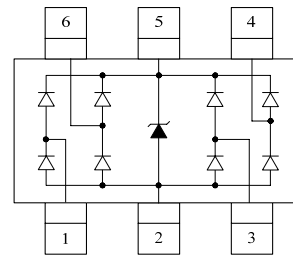


**DESCRIPTION**

The AZC199-04S a low capacitance of 0.4pF maximum and operates with virtually no insertion loss to 1GHz. This makes the device ideal for protection of high-speed data lines such as USB 2.0, Firewire, DVI, and gigabit Ethernet interfaces. The low capacitance array configuration allows the user to protect four high-speed data or transmission lines. The low inductance construction minimizes voltage overshoot during high current surges. They may be used to meet the ESD immunity requirements of IEC61000-4-2, Level 4 ( $\pm 15\text{kV}$  air,  $\pm 8\text{kV}$  contact discharge).

This device has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and lightning.



**FEATURES**

- Protects four I/O lines and one Vcc line
- Low capacitance
- Working voltages : 5V
- Low leakage current
- Low capacitance for high-speed interfaces
- No insertion loss to 2.0GHz
- Response Time is < 1 ns

**APPLICATIONS**

- Digital Visual Interface (DVI)
- USB 1.1/2.0/OTG
- IEEE 1394 Firewire Ports
- Notebooks & Handhelds
- Projection TV & Monitors
- Set-top box
- Flat Panel Displays
- PCI Express

**ABSOLUTE MAXIMUM RATING**

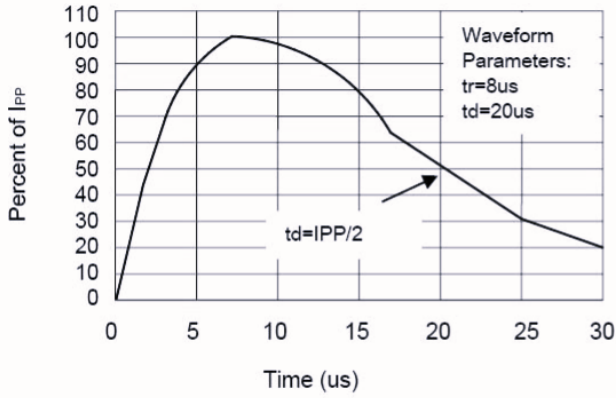
Symbol	Parameter	Value	Units
P <sub>PK</sub>	Peak Pulse Power (8/20μs)	150	W
I <sub>PP</sub>	Peak Pulse Current (8/20μs)	5	A
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±15 ±8	kV
T <sub>OPT</sub>	Operating Temperature	-55/+150	°C
T <sub>STG</sub>	Storage Temperature	-55/+150	°C

**ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C)**

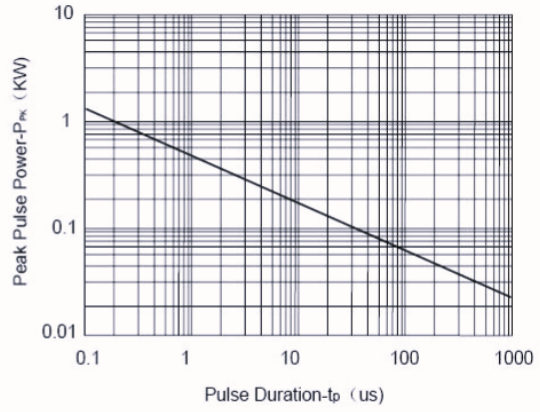
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA Any I/O pin to GND	6.0			V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 5V Any I/O pin to GND			1	μA
V <sub>F</sub>	Diode Forward Voltage	I <sub>F</sub> = 15mA			1.2	V
V <sub>C1</sub>	Clamping Voltage 1	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs Any I/O pin to GND			15	V
V <sub>C2</sub>	Clamping Voltage 2	I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs Any I/O pin to GND			28	V
C <sub>J1</sub>	Junction Capacitance 1	V <sub>R</sub> = 0V, f = 1MHz Between I/O pins			0.4	pF
C <sub>J2</sub>	Junction Capacitance 2	V <sub>R</sub> = 0V, f = 1MHz Any I/O pin to GND			0.8	pF

Note: I/O pins are pin 1,3,4,6.

