

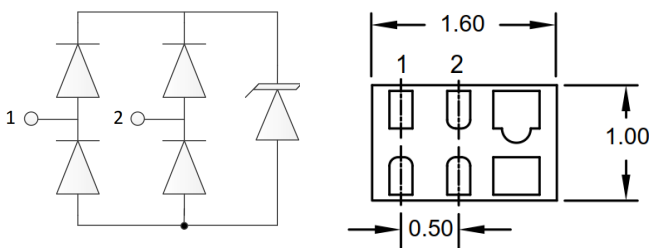
## Description

The AR3382P6C 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 AR3382P6C has an ultra-low capacitance with a typical value at 0.4pF, and complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a small 1.6x1.0x0.50mm lead-free DFN package. The small size, ultra-low capacitance and high surge current capability make AR3382P6C an ideal choice to protect cell phone, Ethernet interfaces, communications equipment, security cameras, industrial equipment, and other high speed ports.

## Features

- Ultra low capacitance: 0.4pF typical
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 12A (8/20 $\mu\text{s}$ )
- Dynamic Resistance: 0.30 Ohms (Typ)
- Very small PCB area

## Dimensions and Pin Configuration



Circuit Schematic

PIN Schematic

## Mechanical Characteristics

- Package: DFN1610-6
- Pb-Free, Halogen Free, RoHS Compliant .
- Nominal Dimensions: 1.6 x 1.0 x 0.50 mm
- Terminal Connections: See Diagram Below
- Marking Information: See Below
- Marking : Marking Code
- Packaging : Tape and Reel

## Applications

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

## Marking Information



3382P = Device Marking Code  
 Dot denotes Pin1

## Ordering Information

Part Number	Packaging	Reel Size
AR3382P6C	3000/Tape & Reel	7 inch

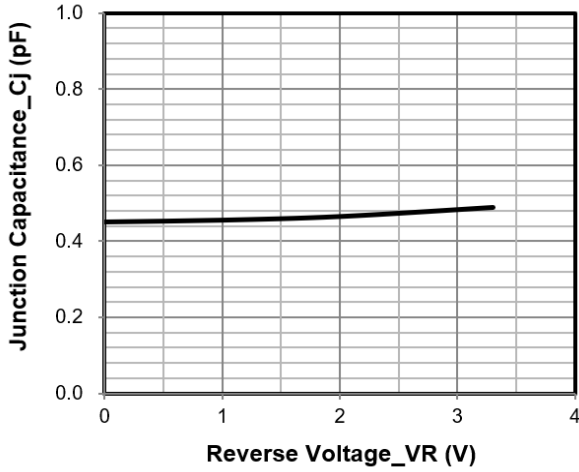
**Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	200	W
Peak Pulse Current (8/20μs)	I <sub>PP</sub>	12	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	±30 ±30	kV
Operating Temperature Range	T <sub>J</sub>	-40 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

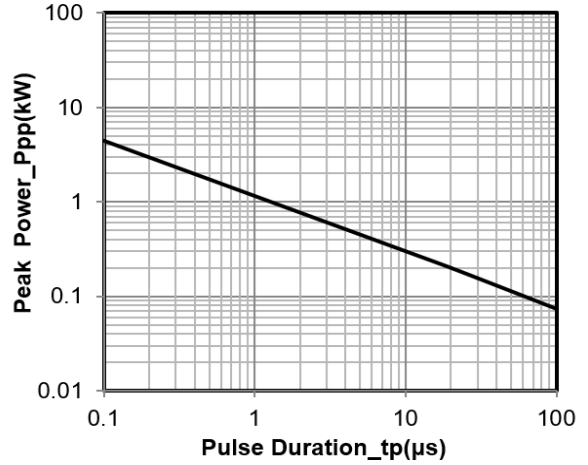
**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	Pin 1 to Pin 2
Breakdown Voltage	V <sub>BR1</sub>	3.8	4.6	6.0	V	I <sub>T</sub> = 2μA ,Pin 1 to Pin 2
	V <sub>BR2</sub>	4.0	5.0	6.2	V	I <sub>T</sub> = 50mA ,Pin 1 to Pin 2
Reverse Leakage Current	I <sub>R</sub>			0.05	μA	V <sub>RWM</sub> = 3.3V, Pin 1 to Pin 2
Clamping Voltage	V <sub>C</sub>		12	16.5	V	I <sub>PP</sub> = 12A ,Pin 1 to Pin 2 (8 x 20μs pulse)
ESD Clamping Voltage	V <sub>C</sub>		7		V	I <sub>PP</sub> = 4A, t <sub>p</sub> = 0.2/100ns (TLP), Pin 1 to Pin 2
ESD Clamping Voltage	V <sub>C</sub>		10.5		V	I <sub>PP</sub> = 16A, t <sub>p</sub> = 0.2/100ns (TLP), Pin 1 to Pin 2
Junction Capacitance	C <sub>J</sub>		0.4	0.5	pF	V <sub>R</sub> = 0V, f = 1MHz, Pin 1 to Pin 2

