Features

- ESD Protect for 4 high-speed I/O channels
- Provide ESD protection for each channel to
  IEC 61000-4-2 (ESD) ±26kV (air), ±16kV (contact)
  IEC 61000-4-4 (EFT) 60A (5/50ns)
  IEC 61000-4-5 (Lightning) 8.5A (8/20μs)
- For low operating voltage applications: 5V, 4.2V, 3.3V, 2.5V
- Low capacitance : 1.9pF typical
- Fast turn-on and Low clamping voltage
- Array of surge rated diodes with internal equivalent TVS diode
- Small package saves board space
- Solid-state silicon-avalanche and active circuit triggering technology
- ***Green Part***

Applications

- Video Graphics Cards
- USB2.0 Power and Data lines protection
- Notebook and PC Computers
- Monitors and Flat Panel Displays
- IEEE 1394 Firewire Ports
- SIM ports
- LVDS Interface

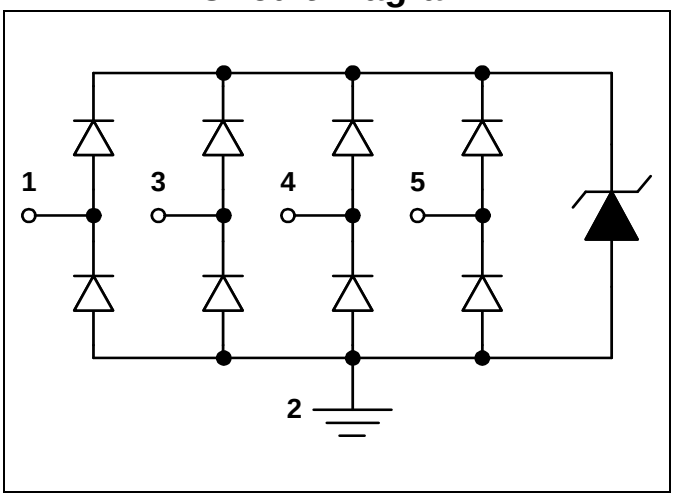
Description

AZC398-04C is a high performance and low cost design which includes surge rated diode arrays to protect high speed data interfaces. The AZC398-04C family has been specifically designed to protect sensitive components, which are connected to data and transmission lines, from over-voltage caused by Electrostatic Discharging (ESD), Electrical Fast Transients (EFT), and Lightning.

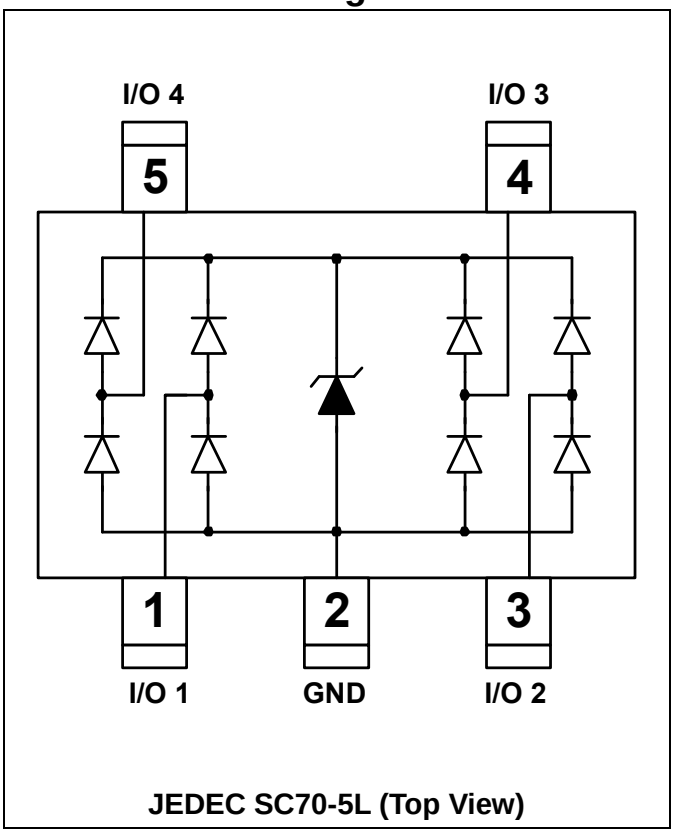
AZC398-04C is a unique design which includes surge rated, low capacitance steering diodes and a unique design of clamping cell which is an equivalent TVS diode in a single package. During transient conditions, the steering diodes direct the transient to either the ESD bus line or to the ground line. The internal unique design of clamping cell prevents over-voltage on the ESD bus line, protecting any downstream components.

