

1.Description

AZC199-02S is a design which includes ESD rated diode arrays to protect high speed data interfaces. The AZC199-02S has been specifically designed to protect sensitive components which are connected to data and transmission lines from over-voltage caused by Electrostatic Discharging (ESD).

3.Features

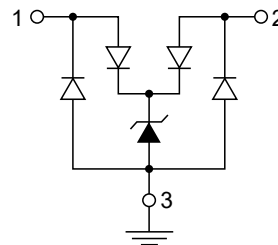
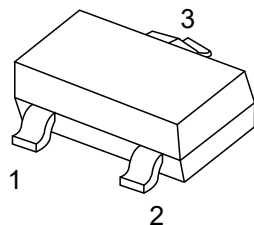
- ESD Protect for 2 high-speed I/O lines
- Provide ESD protection for each line to IEC 61000-4-2,(ESD) (contact/air) $\pm 16\text{kV}$
IEC 61000-4-4 (EFT) Level-3, 55A (5/50ns)
IEC 61000-4-5 (Lightning) 5A (8/20 μs)
- For low operating voltage applications: 5V, 4.2V, 3.3V, 2.5V etc.

2.Applications

- Video Graphics Cards
- Digital Visual Interface (DVI)
- USB2.0 Power and Data lines protection
- Notebook and PC Computers
- Monitors and Flat Panel Displays

- Low capacitance : 1.6pF typical
- Fast turn-on and Low clamping voltage
- Array of ESD rated diodes with internal equivalent TVS diode
- Solid-state silicon-avalanche and active circuit triggering technology
- Green part

4.Pinning information



SOT-23



5. Absolute Maximum Ratings $T_A = 25^\circ\text{C}$

Parameter	Symbol	Rating	Units
Peak Pulse Current ($t_p=8/20\mu\text{s}$)	I_{pp}	5	A
Operating Supply Voltage	V_{DC}	6	V
ESD per IEC 61000-4-2 (Air/Contact)	V_{ESD}	± 16	kV
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	$^\circ\text{C}$
Junction Temperature	T_{OP}	-55 to 85	$^\circ\text{C}$
Storage Temperature	T_{STO}	-55 to 150	$^\circ\text{C}$
DC Voltage at any I/O pin	V_{IO}	(GND – 0.5) to 5.5	V

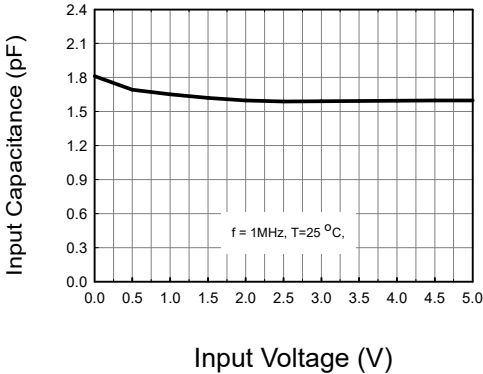
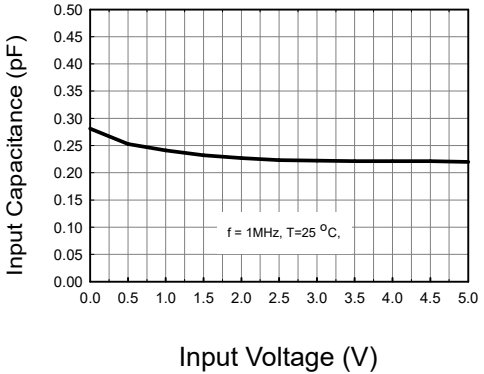
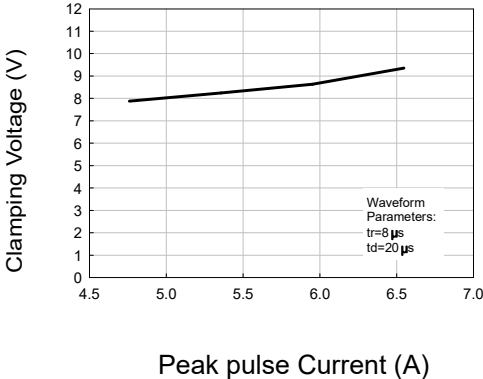
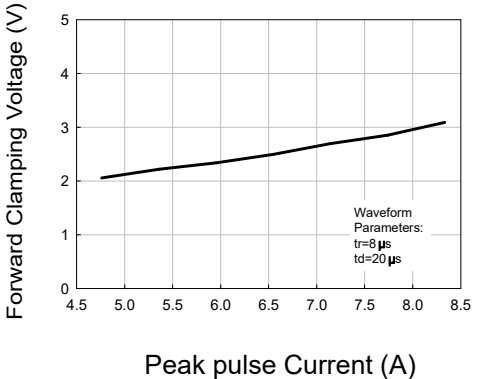
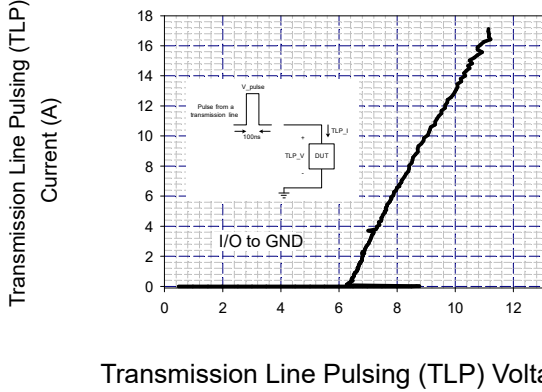


