

Description

The AR3304P3 is an ultra 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 AR3304P3 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 25\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. The flow through style package allows for easy PCB layout and matched trace lengths necessary to maintain consistent impedance between high speed differential lines such as Gigabit Ethernet, telecommunication lines.

Features

- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- Up to 4 lines protects
- 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 μs)
- RoHS Compliant

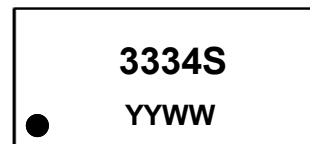
Mechanical Characteristics

- Package: DFN1616-6
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

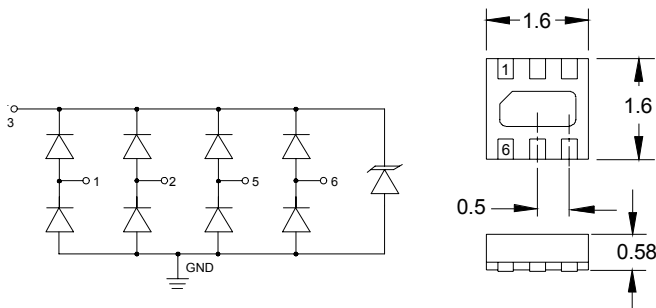
- SIM Ports
- MPPI Ports
- MDDI Ports
- SATA Interfaces
- SD Card Interfaces
- MMC Interfaces

Marking Information



3334S = Device Marking Code
 YYWW = Date Code
 Dot denotes Pin1

Dimensions and Pin Configuration



Circuit and Pin Schematic

Package Dimensions

Ordering Information

Part Number	Packaging	Reel Size
AR3304P3	3000/Tape & Reel	7 inch

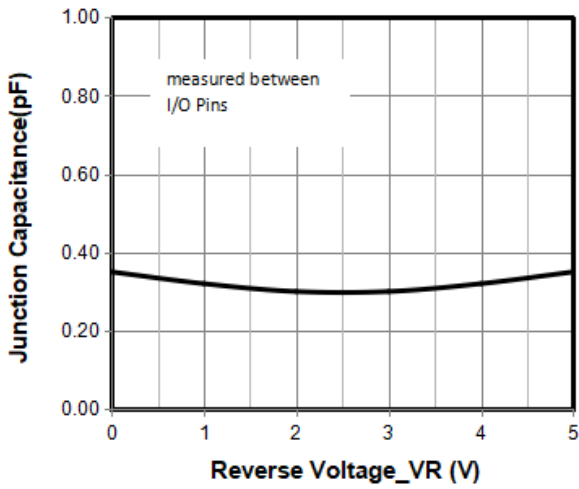
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	80	W
Peak Pulse Current (8/20 μs)	I _{PP}	5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 25	kV
ESD per IEC 61000-4-2 (Contact)		± 20	
Operating Temperature Range	T _J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^\circ\text{C}$

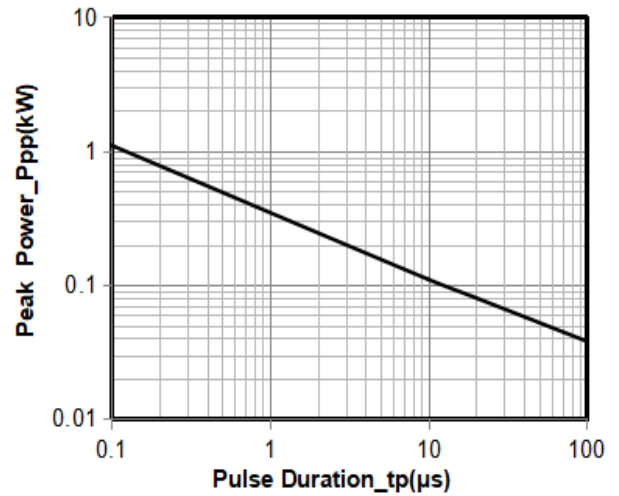
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			3.3	V	Any I/O pin to ground
Breakdown Voltage	V _{BR}	3.5			V	I _T = 1mA, any I/O pin to ground
Reverse Leakage Current	I _R		0.01	0.5	μA	V _{RWM} = 3.3V, any I/O pin to ground
Clamping Voltage	V _C			9	V	I _{PP} = 1A (8 x 20 μs pulse), any I/O pin to ground
Clamping Voltage	V _C			16	V	I _{PP} = 5A (8 x 20 μs pulse), any I/O pin to ground
Junction Capacitance	C _J		0.3	0.4	pF	V _R = 0V, f = 1MHz, between I/O pins
Junction Capacitance	C _J			0.8	pF	V _R = 0V, f = 1MHz, any I/O pin to ground

