

Description

The AU1231D5 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 ideal solution for protecting voltage sensitive data and power line. The AU1231D5 complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a small lead-free SOD-523 package. The small size and high ESD surge protection make AU1231D5 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Protects one data or power line
- Ultra low leakage: nA level
- Low operating voltage: 12V
- Low clamping voltage
- 2-pin SOD-523 package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 8A (8/20 μs)
- RoHS Compliant

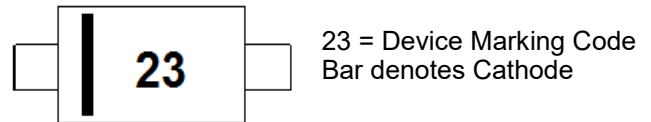
Mechanical Characteristics

- Package: SOD-523
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

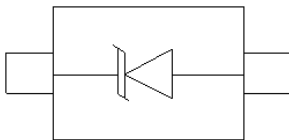
Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Marking Information



Circuit and Pin Schematic



SOD-523 (Top View)

Ordering Information

Part Number	Packaging	Reel Size
AU1231D5	3000/Tape & Reel	7 inch

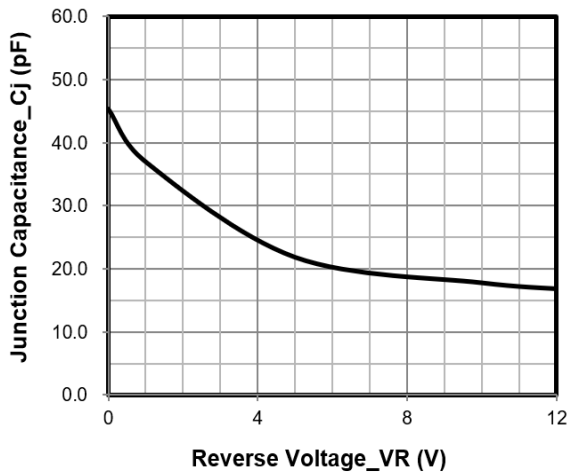
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	168	W
Peak Pulse Current (8/20 μs)	Ipp	8	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	$^\circ\text{C}$

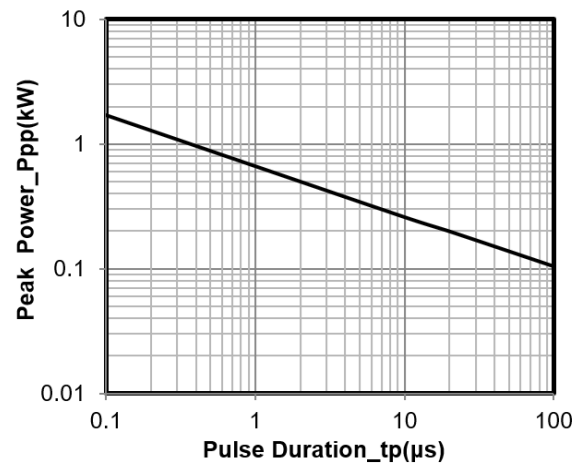
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	13.3		17.8	V	$I_T = 1\text{mA}$
Reverse Leakage Current	I _R			100	nA	VRWM = 12V
Forward Voltage	V _F		0.8	1.0	V	I _F = 15mA
Clamping Voltage	V _C		14.5	16	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C		19	21	V	I _{PP} = 8A (8 x 20 μs pulse)
Junction Capacitance	C _J			60	pF	V _R = 0V, f = 1MHz

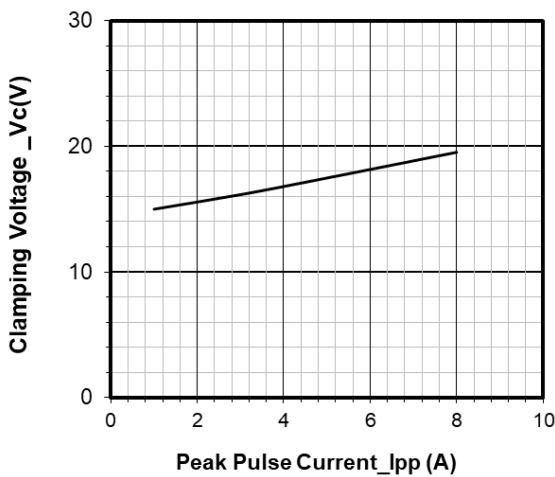
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



