

## Description

The AR0563PE is an 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 AR0563PE has an ultra-low capacitance with a typical value at 0.2pF, and complies with the IEC 61000-4-2 (ESD) with  $\pm 15\text{kV}$  air and  $\pm 8\text{kV}$  contact discharge. The small size, ultra-low capacitance and high ESD surge protection make AR0563PE an ideal choice to protect cell phone, digital visual interfaces and other high speed ports.

## Features

- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- 6-pin leadless package
- Protects three I/O lines and a power line
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 15\text{kV}$
    - Contact discharge:  $\pm 8\text{kV}$
  - IEC61000-4-5 (Lightning) 3A (8/20 $\mu\text{s}$ )
- RoHS Compliant

## Mechanical Characteristics

- Package: DFN1510-6
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

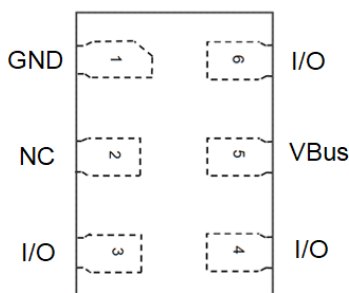
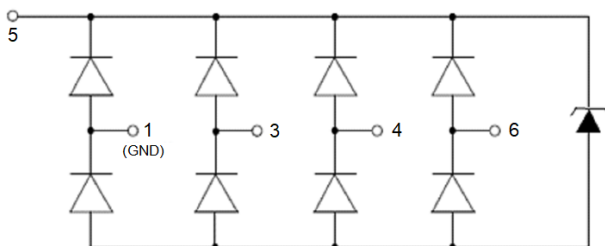
- Cellular Handsets and Accessories
- USB Ports
- Digital Visual Interface
- MMC/SD Ports

## Marking Information



53E = Device Marking Code

## Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Part Number	Packaging	Reel Size
AR0563PE	3,000/Tape & Reel	7 inch

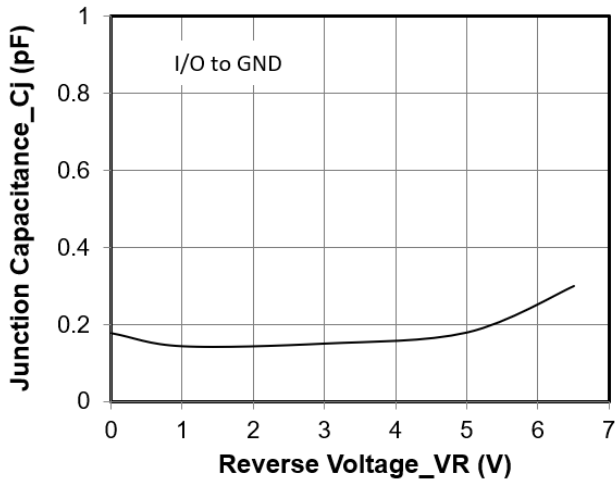
**Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	51	W
Peak Pulse Current (8/20μs)	I <sub>PP</sub>	3	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	±15 ±8	kV
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

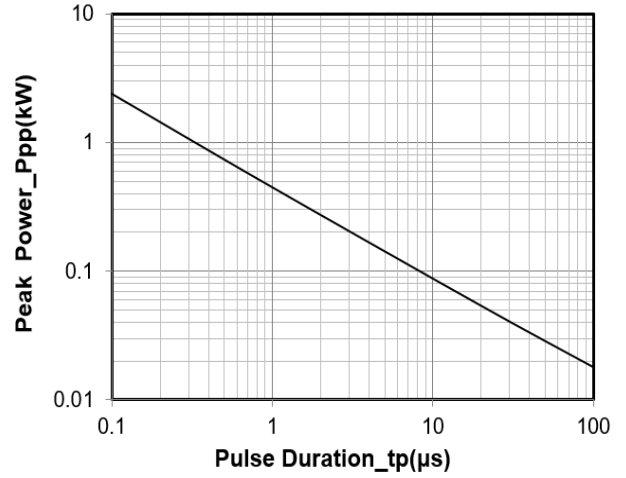
**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)**

