

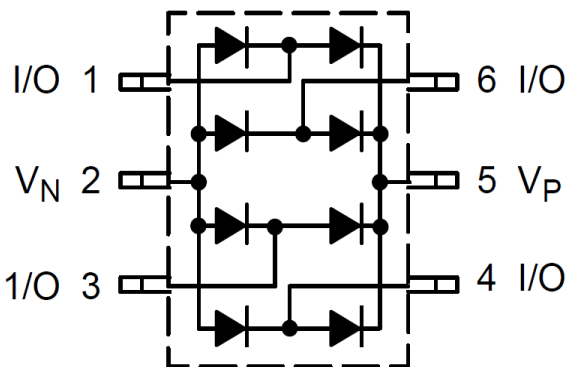
Description

The AR7004S2 is an ultra low capacitance diode 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 AR7004S2 has an ultra-low capacitance with a typical value at 0.8pF(I/O to I/O), and complies with the IEC 61000-4-2 (ESD) with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into a 6-Pin lead-free SOT23-6 package. The low capacitance array make it ideal for four high speed data and transmission line. This device is optimized for ESD protection of portable electronics.

Features

- Ultra low capacitance: 0.8pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Ultra low operating voltage: 70V
- Low clamping voltage
- Up to 4 data lines and one power line protects
- JEDEC SOT-23 6L package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 15\text{kV}$
 - Contact discharge: $\pm 8\text{kV}$
- RoHS Compliant

Dimensions and Pin Configuration



Circuit and Pin Schematic

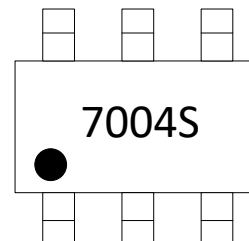
Mechanical Characteristics

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

Applications

- USB 1.1 and 2.0 Data Line Protection
- T1/E1 Secondary IC Protection
- T3/E3 Secondary IC Protection
- HDSL, IDSL Secondary IC Protection
- Video Line Protection
- Microcontroller Input Protection
- Base Stations

Marking Information



7004S = Device Marking Code
 Dot denotes Pin1

Ordering Information

Part Number	Packaging	Reel Size
AR7004S2	3000/Tape & Reel	7 inch

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

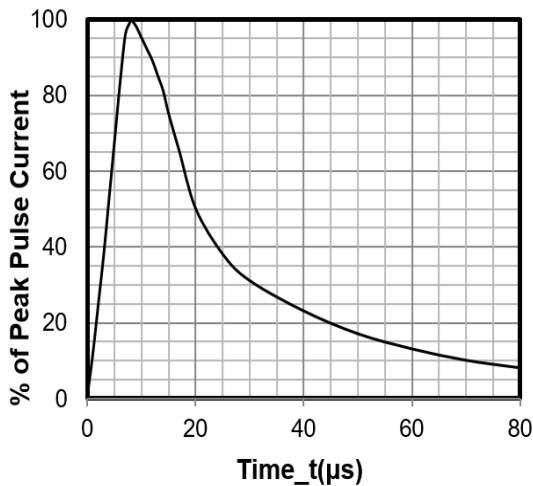
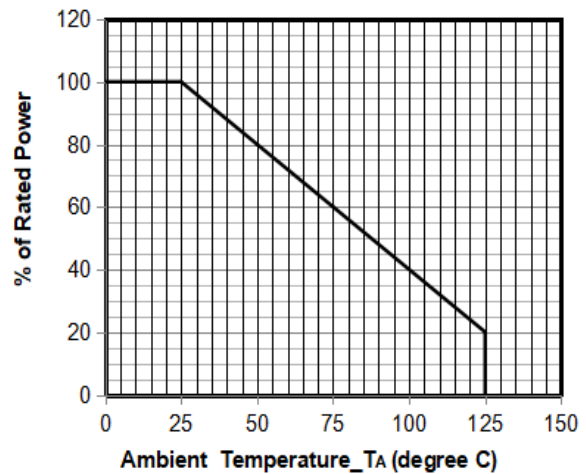
Parameter	Symbol	Value	Unit
Reverse Voltage	V _R	70	V _{dc}
Forward Current	I _F	200	mAdc
Peak Forward Surge Current	I _{FM}	500	mAdc
Repetitive Peak Reverse Voltage	V _{RRM}	70	V
Average Rectified Forward Current (averaged over any 20 ms period)	I _F	715	mA
Repetitive Peak Forward Current	I _{FRM}	450	mA
Non-Repetitive Peak Forward Current	I _{FSM}	2.0	A
t = 1.0 μs		1.0	
t = 1.0 ms		0.5	
t = 1.0 s			

THERMAL CHARACTERISTICS

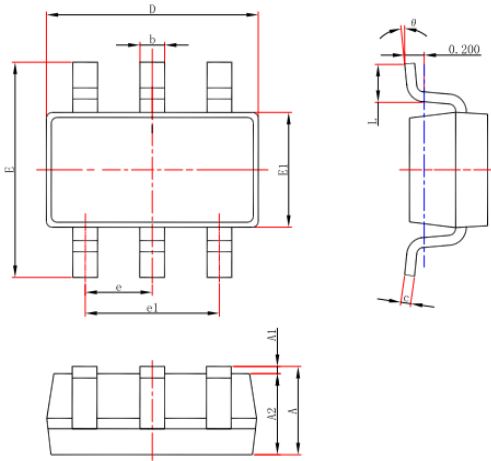
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R _{θJA}	556	°C/W
Lead Solder Temperature, Maximum 10 Seconds Duration	T _L	260	°C
Junction Temperature	T _J	-40 to +125	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			70	V	
Breakdown Voltage	V _{BR}	85			V	I _T =1mA
Forward Voltage	V _F			1.2	V	I _F = 10mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 70V
Junction Capacitance	C _J		0.8	1.5	pF	V _R = 0V, f = 1MHz, between I/O pins
Junction Capacitance	C _J		1.6	3	pF	V _R = 0V, f = 1MHz, any I/O to GND

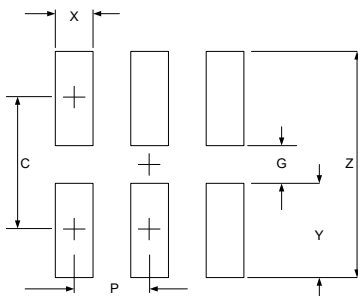
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

8 X 20µs Pulse Waveform

Power Derating Curve

SOT-23 6L Package Outline Drawing



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
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	2.650	2.950	0.104	0.116
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

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