

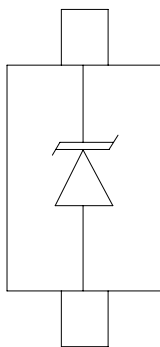
## Description

The AU0501D1 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 lines. The AU0501D1 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 SOD-123 lead-free package. The small size and high ESD/surge protection make AU0501D1 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: 5V
- Ultra low clamping voltage
- 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) 60A (8/20 $\mu\text{s}$ )
- RoHS Compliant

## Pin Configuration



Circuit and Pin Schematic

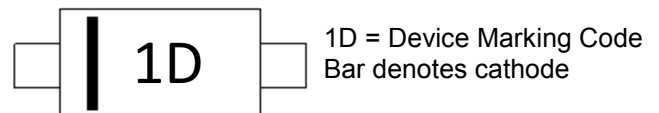
## Mechanical Characteristics

- Package: SOD-123
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

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

## Marking Information



## Ordering Information

Part Number	Packaging	Reel Size
AU0501D1	3000/Tape & Reel	7 inch

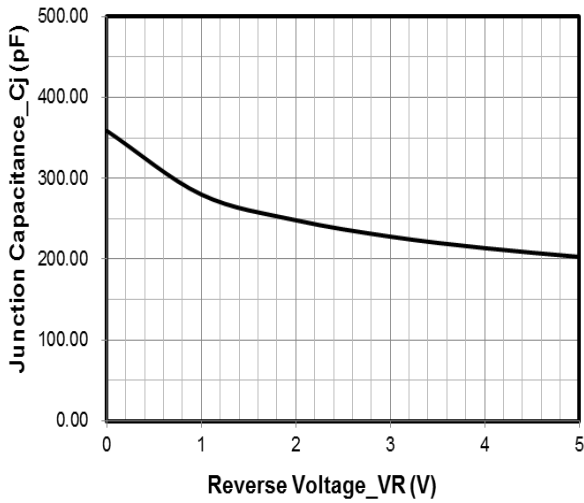
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	900	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	Ipp	60	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

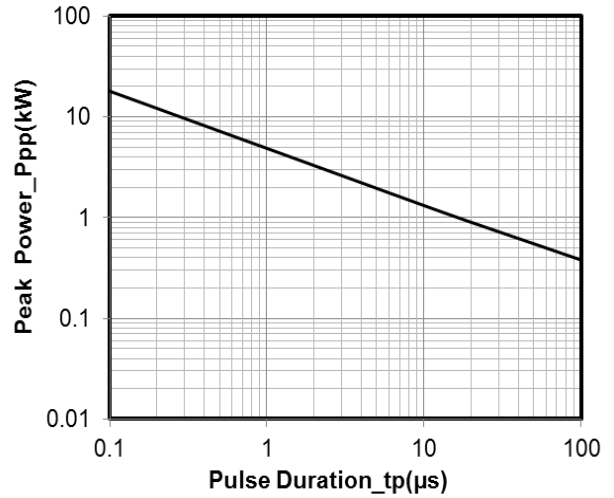
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6			V	IT = 1mA
Reverse Leakage Current	IR			0.5	$\mu\text{A}$	VRWM = 5V
Forward Voltage	VF		1.0	1.2	V	IF = 10mA
Clamping Voltage	VC			8.5	V	I <sub>PP</sub> = 5A (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	VC		12.5	15	V	I <sub>PP</sub> = 60A (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	CJ			500	pF	VR = 0V, f = 1MHz

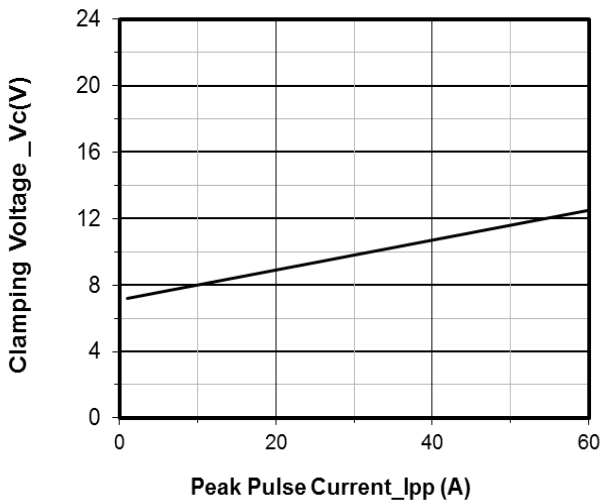
**Typical Performance Characteristics (T<sub>A</sub>=25°C unless otherwise Specified)**



