

Description

The AR0511P1LVW 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 high-speed data lines. The AR0511P1LVW has an ultra-low capacitance with a typical value at 0.15pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 20\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. The small size, ultra-low capacitance and high ESD surge protection make AR0511P1LVW an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Features

- Ultra low capacitance: 0.15pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 20\text{kV}$
 - Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-5 (Lightning) 3A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

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

Applications

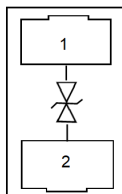
- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Marking Information



BV = Device Marking Code

Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Ordering Information

Part Number	Packaging	Reel Size
AR0511P1LVW	10000/Tape & Reel	7 inch

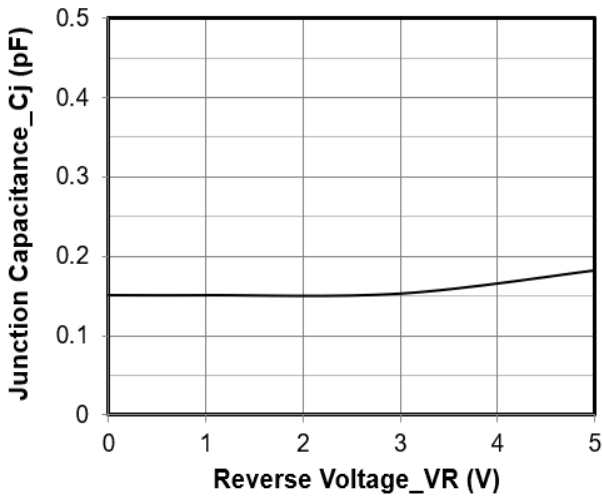
Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20µs)	Ppk	45	W
Peak Pulse Current (8/20µs)	I _{PP}	3	A
ESD per IEC 61000-4-2 (Air)	VESD	±20	kV
ESD per IEC 61000-4-2 (Contact)		±20	
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

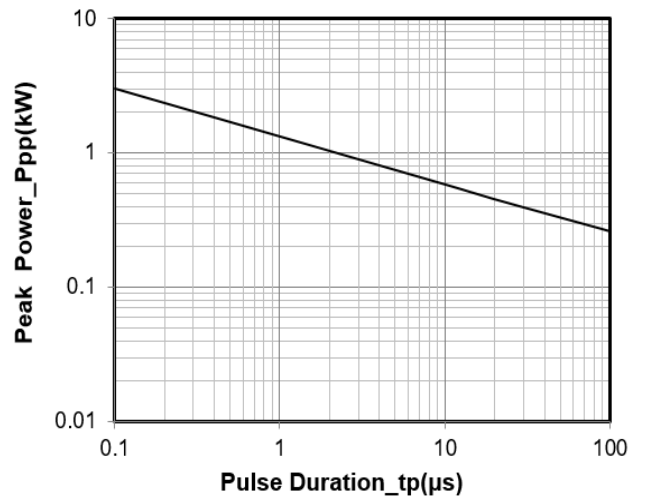
Electrical Characteristics (TA=25°C unless otherwise specified)

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			11	V	I _{PP} = 1A (8 x 20µs pulse)
Clamping Voltage	V _C			15	V	I _{PP} = 3A (8 x 20µs pulse)
Junction Capacitance	C _J		0.15	0.20	pF	V _R = 0V, f = 1MHz
			0.13		pF	V _R = 0V, f = 2.5GHz

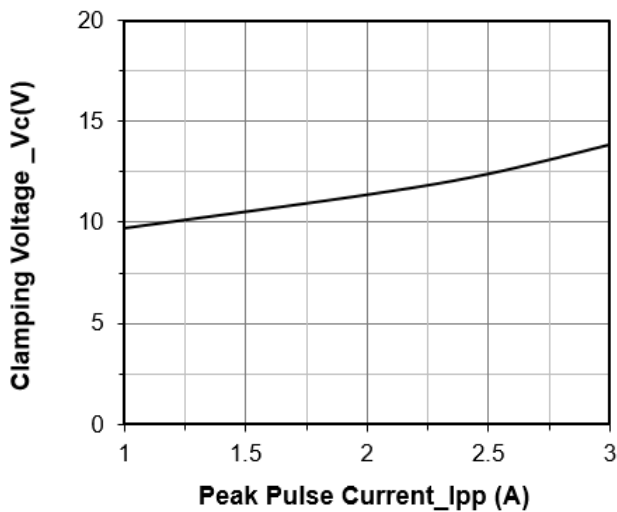
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



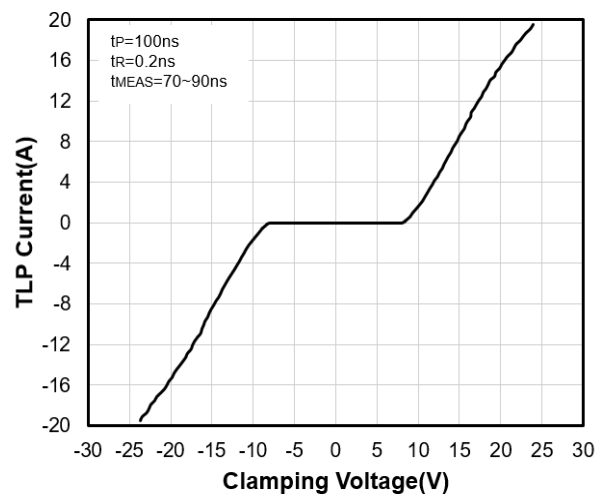
Junction Capacitance vs. Reverse Voltage



