**APPLIED POWER**
MICROELECTRONICS

Description

The AR0541P0SC 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 AR0541P0SC has a 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 AR0541P0SC an ideal choice to protect cell phone, digital visual interfaces, HDMI, DVI, USB2.0, USB3.0, and other high speed ports.

Features

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
    - IEC 61000-4-2 (ESD) immunity test
        Air discharge: ±30kV
        Contact discharge: ±30kV
    - IEC61000-4-5 (Lightning) 12A (8/20µs)
- RoHS Compliant

Equivalent Circuit and Pin Configuration
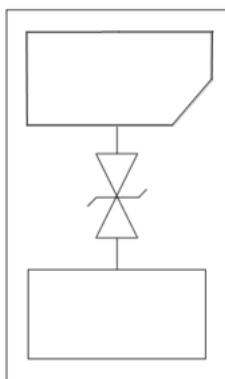
Circuit and Pin Schematic

Mechanical Characteristics

- Package: DFN0603-2
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI / MHL
- USB 2.0 / USB 3.0
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Caution:

This Device is designed for signal line protection only.

Not intended to be used under bias, not for application with a power line.

Marking Information

4R

4R = Device Marking Code

Ordering Information

Part Number	Packaging	Reel Size
AR0541P0SC	10000/Tape & Reel	7 inch

Absolute Maximum Ratings (T$_A$=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20µs)	Ppk	72	W
Peak Pulse Current (8/20µs)	IPP	12	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	−40 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	VRWM			5	V	
Breakdown Voltage	VBR	6			V	IT = 1mA
Reverse Leakage Current	IR			0.2	µA	VRWM = 5V
Clamping Voltage	VC			3	V	IPP = 1A (8 x 20µs pulse)
Clamping Voltage	VC			6	V	IPP = 12A (8 x 20µs pulse)
Junction Capacitance	CJ		0.5		pF	VR = 0V, f = 1MHz

Typical Performance Characteristics (T$_A$=25°C unless otherwise Specified)
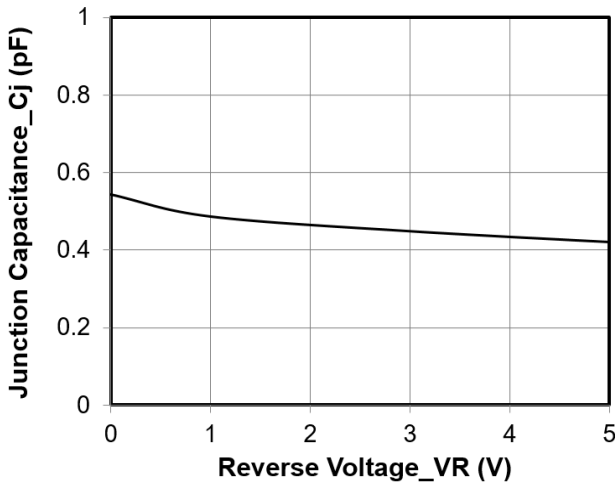
Junction Capacitance vs. Reverse Voltage
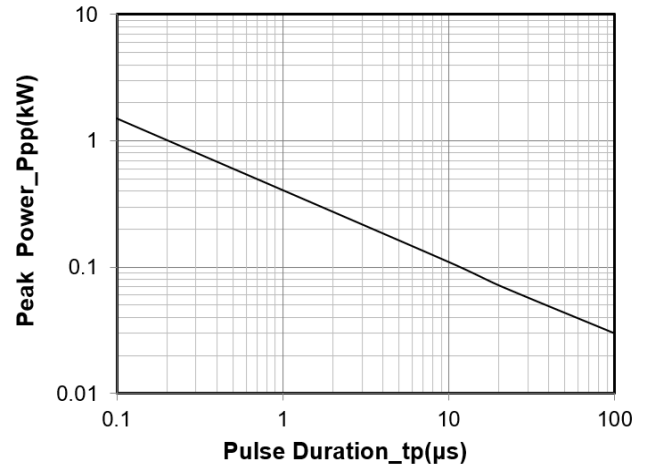
Peak Pulse Power vs. Pulse Time
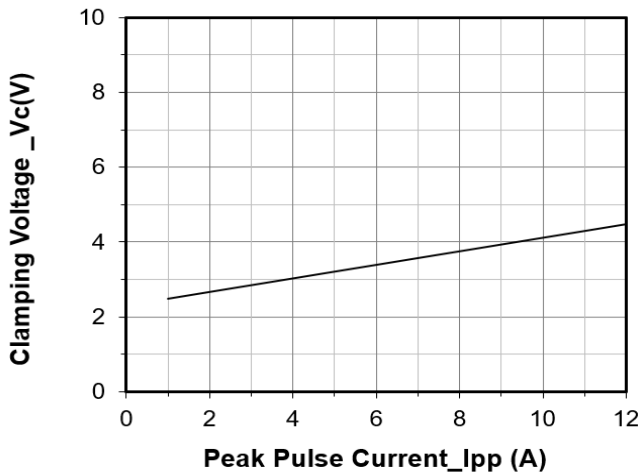
Clamping Voltage vs. Peak Pulse Current (tp = 8/20µs)
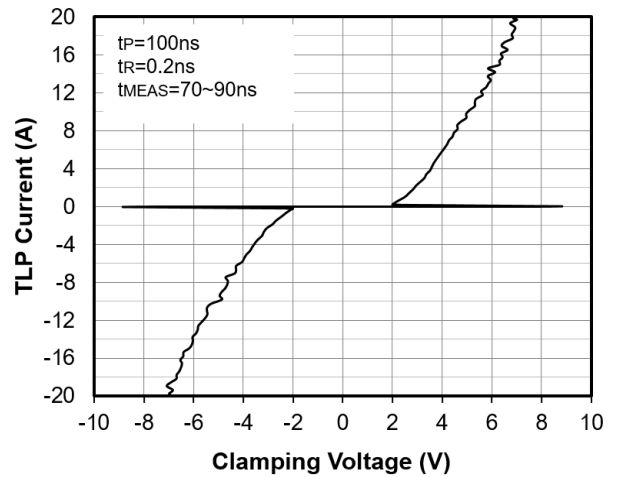
TLP Measurement
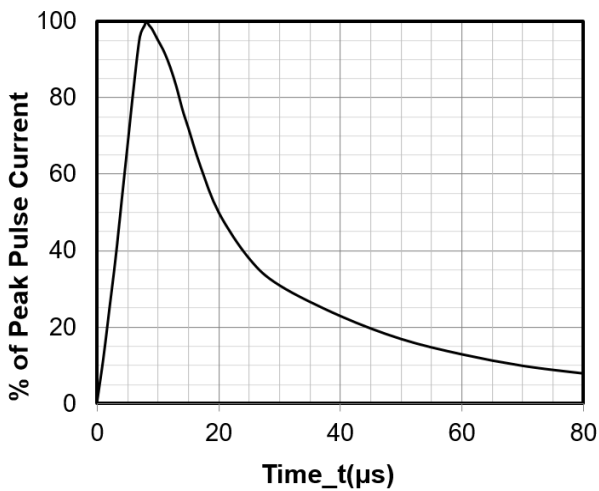
8 X 20µs Pulse Waveform
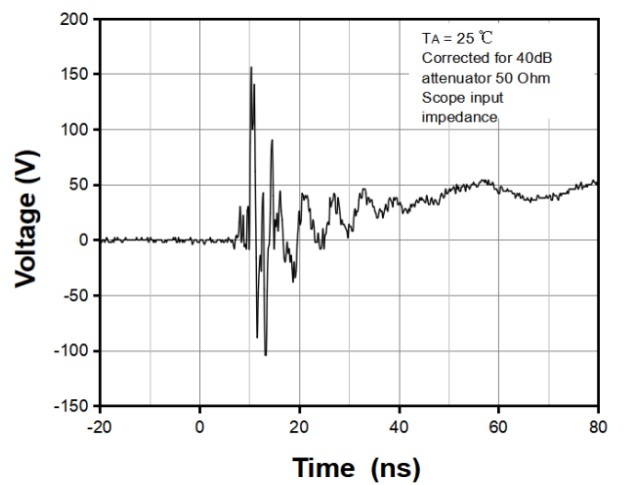
ESD Clamping Voltage

