

Description

The AU2501P1 is an Uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The AU2501P1 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 an ultra-small 1.0x0.6x0.5mm DFN lead-free package. The small size and high ESD surge protection make AU2501P1 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Protects one data line
- Ultra low leakage: nA level
- Ultra low operating voltage: 2.5V
- 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) 15A (8/20 μs)
- RoHS Compliant

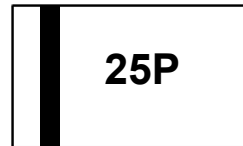
Mechanical Characteristics

- 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
- Keypads, Side Keys, LCD Displays

Marking Information

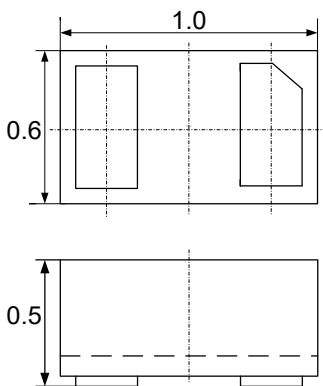


25P = Device Marking Code
Bar denotes pin1

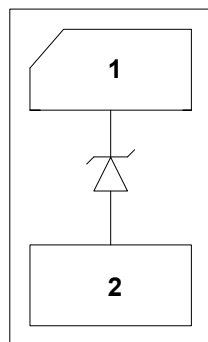
Ordering Information

Part Number	Packaging	Reel Size
AU2501P1	10000/Tape & Reel	7 inch

Dimensions and Pin Configuration



Package Dimensions



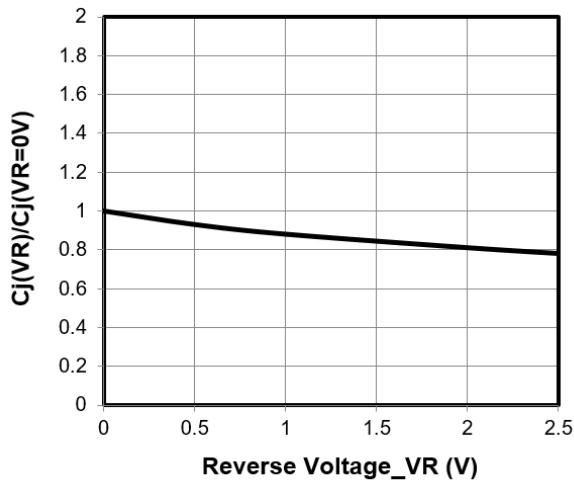
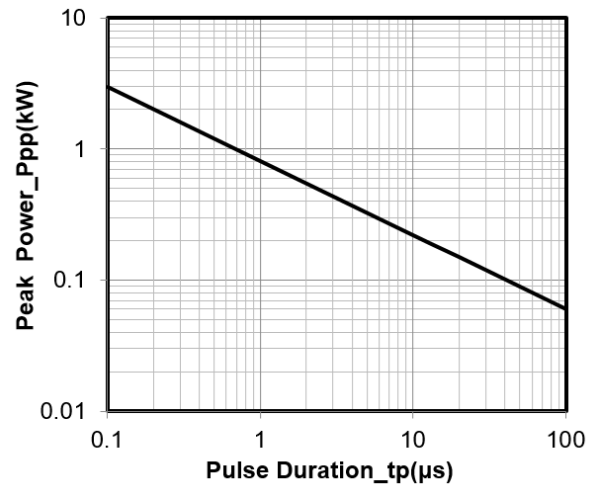
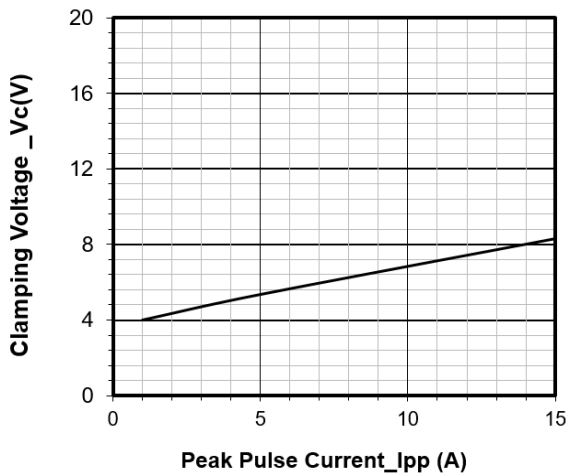
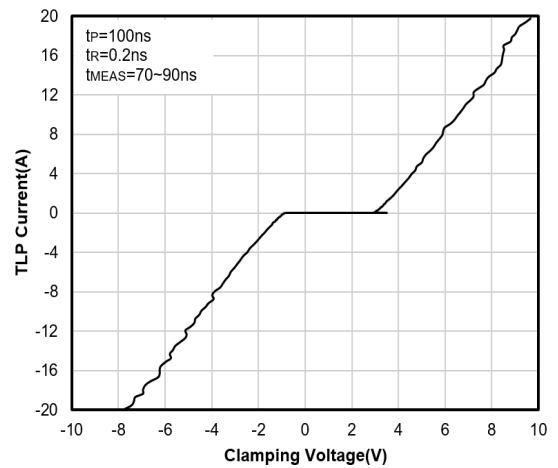
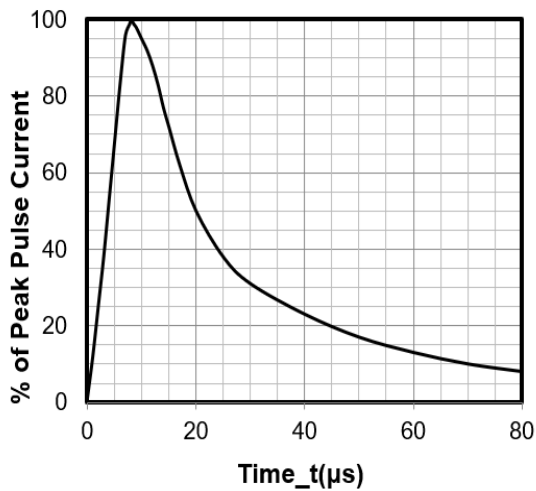
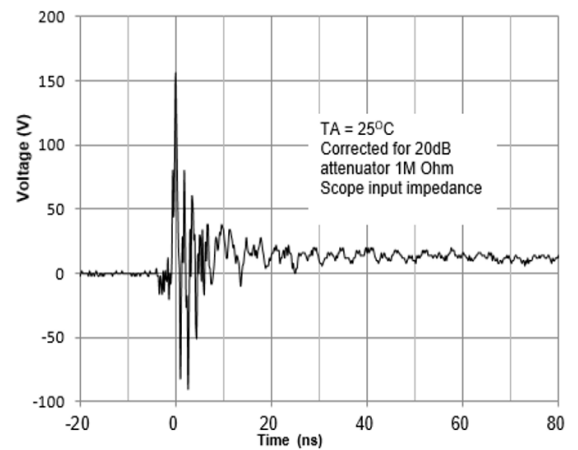
Circuit and Pin Schematic

