

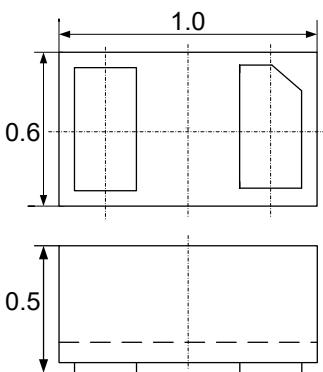
Description

The AU0512P1 is a bi-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 AU0512P1 complies with the IEC 61000-4-2 (ESD) with ± 30 kV air and ± 30 kV contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size and high ESD surge protection make AU0512P1 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

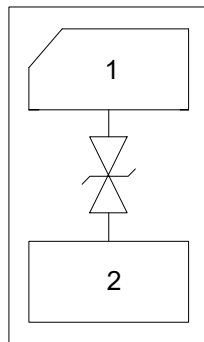
Features

- Ultra low leakage: nA level
- Operating voltage: 12V or 5V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-5 (Lightning) 9A or 17A (8/20 μ s)
- RoHS Compliant

Dimensions and Pin Configuration



Circuit Schematic



Pin Schematic

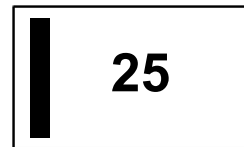
Mechanical Characteristics

- Package: DFN1006-2 (1.0x0.6x0.5mm)
- 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

Marking Information



25= Device Marking Code

Ordering Information

Part Number	Packaging	Reel Size
AU0512P1	10000/Tape & Reel	7 inch

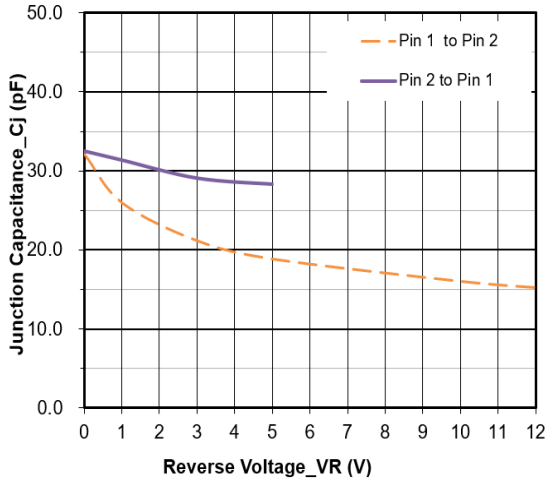
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	225	W
Peak Pulse Current (8/20 μs) (pin 1 to pin 2)	Ipp	9	A
Peak Pulse Current (8/20 μs) (pin 2 to pin 1)	Ipp	17	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	$^{\circ}\text{C}$

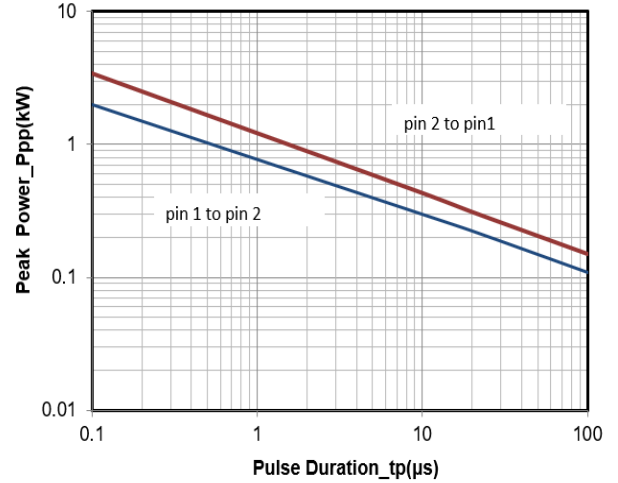
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Pin 1 to Pin 2 (12V TVS)			Pin 2 to Pin 1 (5V TVS)			Unit	Test Condition
		Min	Typ	Max	Min	Typ	Max		
Reverse Working Voltage	VRWM			12			5	V	
Breakdown Voltage	VBR	13.3			6			V	IT = 1mA
Reverse Leakage Current	IR			0.2			0.2	μA	VR = VRWM
Clamping Voltage	VC			18			10	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	VC			25			13	V	I _{PP} = 9A (8 x 20 μs pulse)
Clamping Voltage	VC						18	V	I _{PP} = 17A (8 x 20 μs pulse)
Junction Capacitance	CJ		32			32		pF	VR = 0V, f = 1MHz
Junction Capacitance	CJ		15			28		pF	VR = VRWM, f = 1MHz

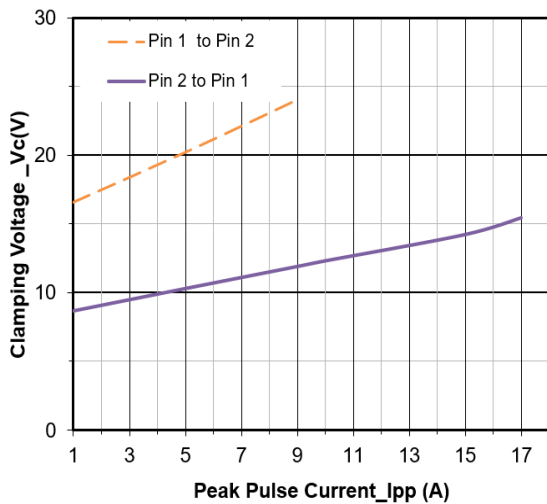
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



