

Description

The AR0522PUW 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 AR0522PUW has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. The small size and high ESD surge protection make AR0522PUW an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Ultra low capacitance: 0.3pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Protects two bi-directional lines
- 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) 4A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN1110-3A
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

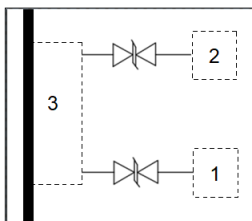
- HDMI 1.3/1.4/2.0, USB 2.0/3.0 and MDDI ports
- Monitors and flat panel displays
- Set-top box and Digital TV
- Video graphics cards
- Digital Visual Interface (DVI)
- Notebook Computers
- PCI Express and Serial SATA Ports

Marking Information



52U = Device Marking Code

Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Ordering Information

Part Number	Packaging	Reel Size
AR0522PUW	10000/Tape & Reel	7 inch

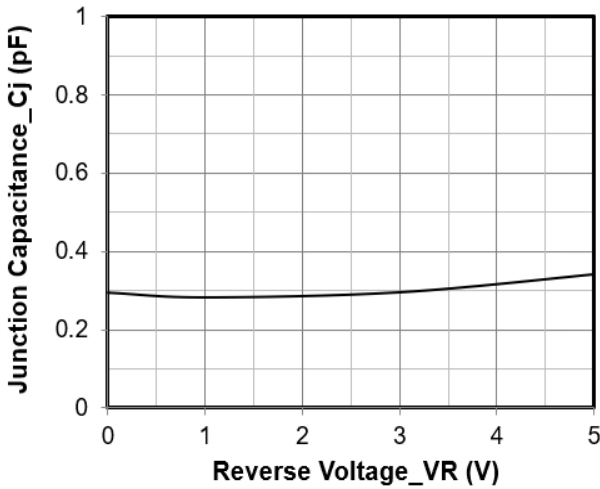
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	56	W
Peak Pulse Current (8/20 μs)	I _{PP}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Temperature Range	T _J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^\circ\text{C}$

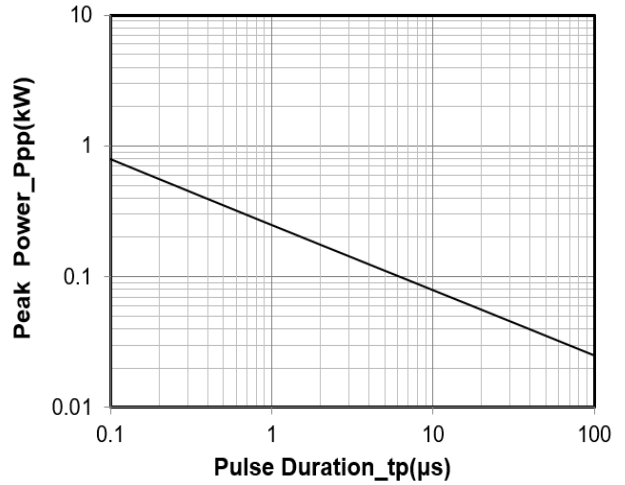
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	
Breakdown Voltage	V _{BR}	6			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 5V
Clamping Voltage	V _C			10	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C			14	V	I _{PP} = 4A (8 x 20 μs pulse)
Junction Capacitance	C _J		0.3		pF	V _R = 0V, f = 1MHz

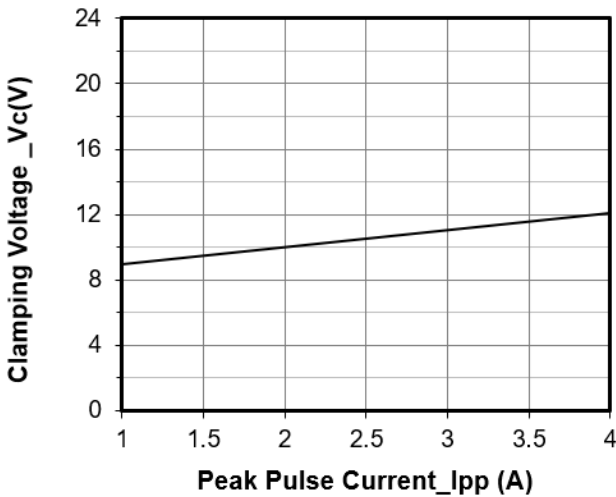
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



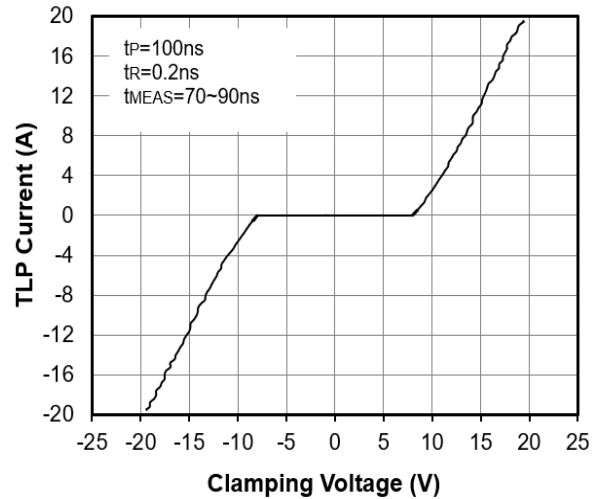
Junction Capacitance vs. Reverse Voltage