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

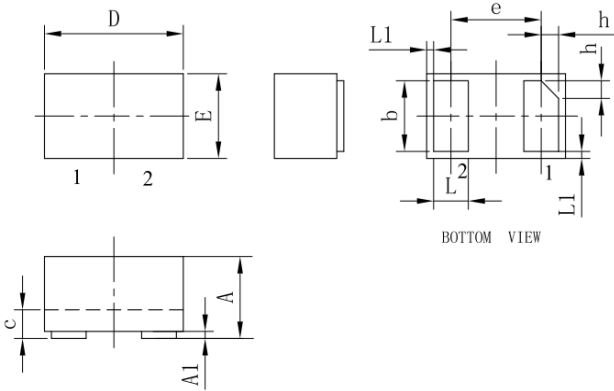
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{pk}	150	W
Peak Pulse Current (8/20μs)	I _{pp}	15	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			2.5	V	
Breakdown Voltage	V _{BR}	3			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 2.5V
Clamping Voltage	V _C			5	V	I _{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V _C			7	V	I _{PP} = 5A (8 x 20μs pulse)
Clamping Voltage	V _C			10	V	I _{PP} = 15A (8 x 20μs pulse)
Forward Voltage	V _F			1.6	V	I _{PP} = 1A (8 x 20μs pulse)
Junction Capacitance	C _J		20	30	pF	V _R = 0V, f = 1MHz
Junction Capacitance	C _J		14		pF	V _R = 2.5V, f = 1MHz

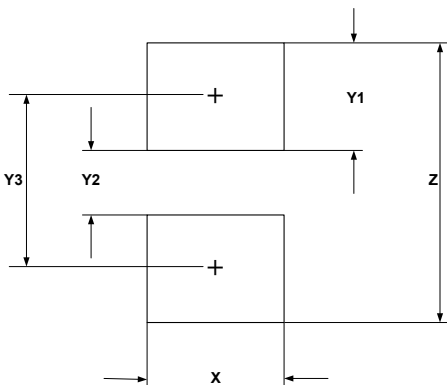
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Normalized 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

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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