

Description

The AU1581P1C 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 AU1581P1C complies with the IEC 61000-4-2 (ESD) with ± 30 kV air and ± 30 kV contact discharge. It is assembled into an ultra-small lead-free DFN package. The small size and high ESD surge protection make AU1581P1C 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: 15V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-5 (Lightning) 30A (8/20 μ s)
- RoHS Compliant

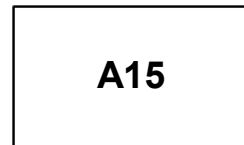
Mechanical Characteristics

- Package: DFN1006-2
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

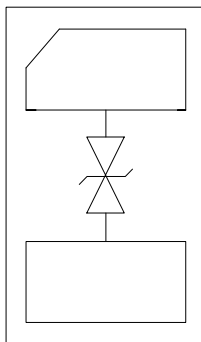
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Marking Information



A15 = Device Marking Code

Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Ordering Information

Part Number	Packaging	Reel Size
AU1581P1C	10000/Tape & Reel	7 inch

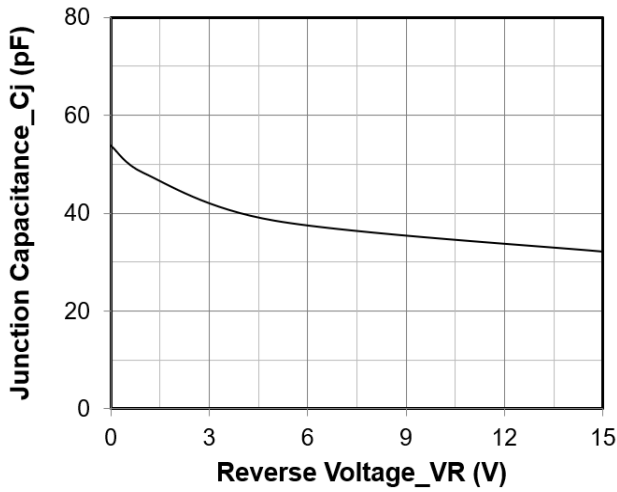
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	690	W
Peak Pulse Current (8/20 μs)	I _{PP}	30	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	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

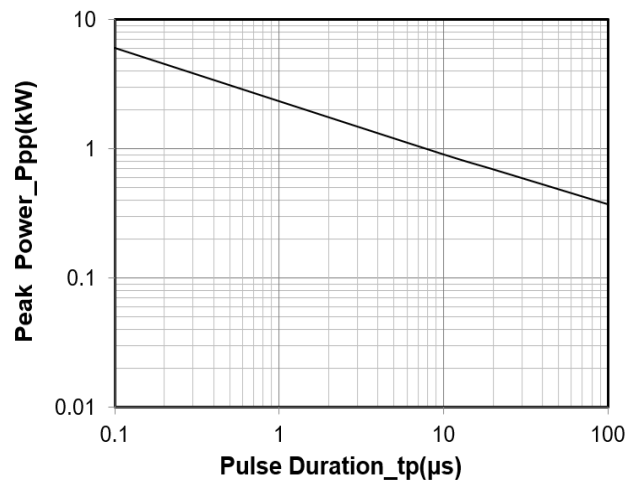
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			15	V	
Breakdown Voltage	V _{BR}	16			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 15V
Clamping Voltage	V _C			20	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C			23	V	I _{PP} = 30A (8 x 20 μs pulse)
Junction Capacitance	C _J		55		pF	V _R = 0V, f = 1MHz

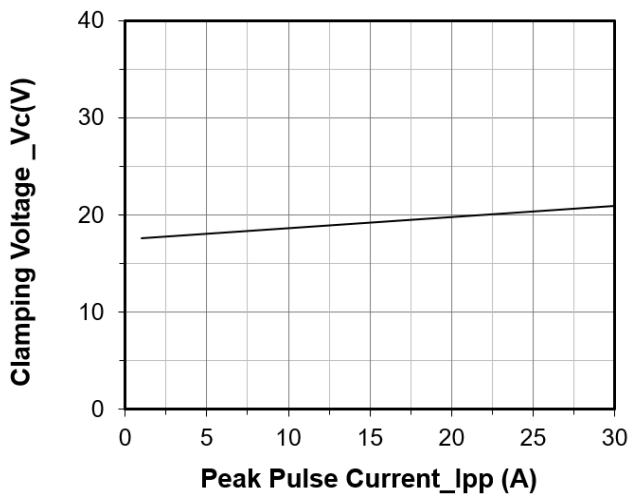
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



