

## Description

The AR3374S2 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 AR3374S2 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 6-lead SOT23-6 lead-free package. The leads are finished with lead-free matte tin. Each device will protect up to four high-speed lines. The combination of small size, low capacitance, and high surge capability makes them ideal for use in applications such as 10/100 Ethernet, USB 2.0, and visual interfaces.

## Features

- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- Up to 4 lines and one power line protects
- 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) 35A (8/20 $\mu\text{s}$ )
- RoHS Compliant

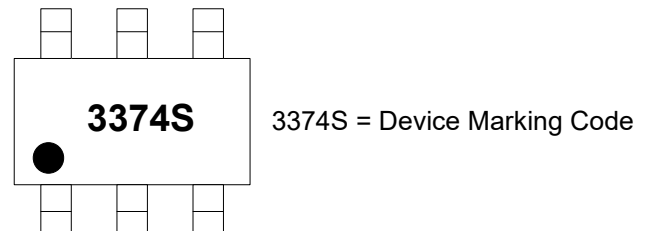
## Mechanical Characteristics

- Package: SOT23-6
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound
- Terminal Connections: See Diagram Below
- Marking Information: See Below

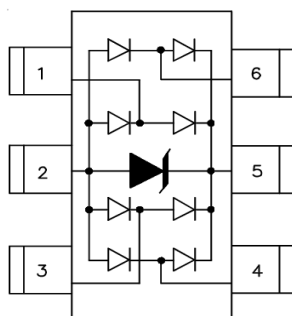
## Applications

- USB 2.0 power and data line
- Monitors and flat panel displays
- Set-top box and digital TV
- Digital visual interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100 Ethernet
- IEEE 1394 firewire ports

## Marking Information



## Equivalent Circuit and Pin Configuration



Top view

Circuit and Pin Schematic

## Ordering Information

Part Number	Packaging	Reel Size
AR3374S2	3000/Tape & Reel	7 inch

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

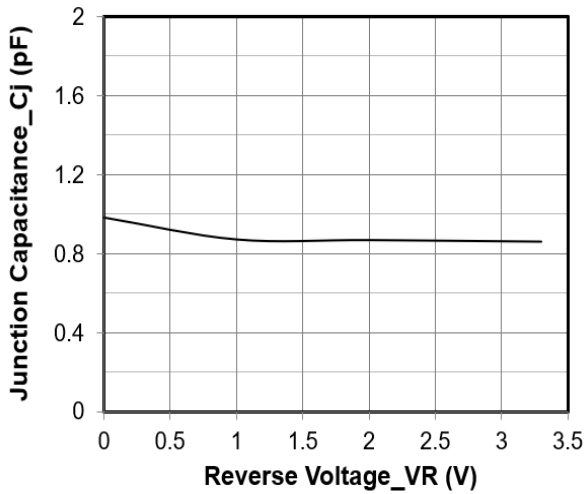
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ ), VCC pin to ground	Ppk	600	W
Peak Pulse Power (8/20 $\mu\text{s}$ ), any I/O pin to ground	Ppk	700	W
Peak Pulse Current (8/20 $\mu\text{s}$ ), VCC pin to ground	I <sub>PP</sub>	50	A
Peak Pulse Current (8/20 $\mu\text{s}$ ), any I/O pin to ground	I <sub>PP</sub>	35	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
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)**

