

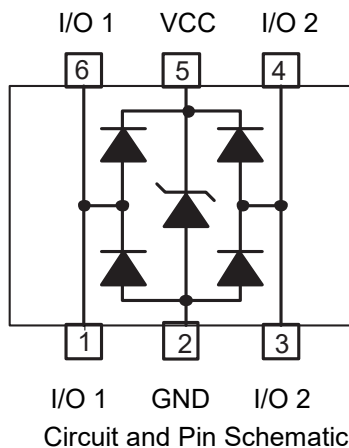
## Description

The AR0552S6 is a low capacitance TVS 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 AR0552S6 has an ultra-low capacitance with a typical value at 0.4pF, and complies with the IEC 61000-4-2 (ESD) with  $\pm 25\text{kV}$  air and  $\pm 20\text{kV}$  contact discharge. It is assembled into a 6-Pin lead-free SOT-563 package. The low capacitance array make it ideal for four high speed data and transmission line. This device is optimized for ESD protection of portable electronics.

## Features

- Ultra low capacitance: 0.4pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating voltage: 5 V
- Low clamping voltage
- Two data lines and one power line protects
- JEDEC SOT-563 package
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 25\text{kV}$   
Contact discharge:  $\pm 20\text{kV}$
  - IEC61000-4-5 (Lightning) 5A (8/20 $\mu\text{s}$ )
- RoHS Compliant

## Dimensions and Pin Configuration



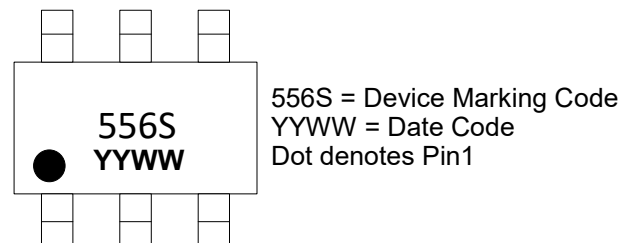
## Mechanical Characteristics

- Package: SOT-563
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

- USB 2.0 Ports
- Digital Visual Interface (DVI)
- Monitor and Flat Panel Displays
- Gigabit Ethernet
- Ethernet port: 10/100Mb/s
- SIM card protection

## Marking Information



## Ordering Information

Part Number	Packaging	Reel Size
AR0552S6	3000/Tape & Reel	7 inch

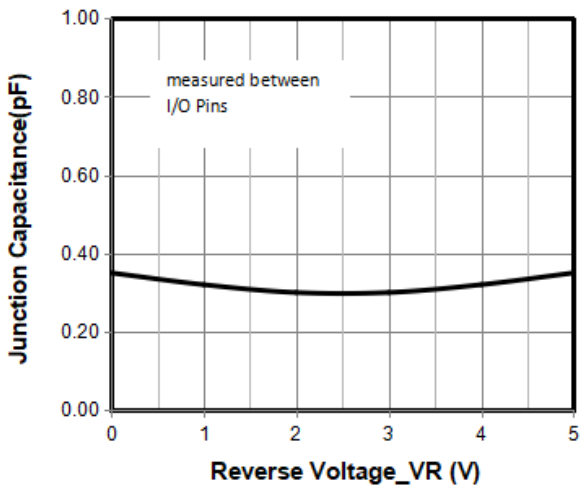
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	75	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	I <sub>PP</sub>	5	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	$\pm 25$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 20$	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	$^{\circ}\text{C}$

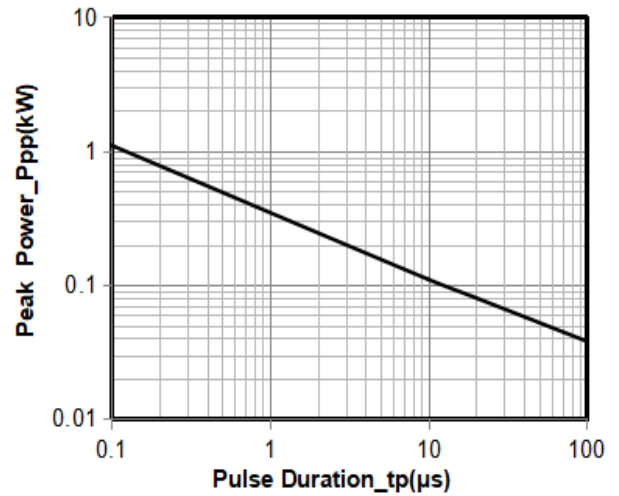
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			5	V	
Breakdown Voltage	V <sub>BR</sub>	6			V	I <sub>T</sub> = 1mA
Reverse Leakage Current	I <sub>R</sub>			0.2	$\mu\text{A}$	V <sub>RWM</sub> = 5V
Clamping Voltage	V <sub>C</sub>			10	V	I <sub>PP</sub> = 1A (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	V <sub>C</sub>			15	V	I <sub>PP</sub> = 5A (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	C <sub>J</sub>		0.6	0.8	pF	V <sub>R</sub> = 0V, f = 1MHz, any I/O pin to ground
Junction Capacitance	C <sub>J</sub>		0.3	0.4	pF	V <sub>R</sub> = 0V, f = 1MHz, between I/O pins

