Description

The AR0502S7LV is a 2-line Uni-directional TVS diode array, 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 AR0502S7LV has an ultra-low capacitance with a typical value at 0.5pF, and complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. The small size, ultra-low capacitance and high ESD surge protection make AR0502S7LV an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Features

- Ultra low capacitance: 0.5pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Protects two lines
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - – IEC61000-4-5 (Lightning) 5A (8/20μs)
- RoHS Compliant

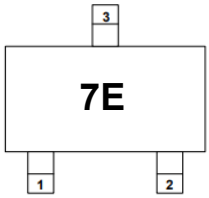
Mechanical Characteristics

- Package: SOT-723
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

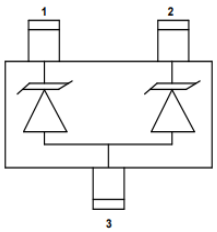
- Cellular Handsets and Accessories
- USB Ports
- Video Interface
- MDDI Ports

Marking Information



7E = Device Marking Code

Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Ordering Information

Part Number	Packaging	Reel Size
AR0502S7LV	3000/Tape & Reel	7 inch

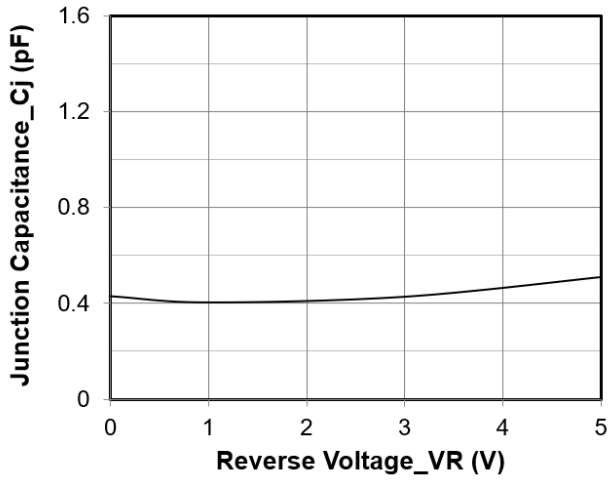
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	55	W
Peak Pulse Current (8/20μs)	I_{PP}	5	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	°C
Storage Temperature Range	Tstg	−55 to +150	°C

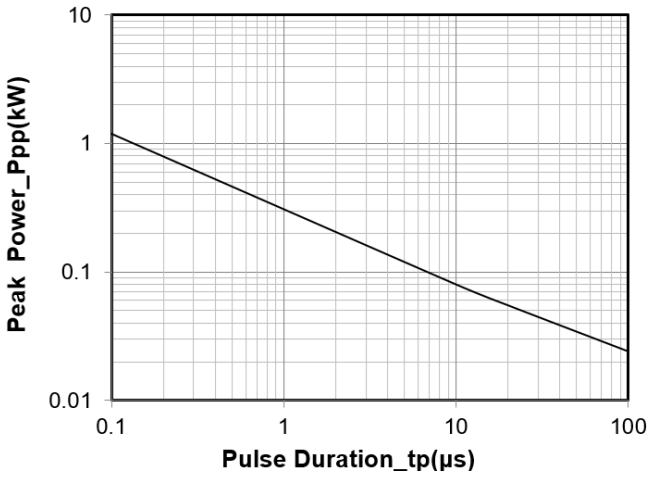
Electrical Characteristics (T_A=25°C unless otherwise specified)

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			9	V	I_{PP} = 1A (8 x 20μs pulse), Pin 1 or 2 to Pin3
Clamping Voltage	V_C			11	V	I_{PP} = 5A (8 x 20μs pulse), Pin 1 or 2 to Pin3
Junction Capacitance	C_J		0.5		pF	VR = 0V, f = 1MHz,Pin 1 or 2 to Pin3

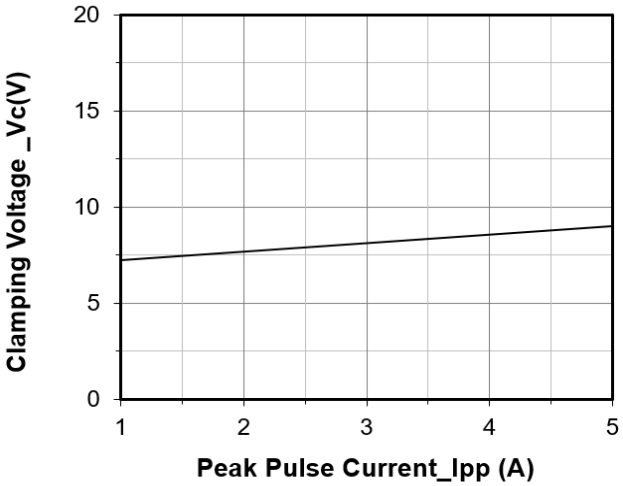
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