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>			0.5	μA	V <sub>RWM</sub> = 5V
Clamping Voltage	V <sub>C</sub>			12	V	I <sub>PP</sub> = 1A (8 x 20μs pulse), any I/O pin to ground
Clamping Voltage	V <sub>C</sub>			17	V	I <sub>PP</sub> = 3A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	C <sub>J</sub>		0.2		pF	V <sub>R</sub> = 0V, f = 1MHz, any I/O pin to ground
Junction Capacitance	C <sub>J</sub>		0.15		pF	V <sub>R</sub> = 0V, f = 1MHz, between I/O pins

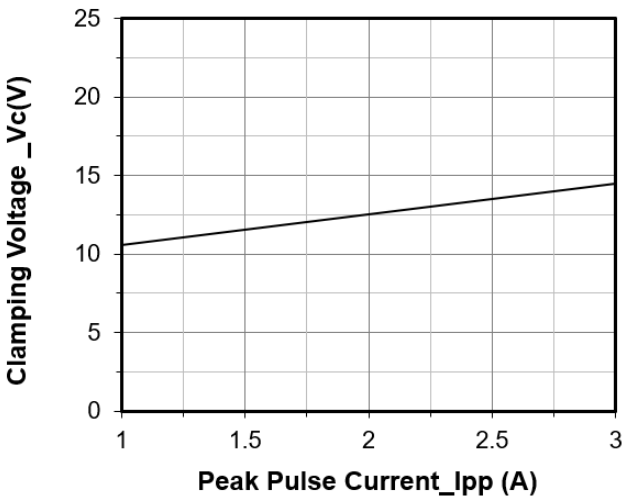
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



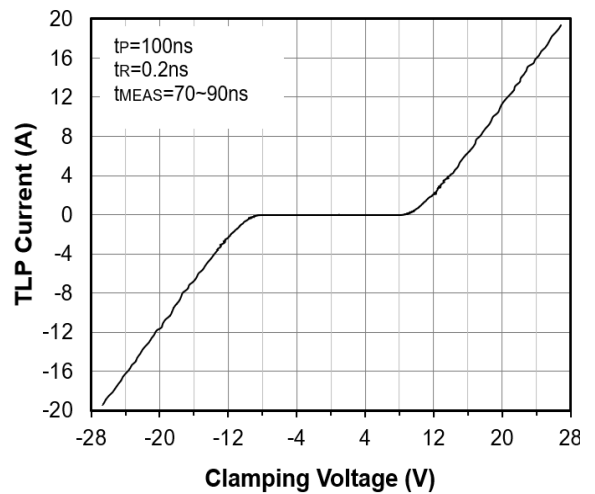
**Junction Capacitance vs. Reverse Voltage**