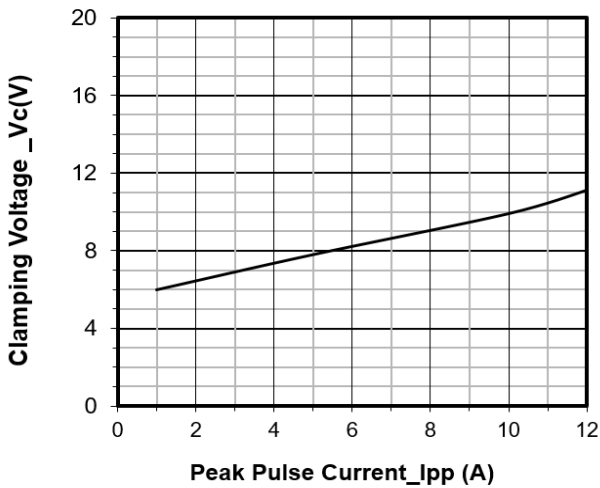
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



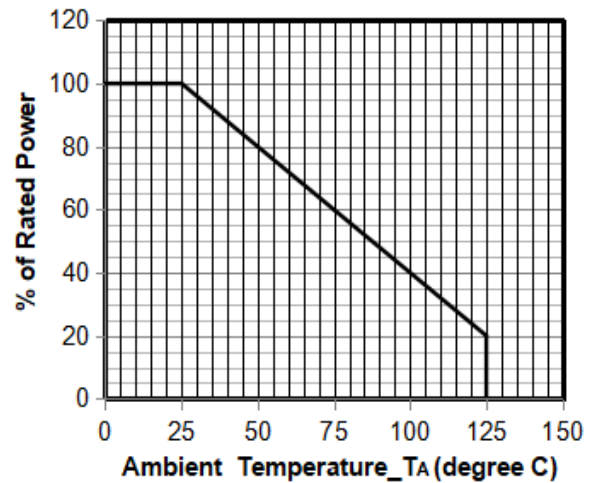
**Junction Capacitance vs. Reverse Voltage**



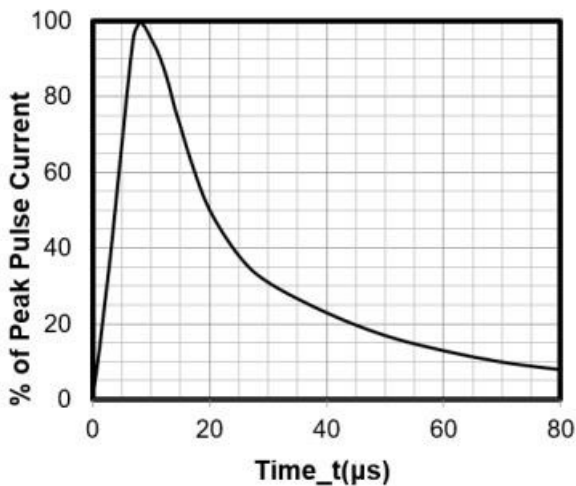
**Peak Pulse Power vs. Pulse Time**



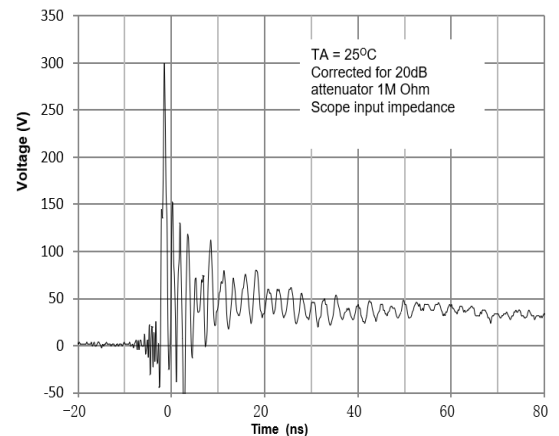
**Clamping Voltage vs. Peak Pulse Current**