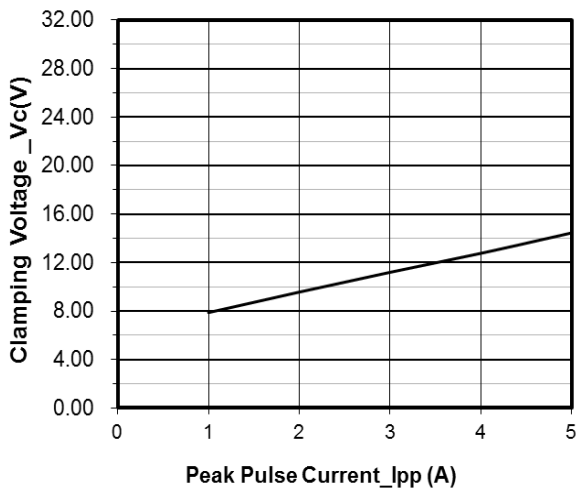
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



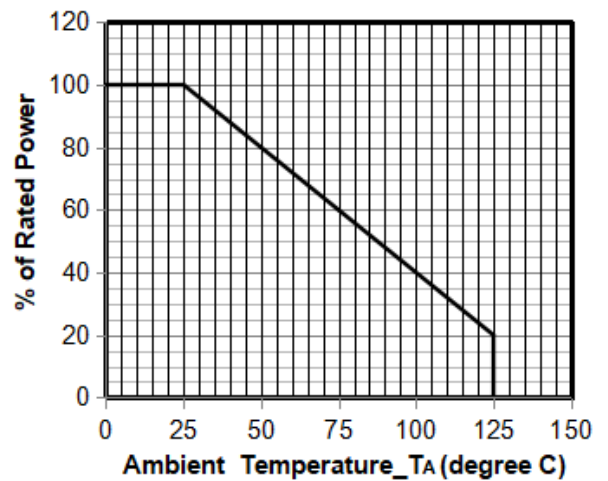
Junction Capacitance vs. Reverse Voltage



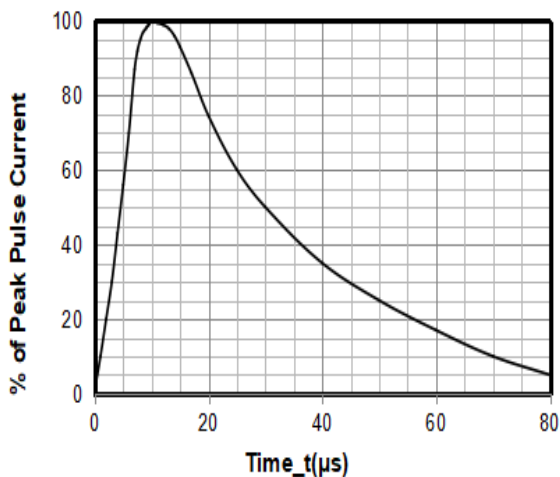
Peak Pulse Power vs. Pulse Time



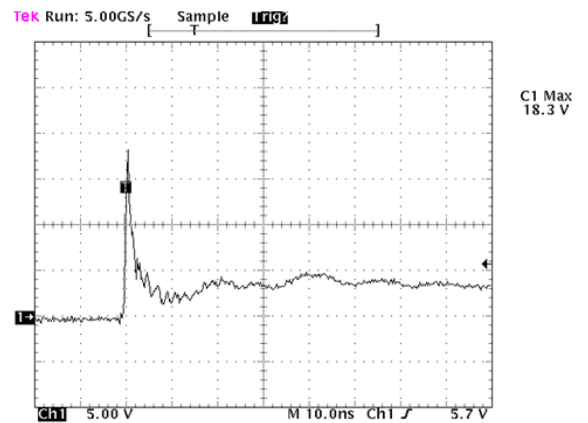
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform