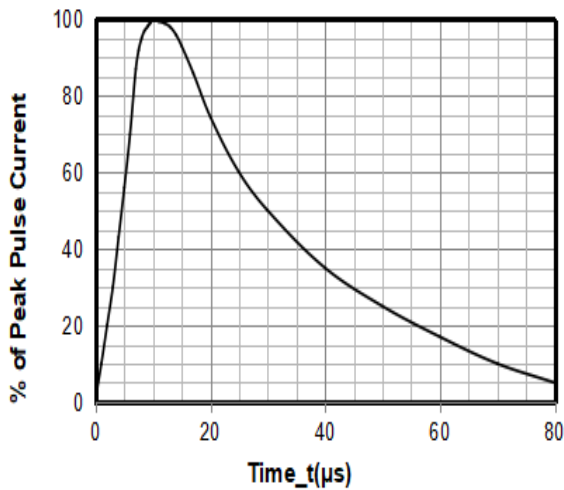
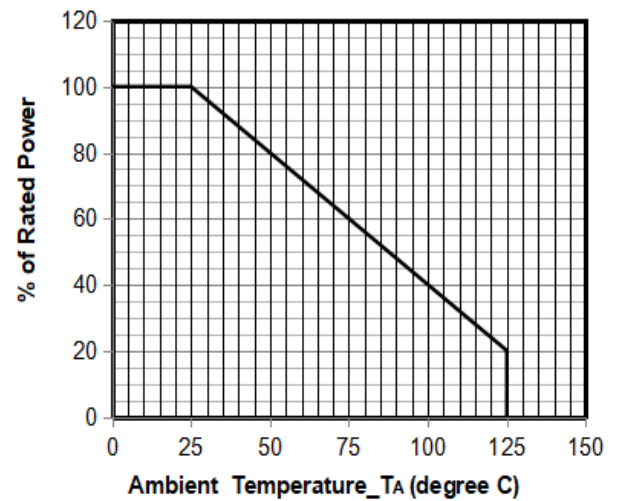
**Junction Capacitance vs. Reverse Voltage**



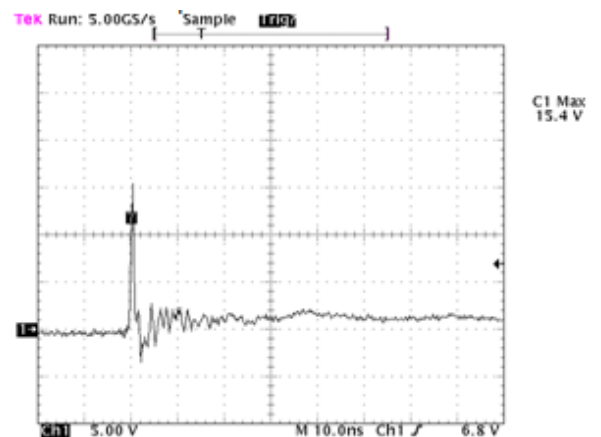
**Peak Pulse Power vs. Pulse Time**



**Clamping Voltage vs. Peak Pulse Current (t<sub>p</sub> = 8/20μs)**

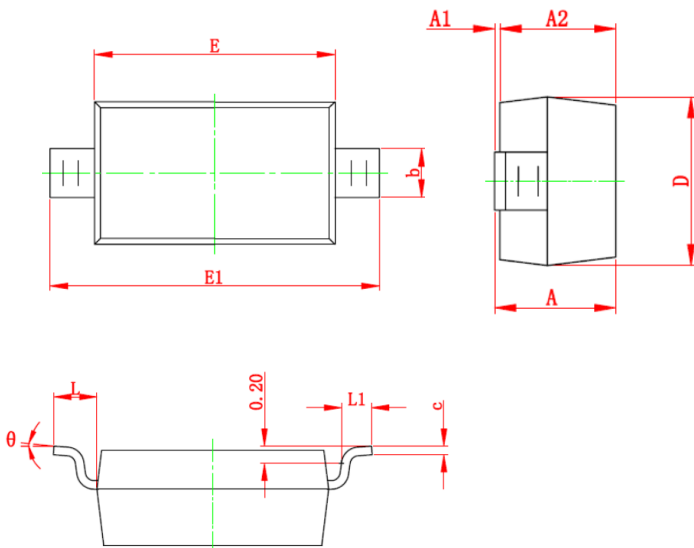


**8 X 20μs Pulse Waveform**



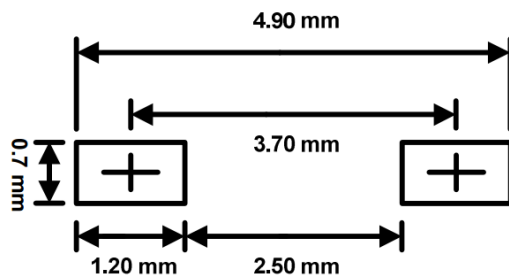
**Note: Data is taken with a 10x attenuator  
ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2**

### SOD-123 Package Outline Drawing



Symbol	Millimeters		Inches	
	MIN.	MAX.	MIN.	MAX.
<b>A</b>	1.050	1.250	0.041	0.049
<b>A1</b>	0.000	0.100	0.000	0.004
<b>A2</b>	1.050	1.150	0.041	0.045
<b>b</b>	0.450	0.650	0.018	0.026
<b>c</b>	0.080	0.150	0.003	0.006
<b>D</b>	1.500	1.700	0.059	0.067
<b>E</b>	2.600	2.800	0.102	0.110
<b>E1</b>	3.550	3.850	0.140	0.152
<b>L</b>	0.500 REF		0.020 REF	
<b>L1</b>	0.250	0.450	0.010	0.018
<b>θ</b>	0°	8°	0°	8°

### Suggested Land Pattern



### Contact Information

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