AZC398-04C may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (± 15kV air, ±8kV contact discharge).

Circuit Diagram



Pin Configuration



JEDEC SC70-5L (Top View)

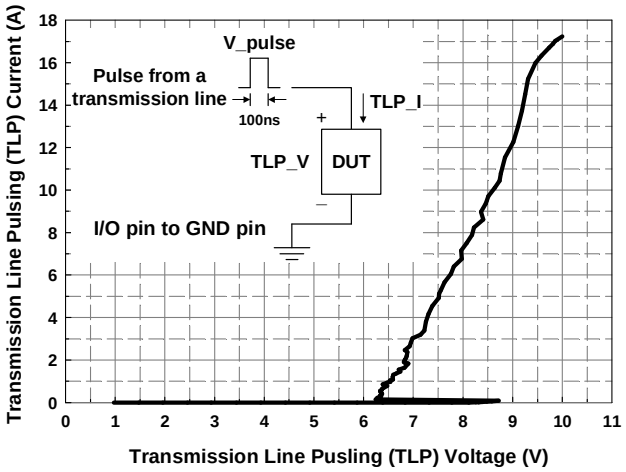
SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	**PARAMETER**	**RATING**	**UNITS**
Peak Pulse Current (tp =8/20μs)	I_{PP}	8.5	**A**
Operating Supply Voltage	V_{DC}	5.5	**V**
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±26 ±16	**kV**
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	**°C**
Operating Temperature	T_{OP}	-55 to +85	**°C**
Storage Temperature	T_{STO}	-55 to +150	**°C**
DC Voltage at any I/O pin	V_{IO}	(GND – 0.5) to 5.5	**V**

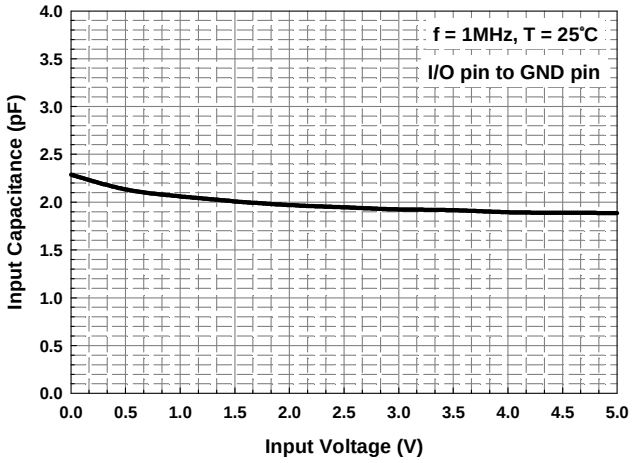
ELECTRICAL CHARACTERISTICS						
PARAMETER	**SYMBOL**	**CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNITS**
Reverse Stand-Off Voltage	V_{RWM}	Pin-1, -3, -4, -5 to Pin-2, T=25 °C			5.0	**V**
Channel Leakage Current	$I_{CH-Leak}$	V_{RWM} = 5.0V, T=25 °C. Pin-1, -3, -4, -5 to Pin-2.			1.0	**μA**
Reverse Breakdown Voltage	V_{BV}	I_{BV} = 1mA, T=25 °C. Pin-1, -3, -4, -5 to Pin-2.	6		9	**V**
Forward Voltage	V_F	I_F = 15mA, T=25 °C, Pin-2 to Pin-1, -3, -4, -5		0.8	1.2	**V**
ESD Clamping Voltage	V_{clamp}	IEC 61000-4-2 +6kV, T=25 °C, Contact mode, Any Channel pin to Ground		10		**V**
Lightning Clamping Voltage	$V_{lightning}$	I_{PP}=5A, tp=8/20μs, T=25 °C Any Channel pin to Ground		8		**V**
Channel Input Capacitance	C_{IN}	V_{pin2}=0V,**V_{IN}=2.5V**,f=1MHz,T=25°C, Any Channel pin to Ground		1.9	2.4	**pF**
Channel to Channel Input Capacitance	C_{CROSS}	V_{pin2} =0V,**V_{IN} =2.5V**,f =1MHz,T=25°C, Between Channel pins		0.25	0.35	**pF**