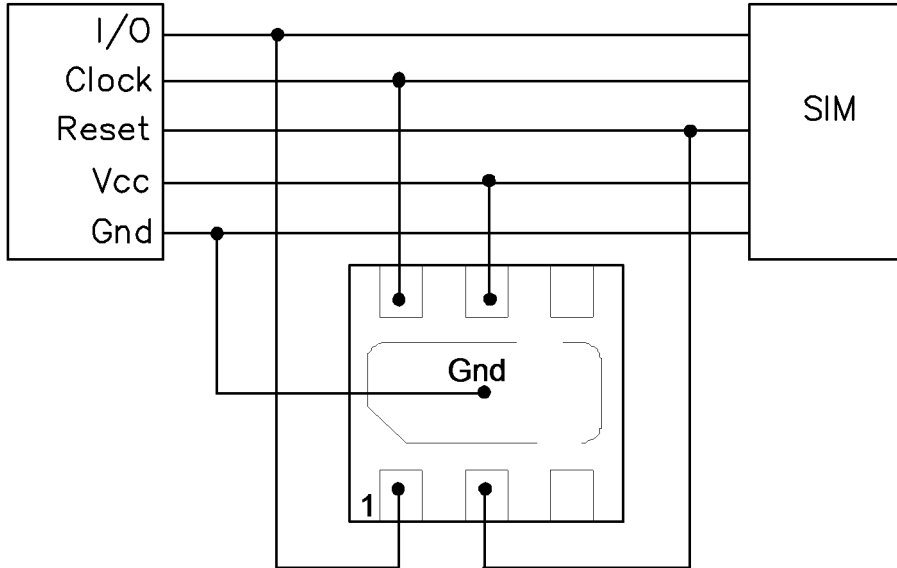


Note: Data is taken with a 10x attenuator

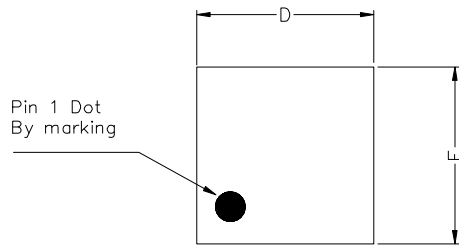
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

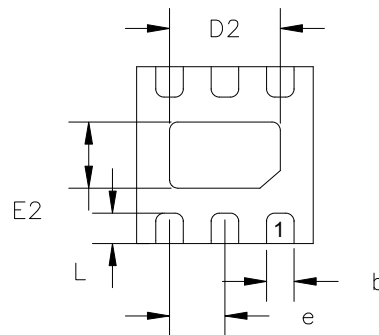
AR3304P3 on SIM Port Protection



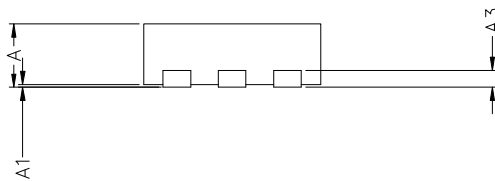
DFN1616-6 Package Outline Drawing



TOP VIEW



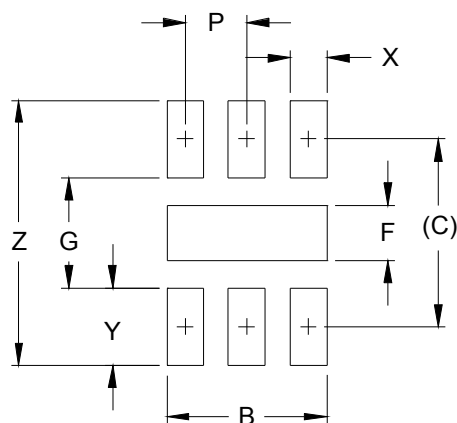
BOTTOM VIEW



SIDE VIEW

PKG. REF.	COMMON DIMENSIONS(MM)		
	UT: ULTRA THIN		
	MIN.	NOM.	MAX
A	0.50	0.55	0.60
A1	0.00	-	0.05
A3	0.15 REF.		
D	1.55	1.60	1.65
E	1.55	1.60	1.65
D2	0.90	1.00	1.05
E2	0.50	0.60	0.65
L	0.20	0.25	0.30
b	0.20	0.25	0.30
e	0.50 BSC		

Suggested Land Pattern



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
B	.051	1.30
C	.060	1.52
P	.020	0.50
F	.018	0.45
G	.035	0.89
X	.012	0.30
Y	.025	0.63
Z	.085	2.15

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