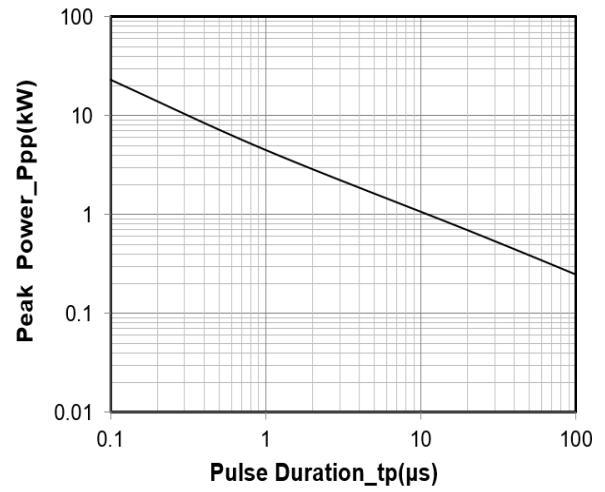
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	Any I/O pin to ground
Breakdown Voltage	V <sub>BR</sub>	4.5		7	V	I <sub>T</sub> = 1mA, any I/O pin to ground
Reverse Leakage Current	I <sub>R</sub>			0.5	$\mu\text{A}$	V <sub>RWM</sub> = 3.3V, any I/O pin to ground
Clamping Voltage	V <sub>C</sub>			8	V	I <sub>PP</sub> = 1A (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground
Clamping Voltage	V <sub>C</sub>		17	20	V	I <sub>PP</sub> = 35A (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground
Clamping Voltage	V <sub>C</sub>		9	12	V	I <sub>PP</sub> = 50A (8 x 20 $\mu\text{s}$ pulse), VCC pin to ground
Junction Capacitance	C <sub>J</sub>		1	2	pF	V <sub>R</sub> = 0V, f = 1MHz, any I/O pin to ground
Junction Capacitance	C <sub>J</sub>		200			V <sub>R</sub> = 0V, f = 1MHz, VCC pin to ground

Note 1: I/O pins are Pin 1, 3, 4 and 6

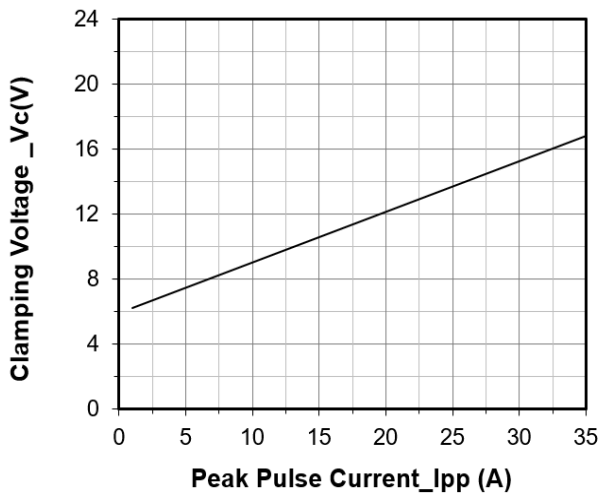
**Typical Performance Characteristics (T<sub>A</sub>=25°C unless otherwise Specified)**



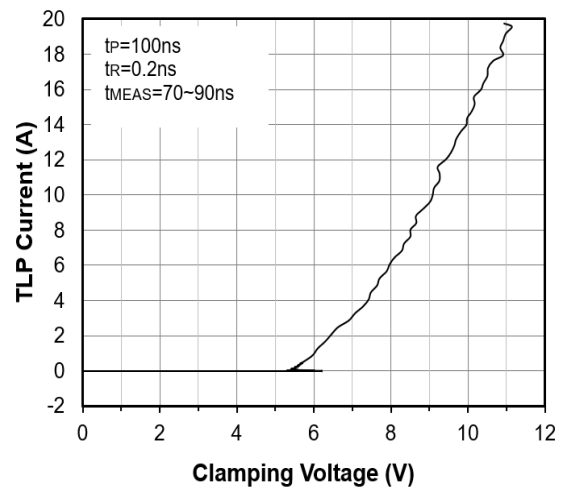
**Junction Capacitance vs. Reverse Voltage**