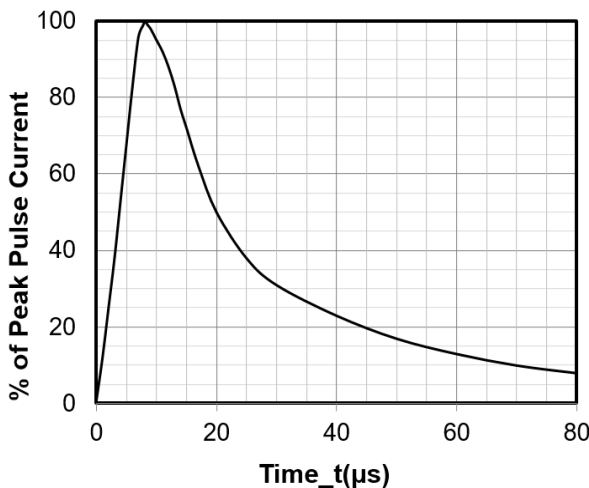
Peak Pulse Power vs. Pulse Time



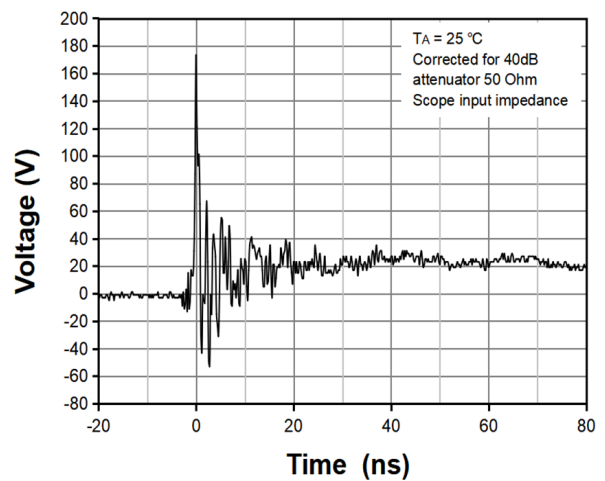
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



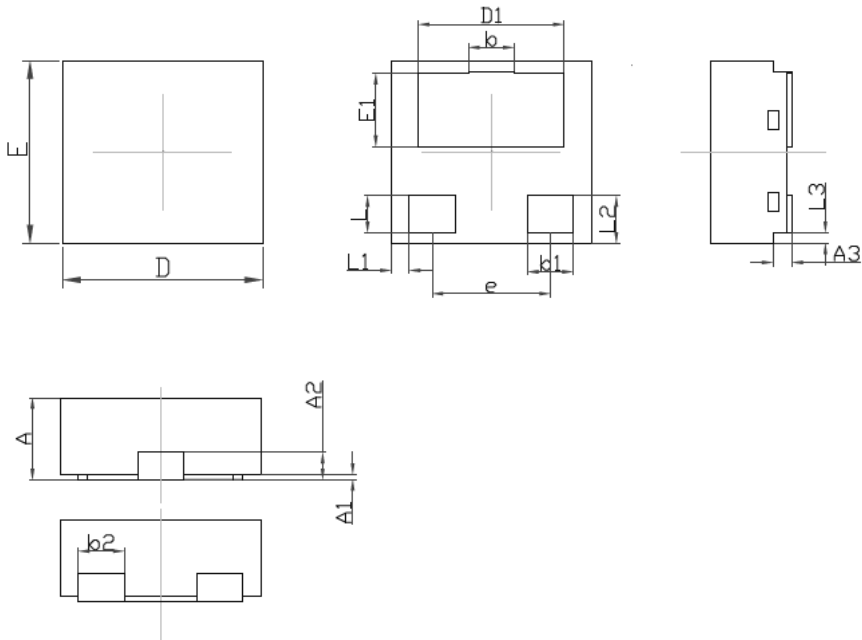
TLP Measurement



8 X 20μs Pulse Waveform



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

DFN1110-3A Package Outline Drawing


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.400	0.500	0.016	0.020
A1	0.000	0.050	0.000	0.002
A2	0.100MIN.		0.004MIN.	
A3	0.127MIN.		0.005MIN.	
D	1.050	1.150	0.041	0.045
E	0.950	1.050	0.037	0.041
D1	0.750	0.850	0.030	0.033
E1	0.350	0.450	0.014	0.018
b	0.200	0.300	0.008	0.012
b1	0.200	0.300	0.008	0.012
b2	0.200MIN.		0.008MIN.	
e	0.600	0.700	0.024	0.028
L	0.140	0.240	0.006	0.009
L1	0.100REF.		0.004REF.	
L2	0.210	0.310	0.008	0.012
L3	0.000	0.070	0.000	0.003

Contact Information

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