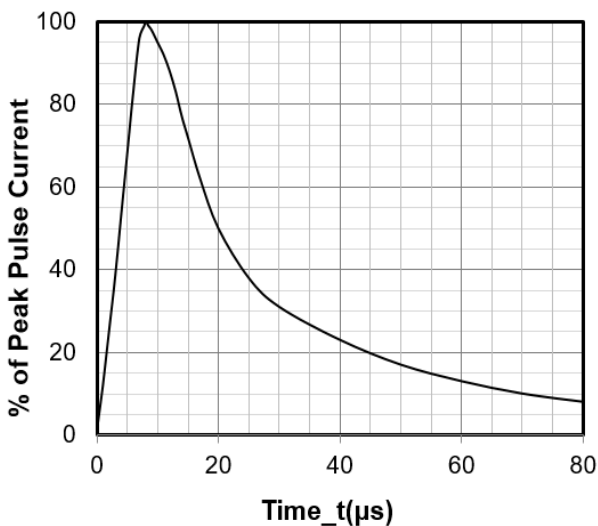
Peak Pulse Power vs. Pulse Time



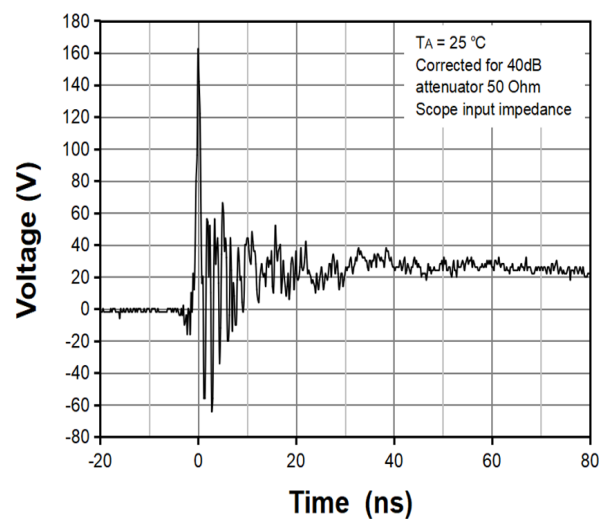
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



TLP Measurement

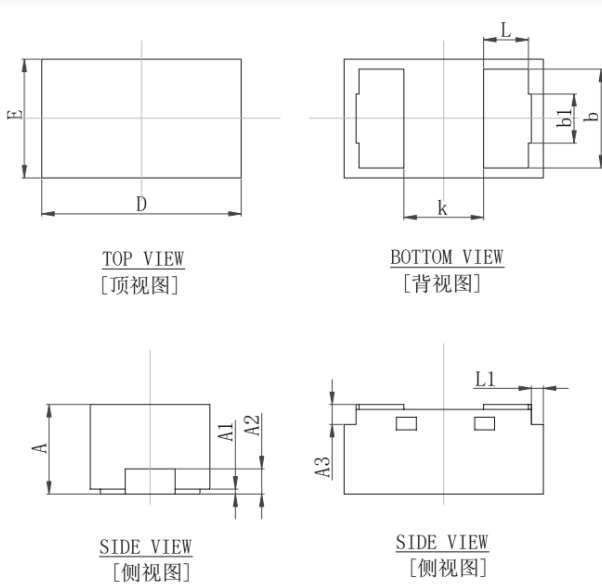


8 X 20μs Pulse Waveform

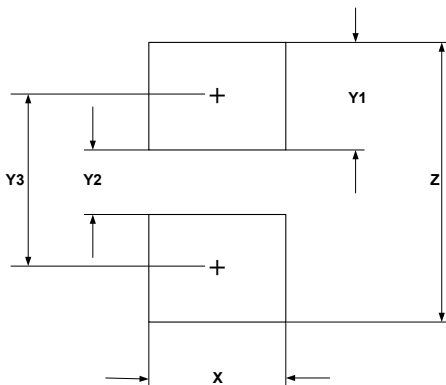


ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

DFN1006-2B Package Outline Drawing


SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.40	-	0.50	0.016	-	0.020
A1	0.00	-	0.05	0.000	-	0.002
A2	0.100MIN.			0.004MIN.		
A3	0.127MIN.			0.005MIN.		
D	0.95	-	1.05	0.037	-	0.041
E	0.55	-	0.65	0.022	-	0.026
b	0.45	-	0.55	0.018	-	0.022
b1	0.20	-	0.30	0.008	-	0.012
k	0.350	-	0.450	0.014	-	0.018
L	0.175	-	0.275	0.007	-	0.011
L1	0.000	-	0.070	0.000	-	0.003

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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