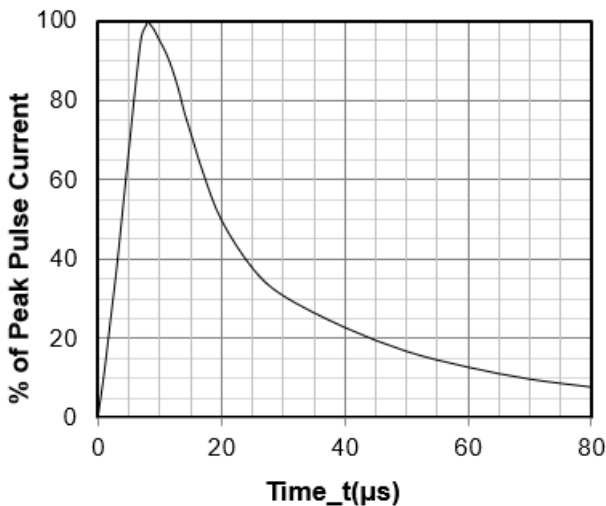
**Peak Pulse Power vs. Pulse Time**



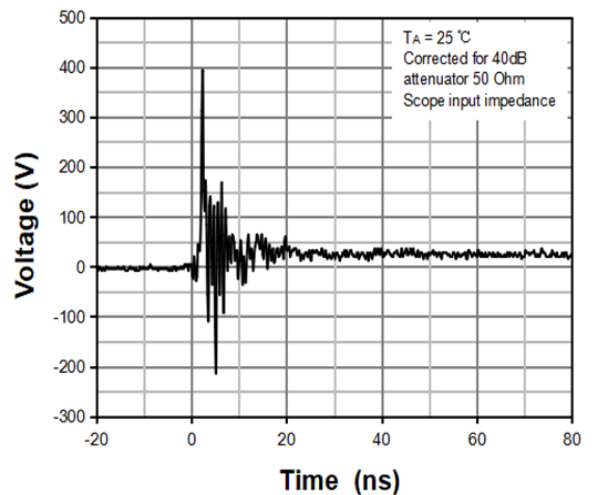
**Clamping Voltage vs. Peak Pulse Current**



**TLP Measurement**



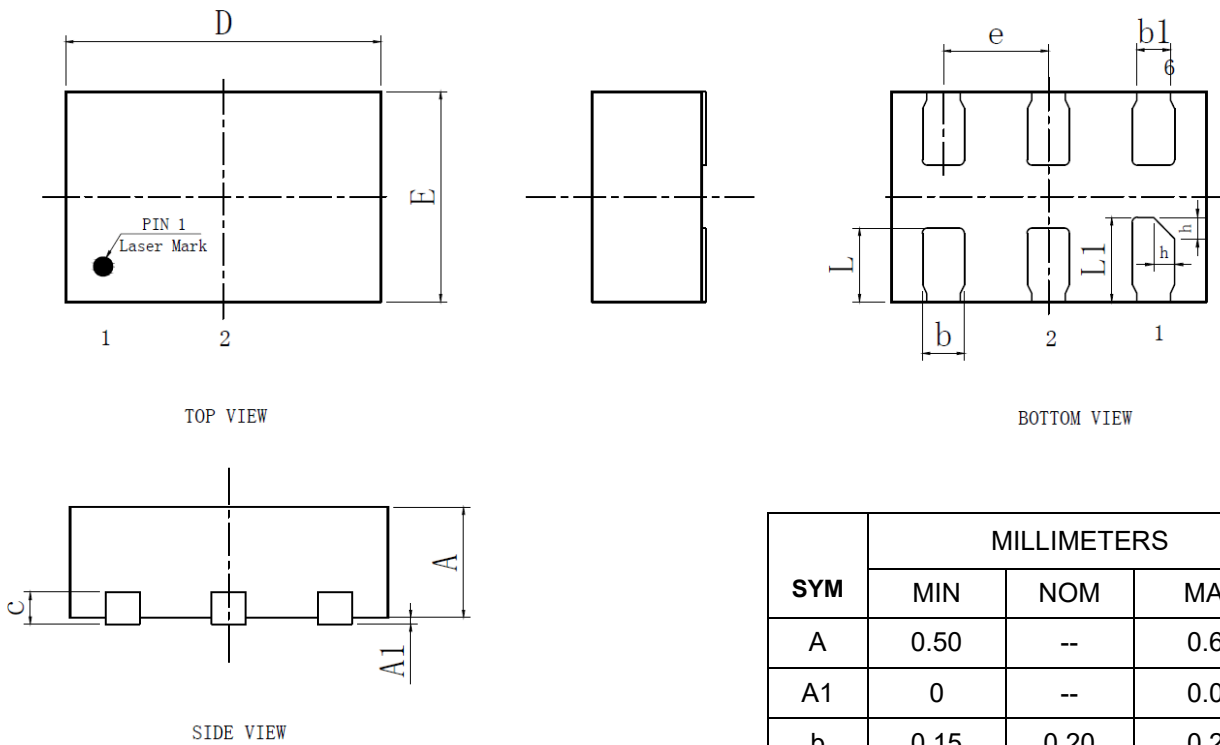
**8 X 20μs Pulse Waveform**



**ESD Clamping Voltage**

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

### DFN1510-6 Package Outline Drawing



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.50	--	0.60
A1	0	--	0.05
b	0.15	0.20	0.25
b1	0.16REF		
c	0.15REF		
D	1.40	1.50	1.60
E	0.90	1.00	1.1
e	0.50BSC		
L	0.30	0.35	0.40
L1	0.35	0.40	0.45
h	0.05	0.01	0.15

### Contact Information

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