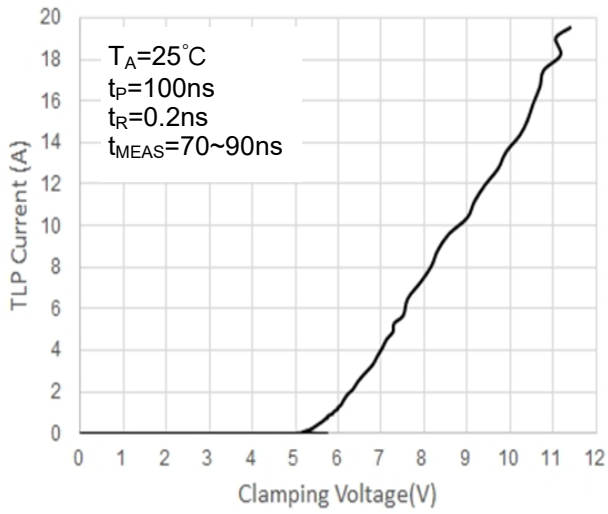
**Power Derating Curve**



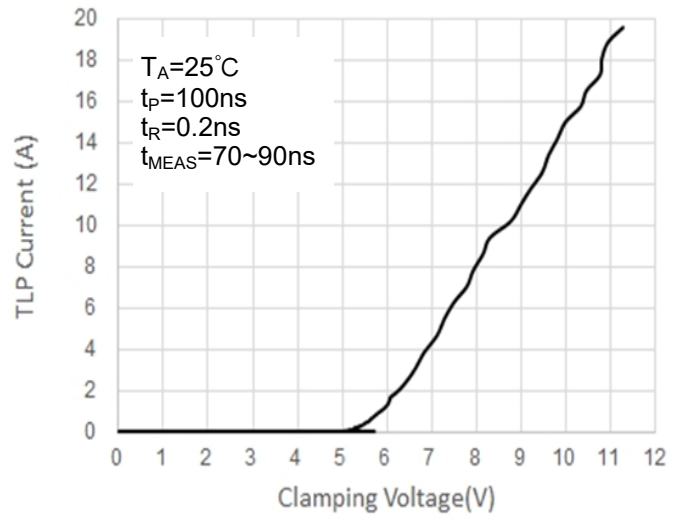
**8 X 20μs Pulse Waveform**



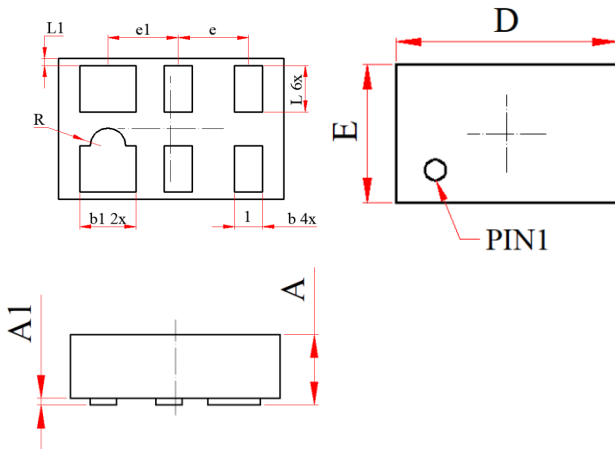
**ESD Clamping Voltage**  
**8 kV Contact per IEC61000-4-2**



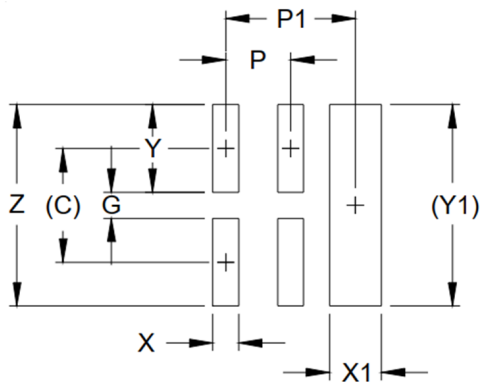
**TLP IV Curve (Positive Pulse)**



**TLP IV Curve (Negative Pulse)**

**DFN1610-6 Package Outline Drawing**


SYM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.450	--	0.550	0.018	--	0.022
A1	0.025	0.050	0.075	0.001	0.002	0.003
D	1.550	1.600	1.650	0.061	0.063	0.065
E	0.950	1.000	1.050	0.037	0.039	0.041
b	0.150	0.200	0.250	0.006	0.008	0.010
b1	0.350	0.400	0.450	0.014	0.016	0.018
L	0.300	0.350	0.400	0.012	0.014	0.016
L1	0.000	0.030	0.060	0.000	0.001	0.002
R	0.125 REF			0.005 REF		
e	0.500 BSC			0.020 BSC		
e1	0.500BSC			0.020 BSC		

**Suggested Land Pattern**


DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.034)	(0.87)
G	.007	0.19
P	.020	0.50
P1	.039	1.00
X	.008	0.20
X1	.016	0.40
Y	.027	0.68
Y1	(.061)	(1.55)
Z	.061	1.55

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