

Description

The AR0511D5 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 AR0511D5 has an ultra-low capacitance with a typical value at 0.2pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 20\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. It is assembled into a SOD-523 lead-free package. The small size and high ESD surge protection make AR0511D5 an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Features

- Ultra low capacitance: 0.2pF 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) 2A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

- Package: SOD-523
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

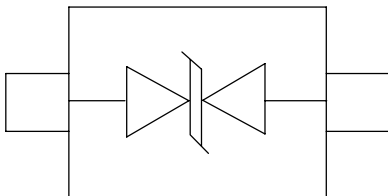
- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Marking Information



B9 = Device Marking Code

Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Ordering Information

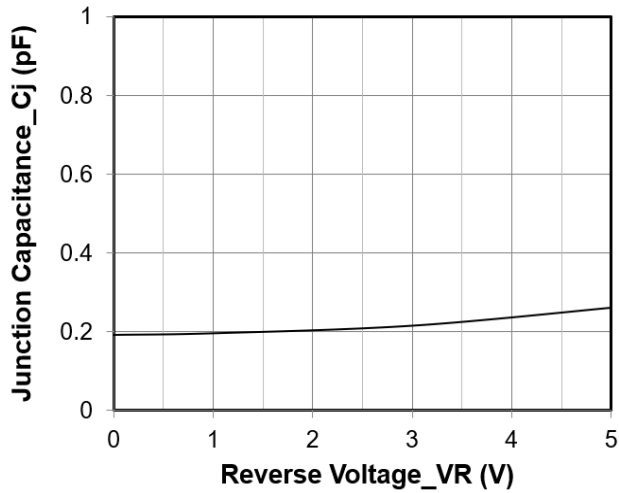
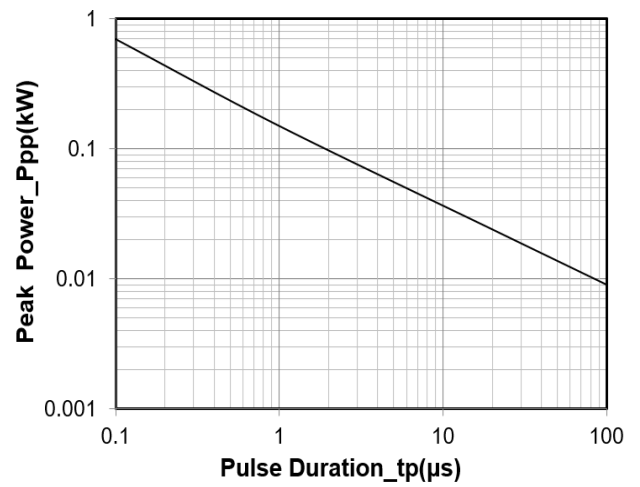
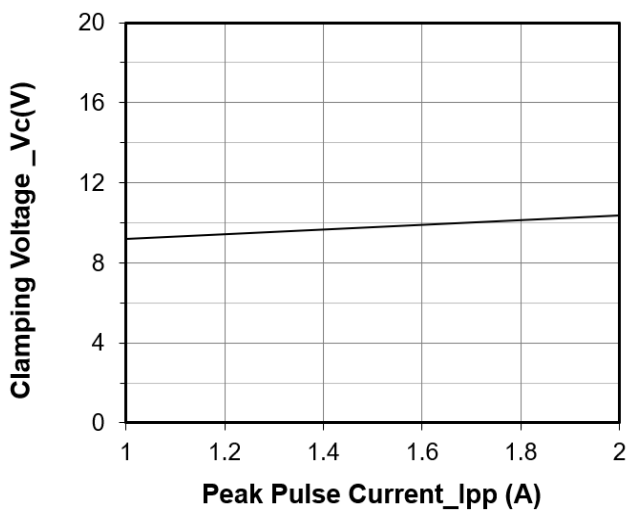
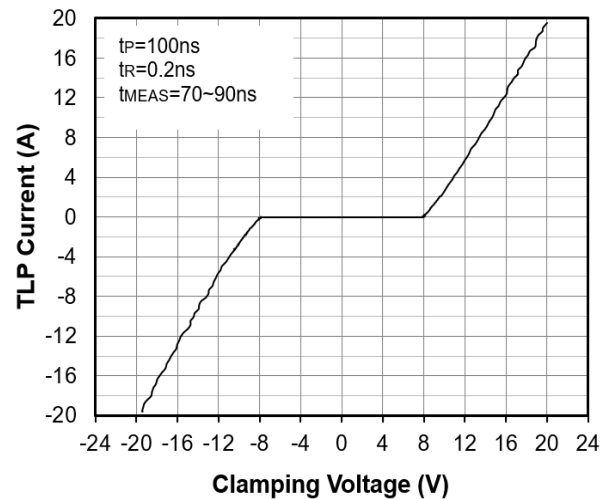
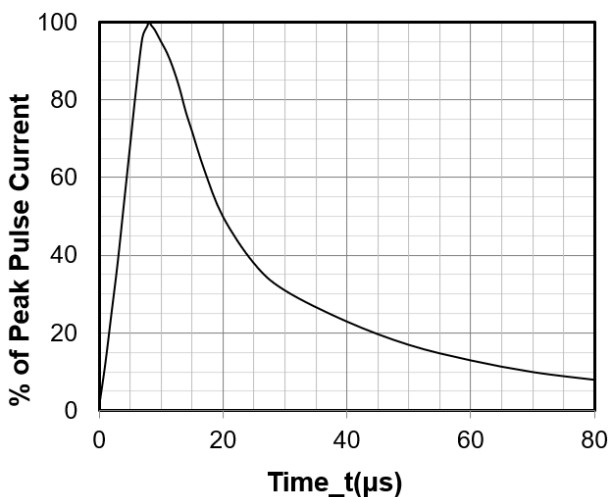
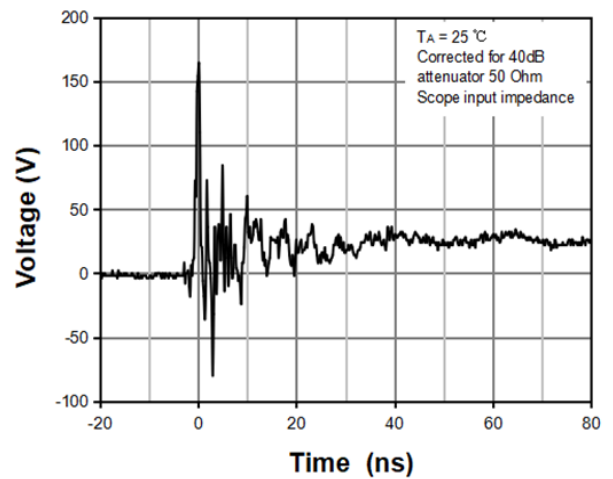
Part Number	Packaging	Reel Size
AR0511D5	3000/Tape & Reel	7 inch