6. Electrical Characteristic ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}	Pin 1/2 to Pin3, $T=25^\circ\text{C}$			5	V
Leakage Current	I_{Leak}	$V_{pin1 \text{ or } pin2}=5\text{V}$, $V_{Pin3}=0\text{V}$, $T=25^\circ\text{C}$			1	μA
Reverse Breakdown Voltage	V_{BV}	$I_{BV}=1\text{mA}$, $T=25^\circ\text{C}$, Pin 1/2 to Pin 3	7		10	V
Forward Voltage	V_F	$I_F=15\text{mA}$, $T=25^\circ\text{C}$, Pin 3 to Pin1/2		0.85	1.1	V
ESD Clamping Voltage	V_{clamp}	IEC 61000-4-2 +6kV, $T=25^\circ\text{C}$ Contact mode, Pin 1/2 to Pin 3		11		V
ESD Dynamic Turn on Resistance	$R_{dynamic}$	IEC 61000-4-2 0~+6kV, $T=25^\circ\text{C}$ Contact mode, Pin 1/2 to Pin 3		0.3		Ω
Lightning Clamping Voltage	$V_{lightning}$	$I_{pp}=5\text{A}$, $t_p=8/20\mu\text{s}$, $T=25^\circ\text{C}$ Pin 1/2 to Pin 3		8.5		V
Channel Input Capacitance	C_{IN}	$V_{pin3}=0\text{V}$, $V_{pin1 \text{ or } 2}=2.5\text{V}$, $f=1\text{MHz}$, $T=25^\circ\text{C}$ Pin 1/2 to Pin 3		1.6	1.9	pF
Channel to Channel Input Capacitance	C_{CROSS}	$V_{pin3}=0\text{V}$, $V_{pin1 \text{ or } 2}=2.5\text{V}$, $f=1\text{MHz}$, $T=25^\circ\text{C}$ Between Pin 1 and Pin 2		0.23	0.28	pF
Variation of Channel Input Capacitance	ΔC_{IN}	$V_{pin3}=0\text{V}$, $V_{pin1 \text{ or } 2}=2.5\text{V}$, $f=1\text{MHz}$, $T=25^\circ\text{C}$ (Pin 1 to Pin 3)–(Pin 2 to Pin 3)		0.06	0.08	pF

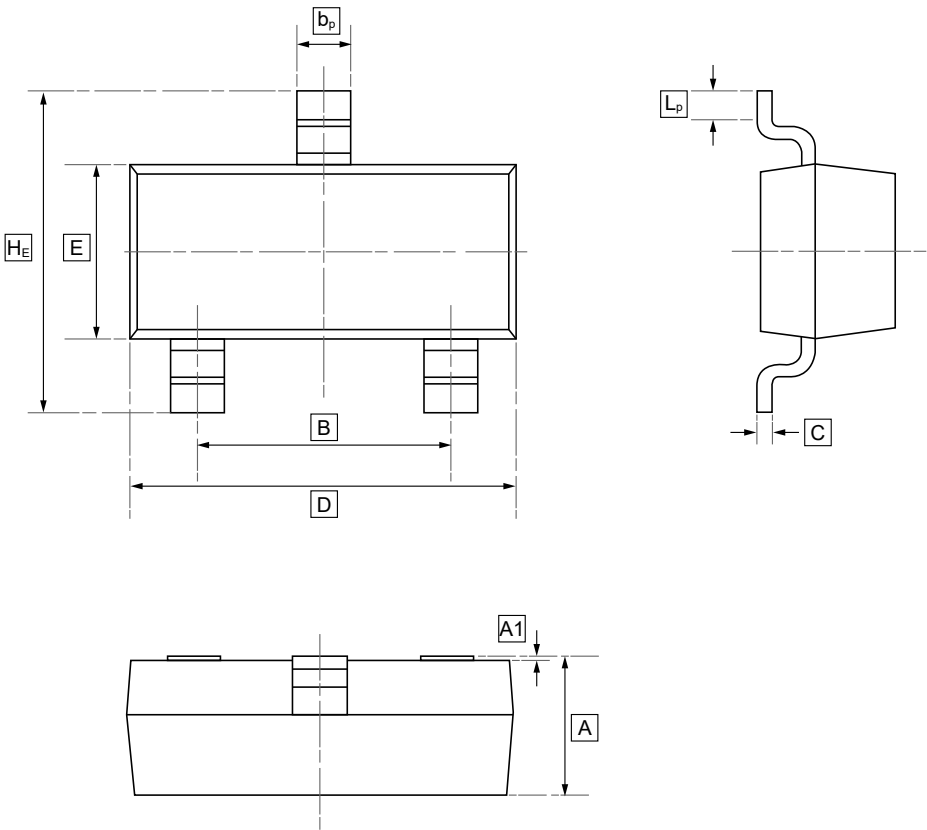


7. Typical characteristic

 Figure 1: Typical Variation of C_{IN} vs. V_{IN}	 Figure 2: Typical Variation of $C_{IO-to-IO}$ vs. V_{IN}
 Figure 3: Clamping Voltage vs. Peak Pulse Current	 Figure 4: Forward Clamping Voltage vs. Peak Pulse Current
 Figure 5: Transmission Line Pulsing (TLP) Measurement	



8.SOT-23 Package Outline Dimensions

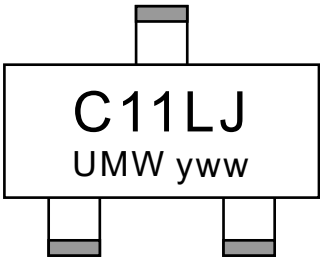


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b _p	C	D	E	H _E	A1	L _p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50



9.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW AZC199-02S	SOT-23	3000	Tape and reel



10.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

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