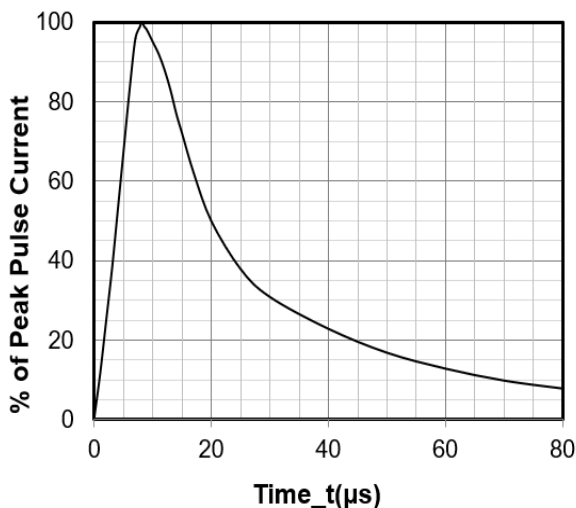
**Peak Pulse Power vs. Pulse Time**



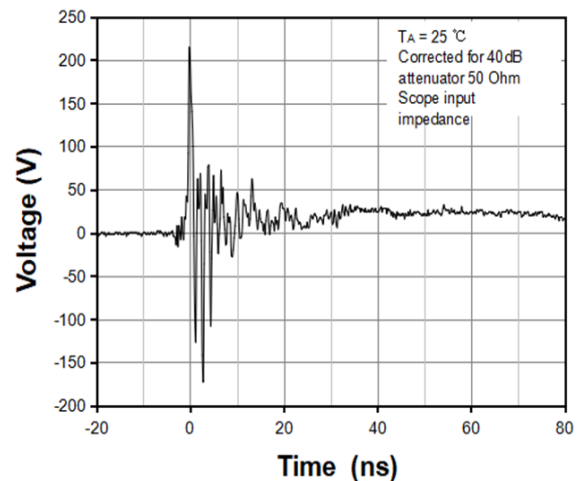
**Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)**



**TLP Measurement**

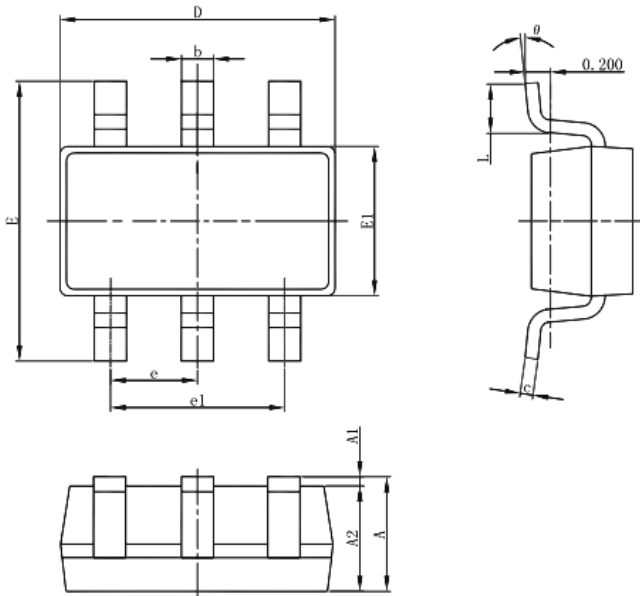


**8 X 20μs Pulse Waveform**



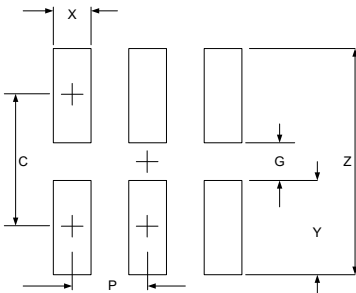
**ESD Clamping Voltage**  
**8 kV Contact per IEC61000-4-2**

### SOT23-6 Package Outline Drawing



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	1.050	1.300	0.041	0.051
A1	0.000	0.140	0.000	0.006
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	2.800	3.000	0.112	0.120
E1	1.500	1.700	0.059	0.067
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

### Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.50	0.098
G	1.40	0.055
P	0.95	0.037
X	0.60	0.024
Y	1.10	0.043
Z	3.60	0.141

### Contact Information

Applied Power Microelectronics Inc.

Website: <http://www.appliedpowermicro.com>

Email: [sales@appliedpowermicro.com](mailto:sales@appliedpowermicro.com)

Phone: +86 (0519) 8399 3606