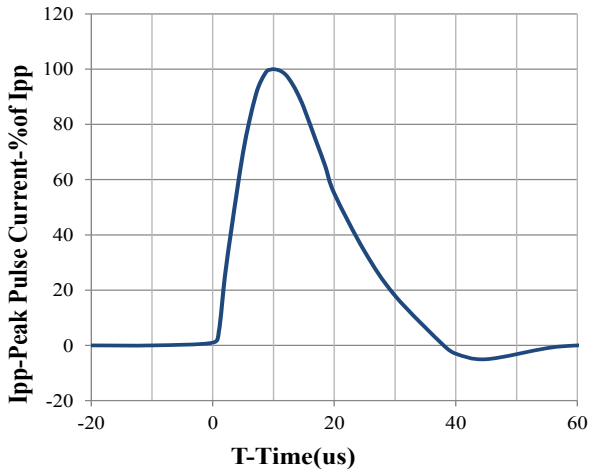
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform

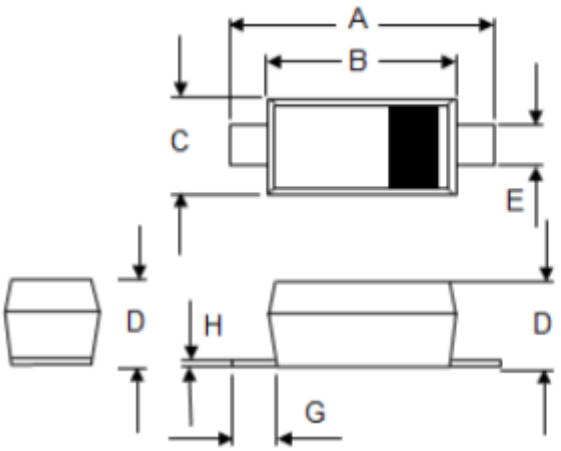


Power Derating Curve



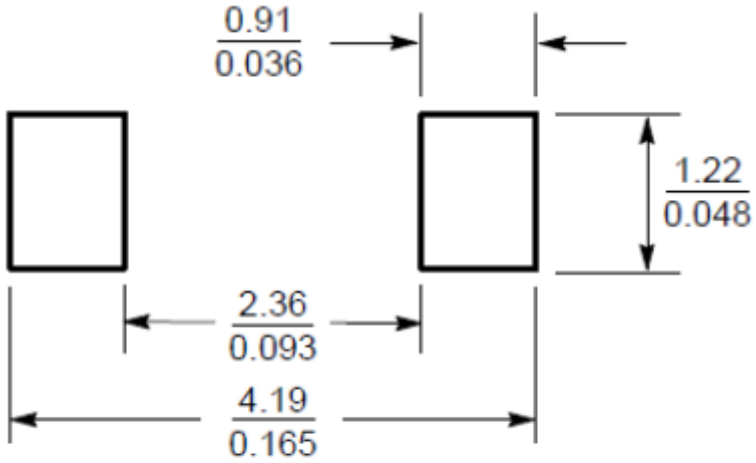
8 X 20us Pulse Waveform

SOD-123FL Package Outline Drawing (Dimensions in millimeters)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	3.4	3.7	3.95	0.142	0.148	0.155
B	2.5	2.7	2.90	0.098	0.106	0.114
C	1.4	1.70	1.95	0.055	0.066	0.077
D	1.10	1.20	1.30	0.031	0.040	0.048
E	0.5	0.80	1.10	0.020	0.031	0.043
G	0.25	—	—	0.010	—	—
H	—	—	0.20	—	—	0.008

Suggested Land Pattern



SCALE 10:1 (mm / inches)

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