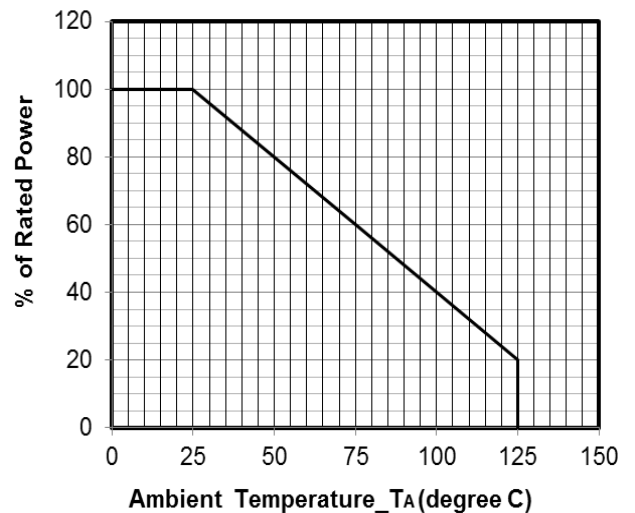
Junction Capacitance vs. Reverse Voltage



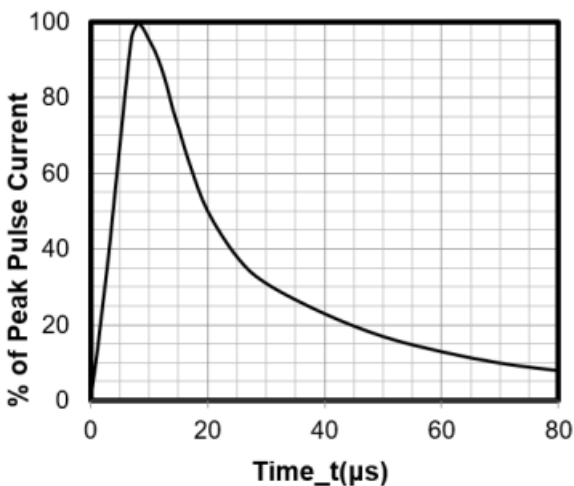
Peak Pulse Power vs. Pulse Time



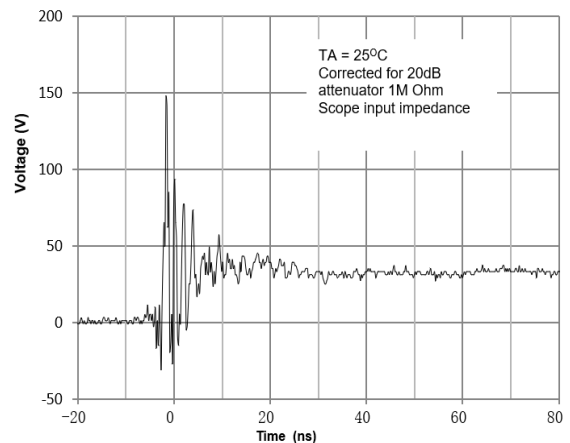
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

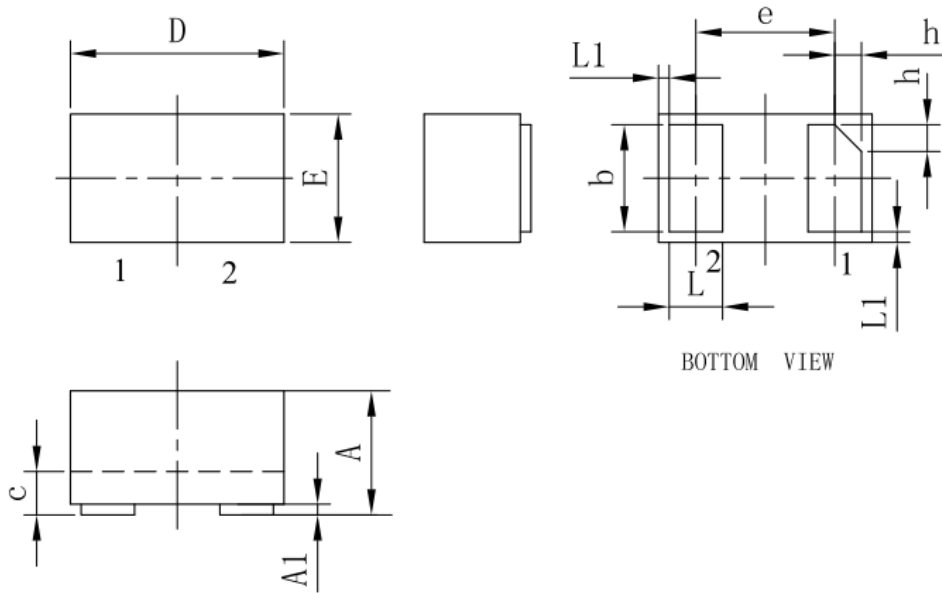


8 X 20 μs Pulse Waveform



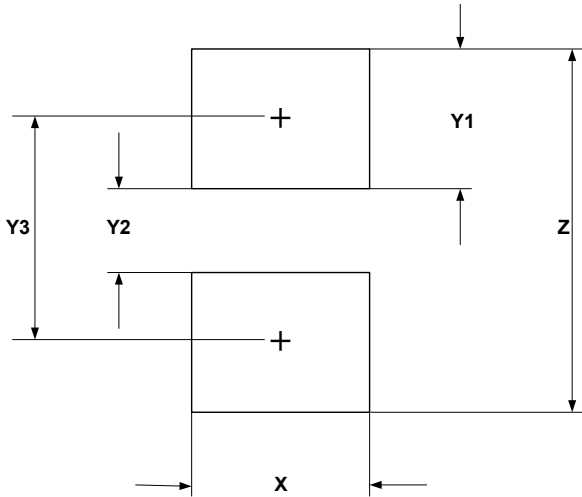
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

DFN1006-2 Package Outline Drawing


SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052

Contact Information

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