8 kV Contact per IEC61000−4−2

DFN0603-2 Package Outline Drawing
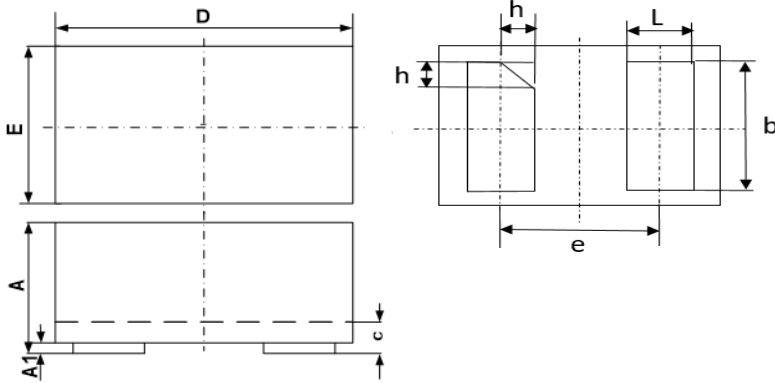
SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.230	-	0.340
A1	0.000	0.020	0.050
b	0.200	0.245	0.300
c	0.050	0.100	0.180
D	0.550	0.600	0.650
e	0.355 BSC		
E	0.250	0.300	0.350
L	0.130	0.190	0.240
h	0.050 BSC		

Suggested Land Pattern
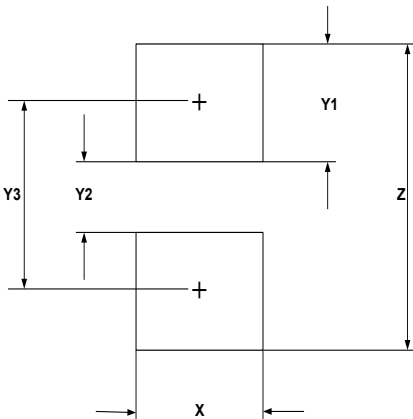
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.30	0.012
Y1	0.25	0.010
Y2	0.15	0.006
Y3	0.40	0.016
Z	0.65	0.026

Contact Information

Applied Power Microelectronics Inc.

Website: http://www.appliedpowermicro.com

Email: sales@appliedpowermicro.com

Phone: +86 (0519) 8399 3606