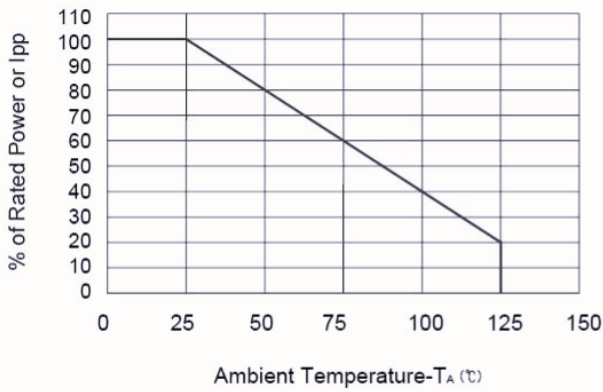
**ELECTRICAL CHARACTERISTICS CURVE**



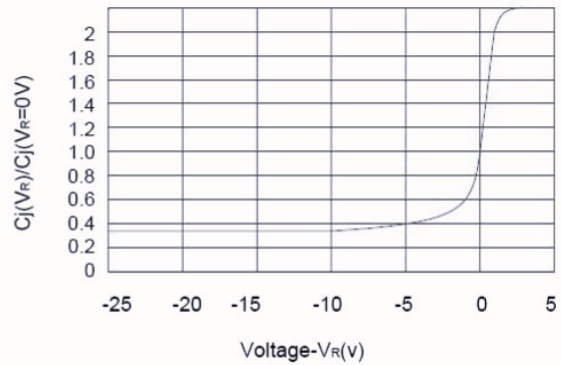
**Pulse Waveform**



**Non-Repetitive Peak Pulse Power vs. Pulse Time**

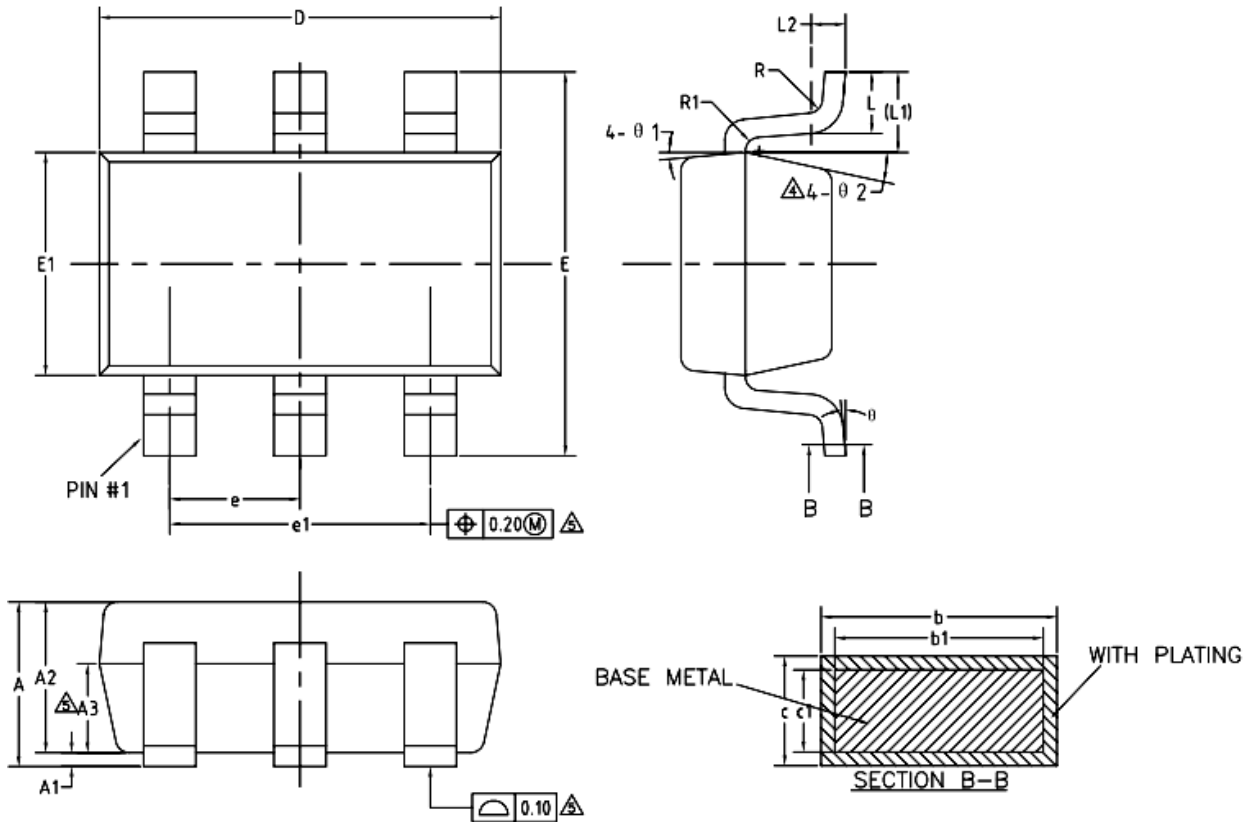


**Power Derating Curve**



**Junction Capacitance vs. Reverse Voltage**

SOT23-6



COMMON DIMENSIONS  
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	—	—	1.25
A1	0	—	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	—	0.50
b1	0.36	0.38	0.45
c	0.14	—	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
R	0.10	—	—
R1	0.10	—	0.20
θ	0°	—	8°
θ 1	3°	5°	7°
θ 2	6°	—	14°

**Marking**



**Ordering information**

Order code	Package	Base qty	Delivery mode
UMW AZC199-04S	SOT23-6	3000	Tape and reel