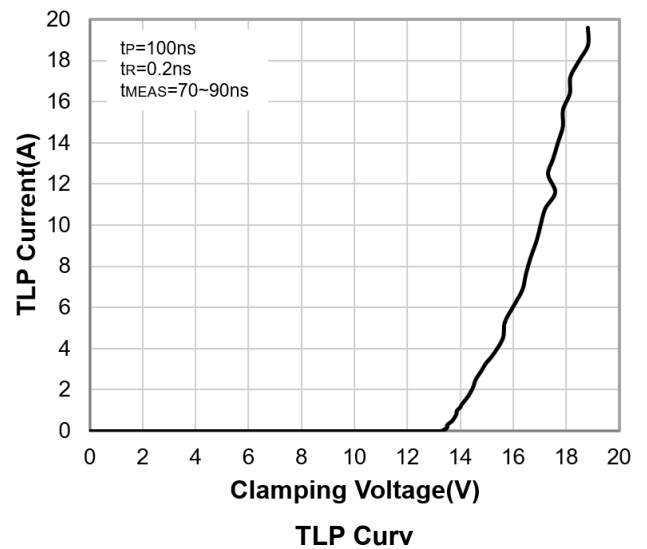
Junction Capacitance vs. Reverse Voltage



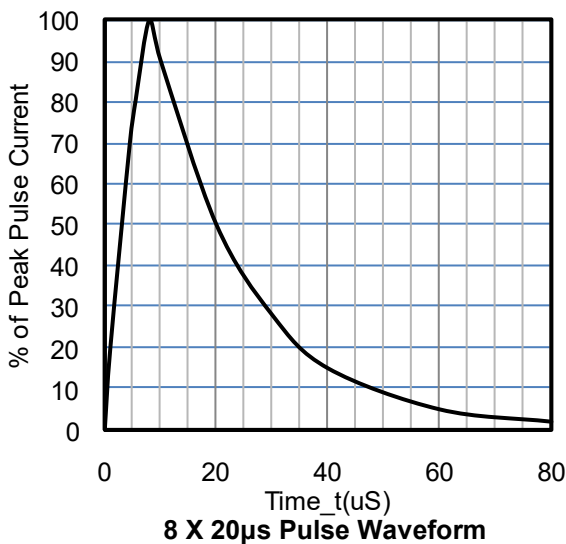
Peak Pulse Power vs. Pulse Time



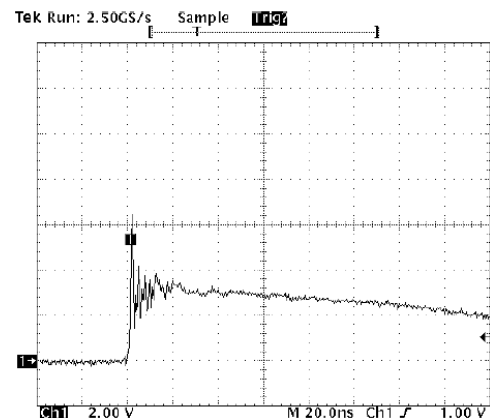
Clamping Voltage vs. Peak Pulse Current



TLP Curve

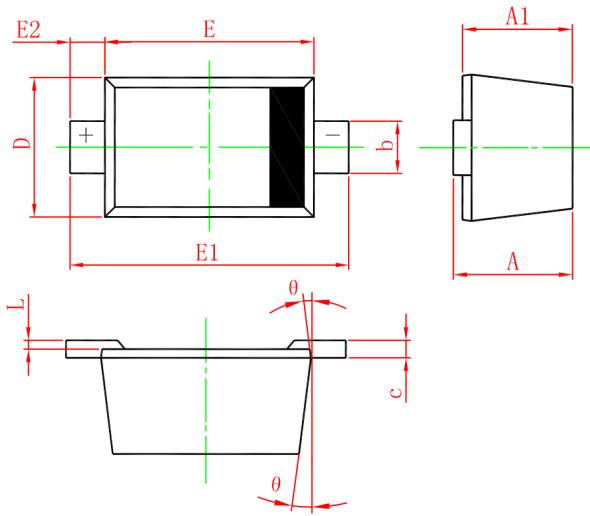


8 X 20 μs Pulse Waveform

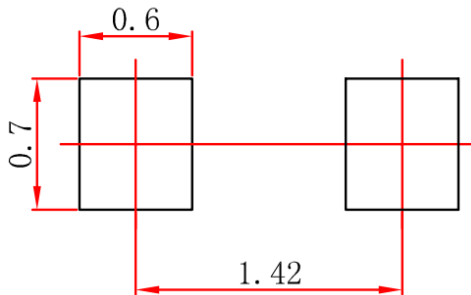


ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

SOD-523 Package Outline Drawing


SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.51	--	0.77	0.020	--	0.031
A1	0.50	--	0.70	0.020	--	0.028
b	0.25	--	0.35	0.010	--	0.014
c	0.08	--	0.15	0.003	--	0.006
D	0.75	--	0.85	0.030	--	0.033
E	1.10	--	1.30	0.043	--	0.051
E1	1.50	--	1.70	0.059		0.067
E2	0.20REF			0.008REF		
L	0.01	--	0.07	0.001	--	0.003
Θ	7° REF			7° REF		

Suggested Land Pattern


Unit: mm

Contact Information

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