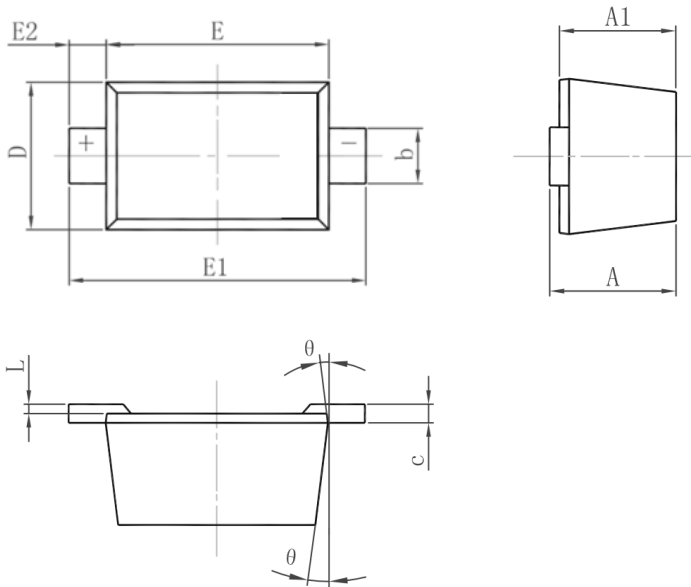
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{pk}	24	W
Peak Pulse Current (8/20μs)	I _{PP}	2	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±20 ±20	kV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

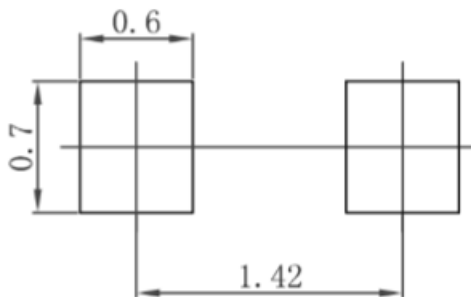
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			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 20μs pulse)
Clamping Voltage	V _C			12	V	I _{PP} = 2A (8 x 20μs pulse)
Junction Capacitance	C _J		0.2		pF	V _R = 0V, f = 1MHz

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

TLP Measurement

8 X 20μs Pulse Waveform

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

SOD-523 Package Outline Drawing


SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.51	0.77	0.020	0.031
A1	0.50	0.70	0.020	0.028
b	0.25	0.35	0.010	0.014
c	0.08	0.15	0.003	0.006
D	0.75	0.85	0.030	0.033
E	1.10	1.30	0.043	0.051
E1	1.50	1.70	0.059	0.067
E2	0.20REF		0.008REF	
L	0.01	0.07	0.001	0.003
Θ	7° REF		7° REF	

Suggested Land Pattern


Unit: mm

Contact Information

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