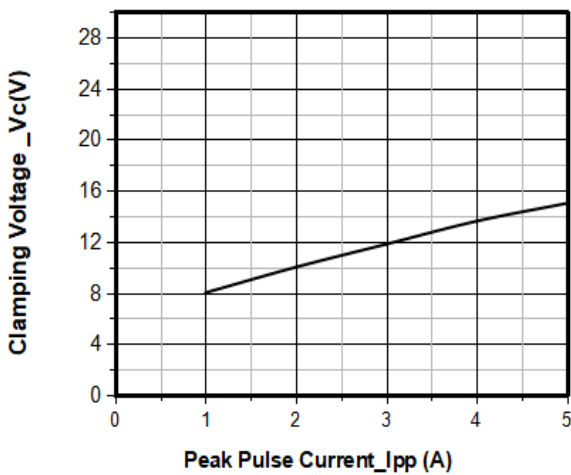
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



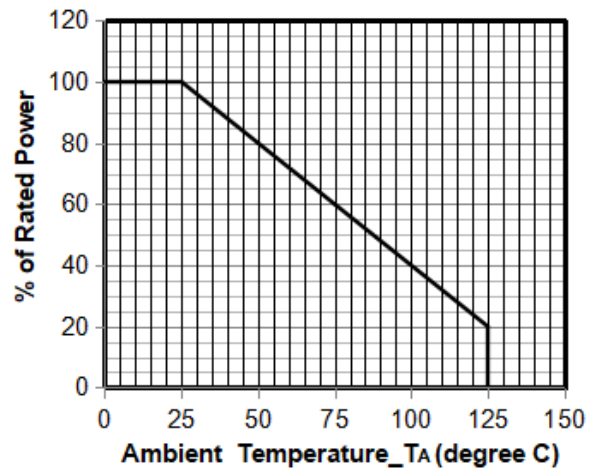
**Junction Capacitance vs. Reverse Voltage**



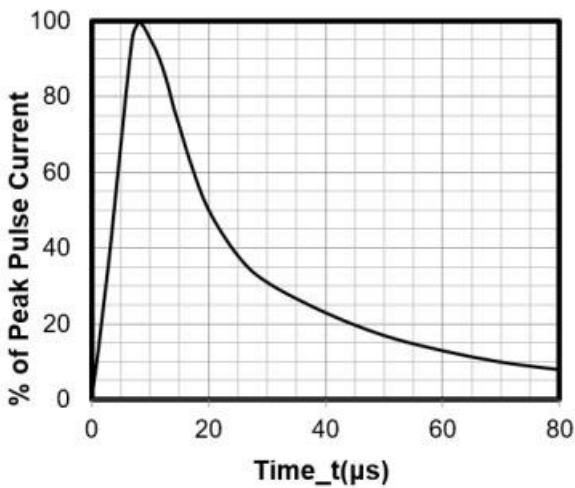
**Peak Pulse Power vs. Pulse Time**



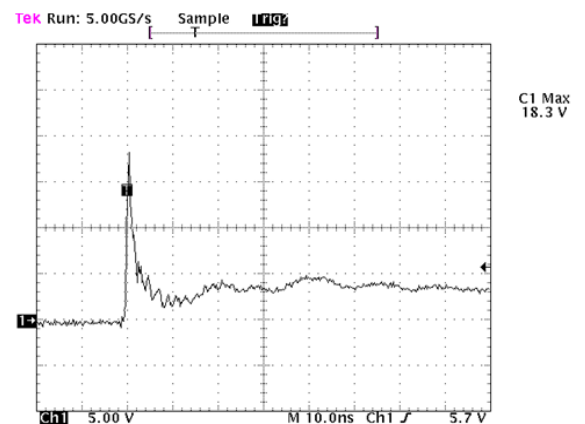
**Clamping Voltage vs. Peak Pulse Current**



**Power Derating Curve**



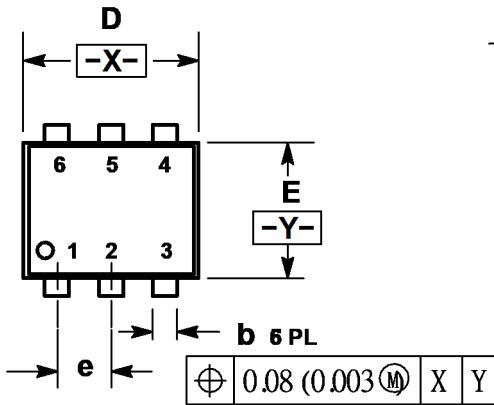
**8 X 20µs Pulse Waveform**



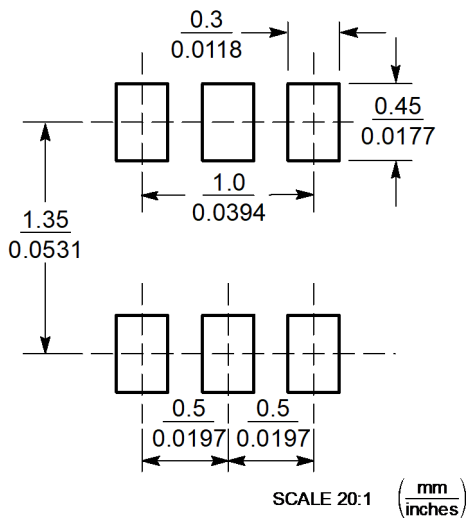
Note: Data is taken with a 10x attenuator

**ESD Clamping Voltage**

**8 kV Contact per IEC61000-4-2**

**SOT-563 Package Outline Drawing**


DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.021	0.023
b	0.17	0.22	0.27	0.007	0.009	0.011
C	0.08	0.12	0.18	0.003	0.005	0.007
D	1.50	1.60	1.70	0.059	0.062	0.066
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.5 BSC			0.02 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
HE	1.50	1.60	1.70	0.059	0.062	0.066

**Suggested Land Pattern**

**Contact Information**

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