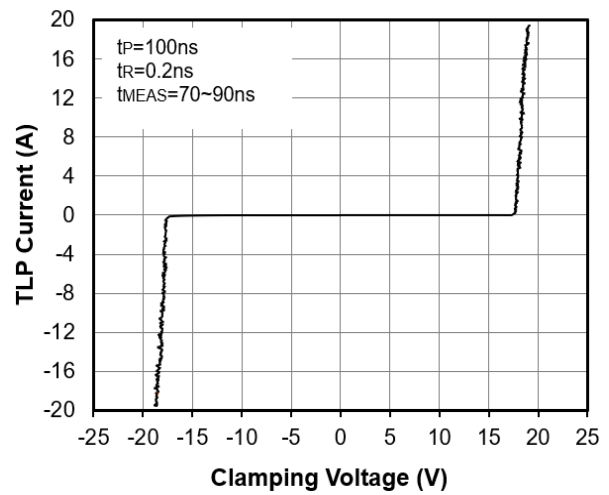
Junction Capacitance vs. Reverse Voltage



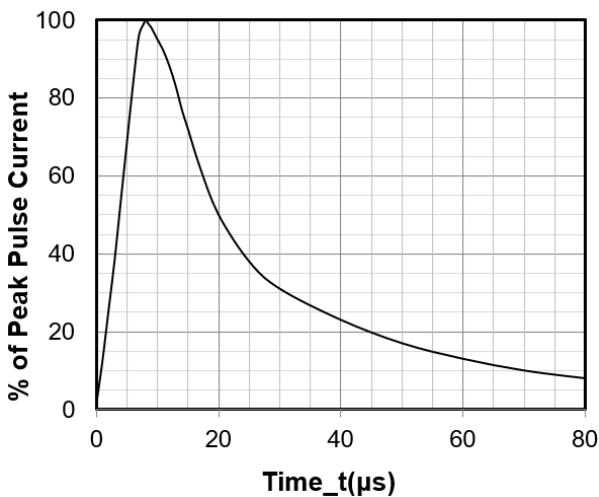
Peak Pulse Power vs. Pulse Time



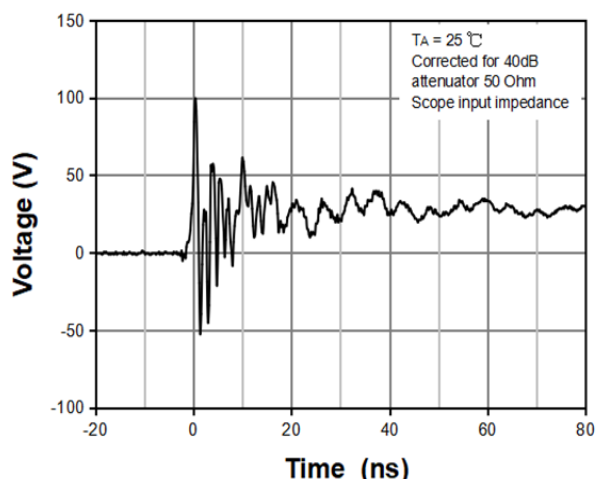
Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20\mu\text{s}$)



TLP Measurement

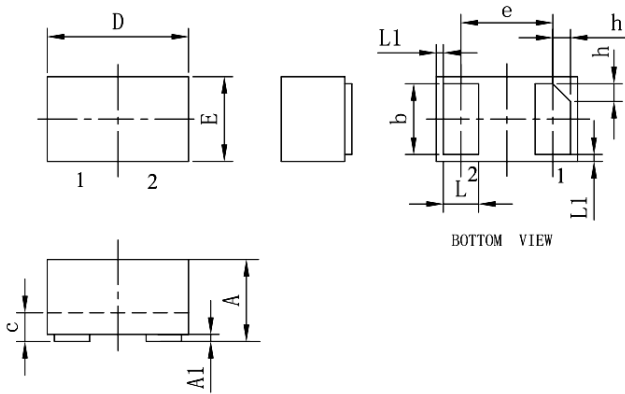


8 X 20μs Pulse Waveform



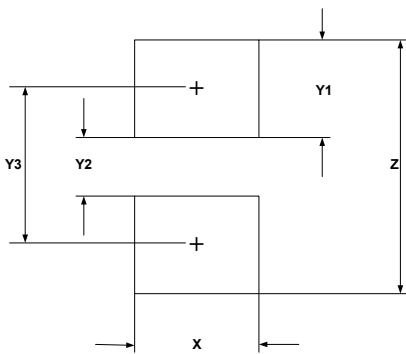
ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

DFN1006-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.43	-	0.55	0.017	-	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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