Typical Characteristics

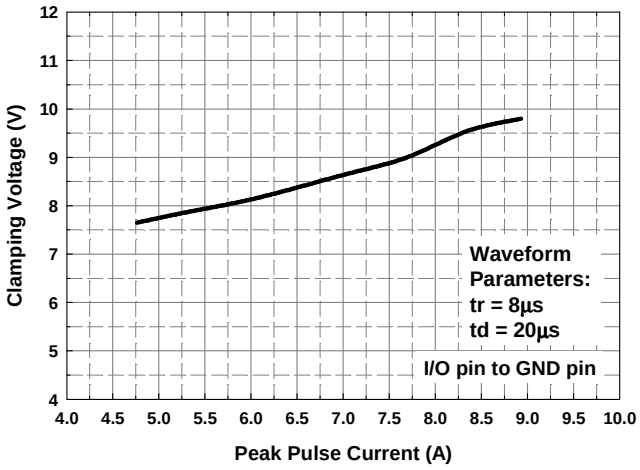
Transmission Line Pulsing (TLP) Measurement



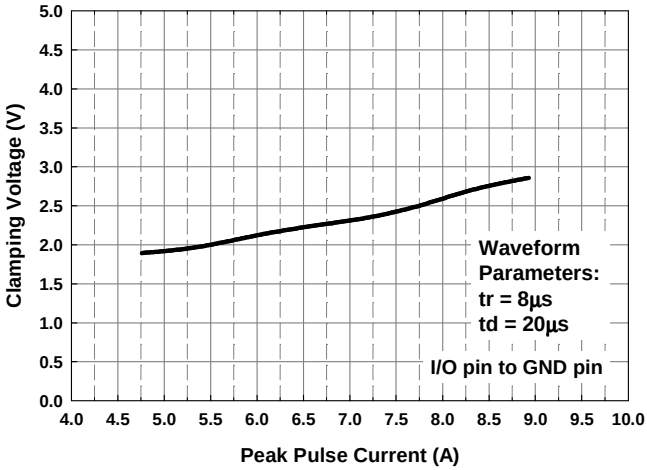
Typical Variation of C_{IN} vs. V_{IN}



Reverse Clamping Voltage vs. Peak Pulse Current



Forward Clamping Voltage vs. Peak Pulse Current

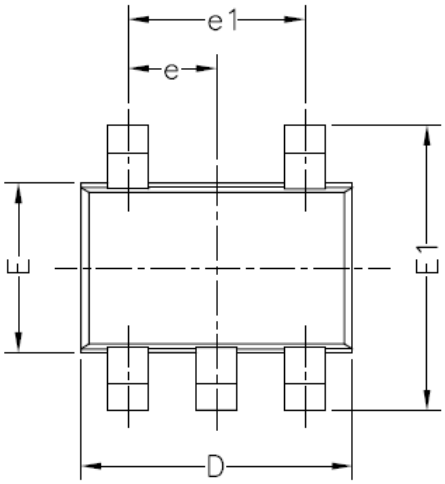


Mechanical Details

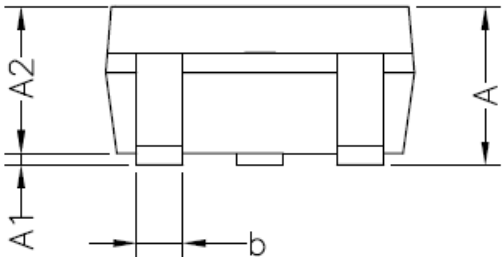
SC70-5L

PACKAGE DIAGRAMS

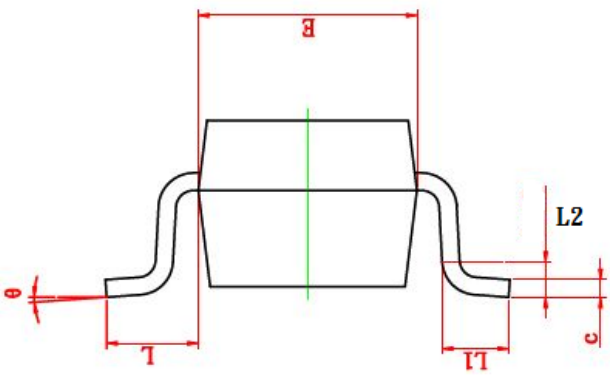
TOP VIEW



SIDE VIEW



END VIEW

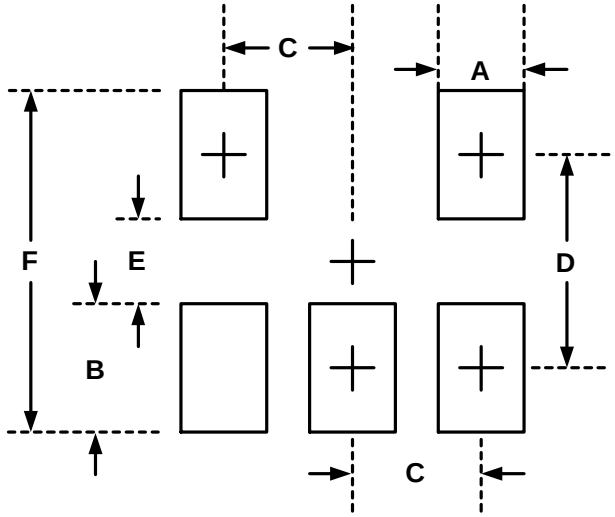


PACKAGE DIMENSIONS

Symbol	Millimeters		Inches	
	MIN.	MAX.	MIN.	MAX.
A	0.9	1.1	0.035	0.043
A1	0	0.1	0	0.004
A2	0.875	1	0.035	0.04
b	0.15	0.4	0.006	0.016
C	0.08	0.15	0.003	0.006
D	1.9	2.2	0.076	0.087
e	0.65 BSC		0.026 BSC	
e1	1.2	1.4	0.047	0.055
E	1.15	1.35	0.045	0.053
E1	2	2.45	0.008	0.096
L	0.525 REF		0.021 REF	
L1	0.26	0.46	0.01	0.018
L2	0.2 REF		0.008REF	
θ	0°	8°	0°	8°

Note:
1. All dimensions are in millimeters, and the dimensions in inches are for reference only.
2. 1mm = 40 mils = 0.04 inches.

LAND LAYOUT

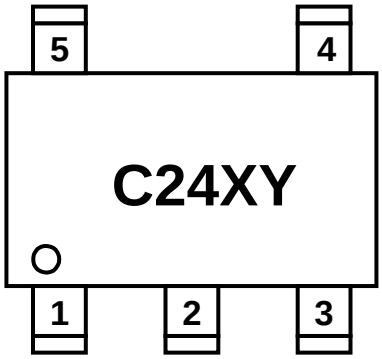


Dimensions		
Index	**Millimeter**	**Inches**
A	0.40	0.016
B	0.85	0.033
C	0.65	0.026
D	1.85	0.073
E	1.00	0.039
F	2.70	0.106

Notes:

This LAND LAYOUT is for reference purposes only. Please consult your manufacturing partners to ensure your company's PCB design guidelines are met.

MARKING CODE



C24 = Device Code
X = Date Code
Y = Control Code

Part Number	Marking Code
AZ398-04C (Green Part)	C24XY

Note. Green means Pb-free, RoHS, and Halogen free compliant.

Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/interal box	MOQ/carton
AZC398-04C.R7G	Green	T/R	7 inch	3,000/reel	4 reel=12,000/box	6 box=72,000/carton

Revision History

Revision	Modification Description
Revision 2013/12/05	Preliminary Release.
Revision 2014/01/28	Formal Release.