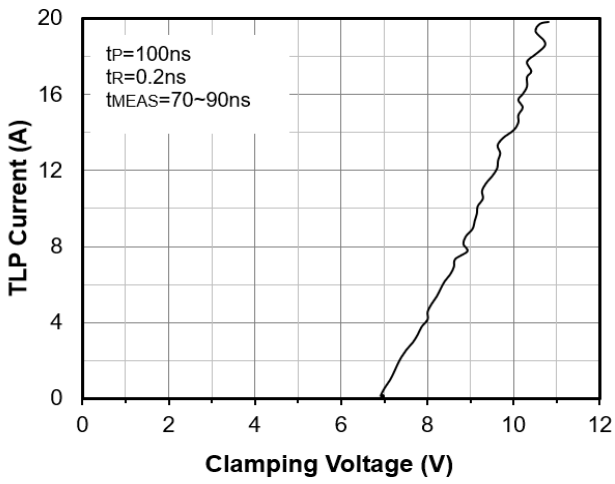
Junction Capacitance vs. Reverse Voltage



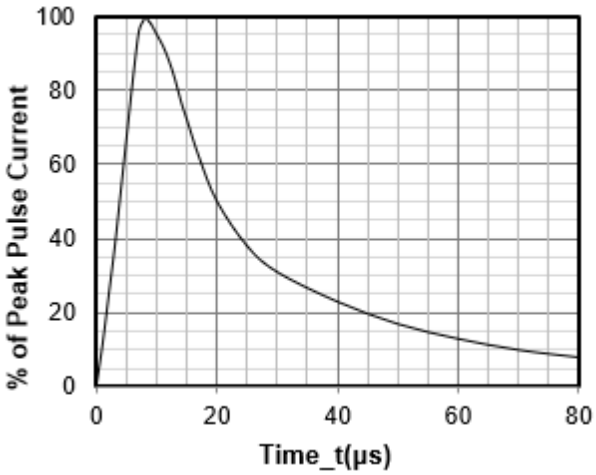
Peak Pulse Power vs. Pulse Time



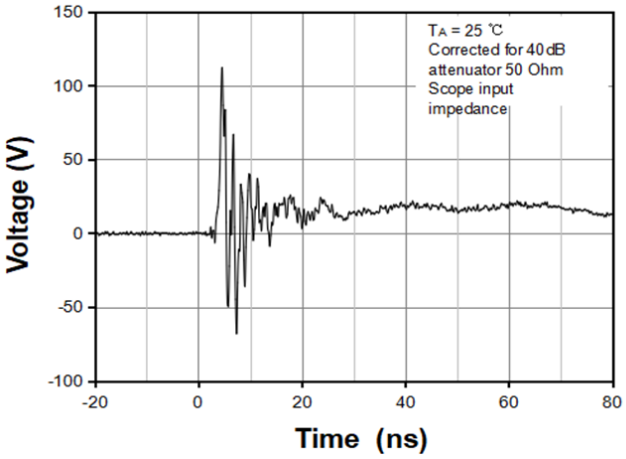
Clamping Voltage vs. Peak Pulse Current



TLP Measurement



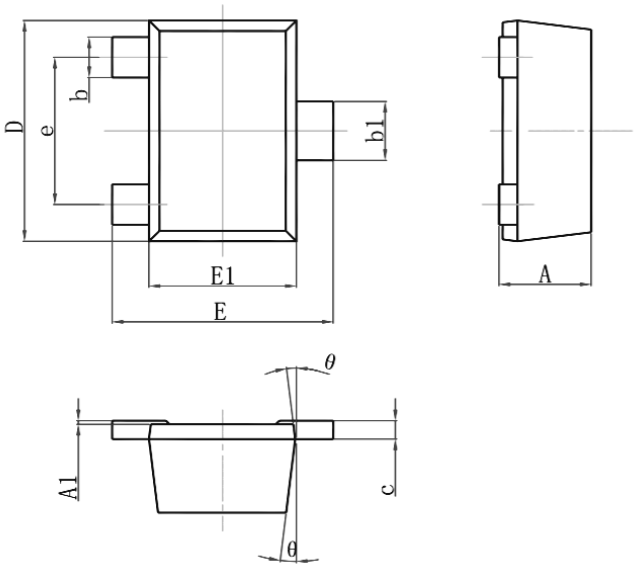
8 X 20μs Pulse Waveform



ESD Clamping Voltage

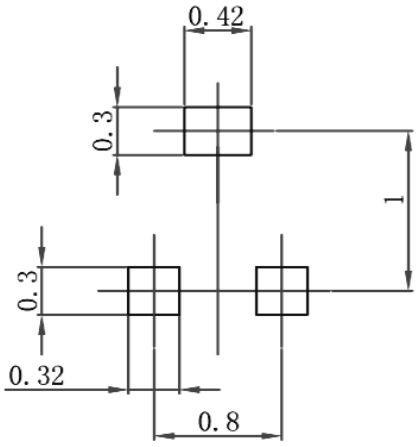
8 kV Contact per IEC61000−4−2

SOT-723 Package Outline Drawing



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800 TYP.		0.800 TYP.	
θ	7° REF.		7° REF.	

Suggested Land Pattern



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