Features

- ESD Protect for 4 Lines with Bi-directional
- Provide ESD protection for the protected line to
  IEC 61000-4-2 (ESD) ±17kV (air), ±12kV (contact)
  IEC 61000-4-4 (EFT) 40A (5/50ns)
  Cable Discharge Event (CDE)
- Small SOT563 package saves board space
- Protect four I/O lines or four power lines
- Fast turn-on and Low clamping voltage
- Low operating voltage: 5V and below
- Solid-state silicon-avalanche and active circuit triggering technology
- Green part available

Applications

- Audio Interfaces Protection
- Computer Interfaces Protection
- Microprocessors Protection
- Serial and Parallel Ports Protection
- Control Signal Lines Protection
- Power lines on PCB Protection
- Latchup Protection

Description

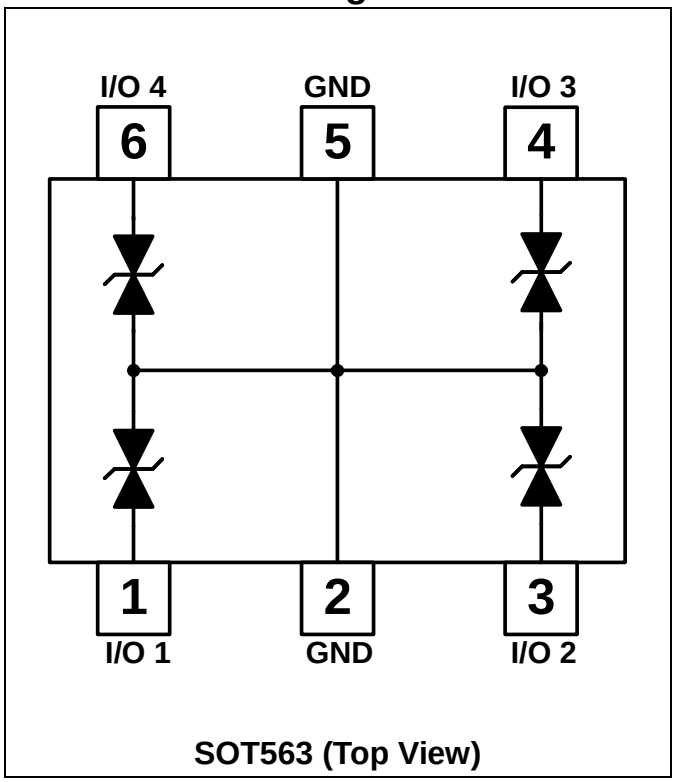
AZ2025-04R is a design which includes four bi-directional ESD rated clamping cells to protect four power lines, or four control lines, or four low speed data lines in an electronic systems. The AZ2025-04R has been specifically designed to protect sensitive components which are connected to power and control lines from over-voltage damage and latch-up caused by Electrostatic Discharging (ESD), Electrical Fast Transients (EFT), and Cable Discharge Event (CDE).

AZ2025-04R is a unique design which includes proprietary clamping cells in a single package. During transient conditions, the proprietary clamping cells prevent over-voltage on the power lines or control/data lines, protecting any downstream components.

AZ2025-04R is bi-directional and may be used on lines where the signal swings above and below ground.

AZ2025-04R 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



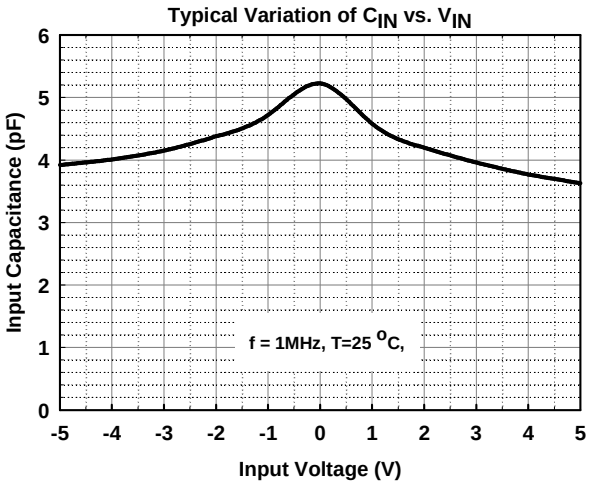
SOT563 (Top View)

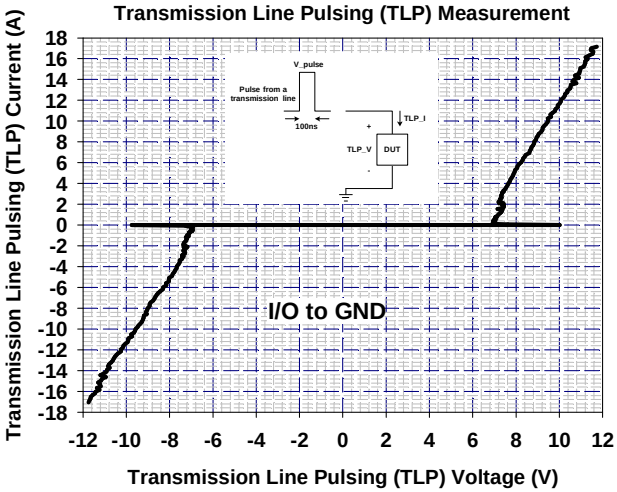
SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	**PARAMETER**	**RATING**	**UNITS**
Operating Supply Voltage (pin-1,-3,-4,-6 to pin-2,-5)	V_{DC}	±6	V
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±17 ±12	kV kV
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	°C
Operating Temperature	T_{OP}	-55 to +125	°C
Storage Temperature	T_{STO}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS						
PARAMETER	**SYMBOL**	**CONDITIONS**	**MINI**	**TYP**	**MAX**	**UNITS**
Reverse Stand-Off Voltage	V_{RWM}	Pin-1, -3, -4, -6 to Pin-2,-5, T=25 °C	-5		5	V
Reverse Leakage Current	I_{Leak}	V_{RWM} = ±5V, T=25 °C. Pin-1, -3, -4, -6 to Pin-2,-5.	-1		1	μA
Reverse DC Breakdown Voltage	V_{BV}	I_{BV} = 1mA, T=25 °C. Pin-1, -3, -4, -6 to Pin-2,-5.	6		9.5	V
Reverse DC Breakdown Voltage	V_{BV}	I_{BV} = -1mA, T=25 °C. Pin-1, -3, -4, -6 to Pin-2,-5.	-9.5		-6	V
ESD Clamping Voltage	V_{ESD_CL}	IEC 61000-4-2 ±6kV, T=25 °C, Contact mode, Pin-1, -3, -4, -6 to Pin-2,-5.		±12		V
Channel Input Capacitance	C_{IN}	V_R = 0V, f = 1MHz, T=25 °C. Pin-1, -3, -4, -6 to Pin-2,-5.		5.5	6.5	pF

Typical Characteristics





Applications Information

The AZ2025-04R is designed to protect four lines against System ESD/EFT/CDE pulses by clamping them to an acceptable reference. It provides bi-directional protection.

The usage of the AZ2025-04R is shown in Fig. 1. Protected lines, such as data lines, control lines, or power lines, are connected at pin-1, -3, -4,and -6. The pin-2, -5 are connected to a ground plane on the board. In order to minimize parasitic inductance in the board traces, all path lengths connected to the pins of AZ2025-04R should be kept as short as possible.

In order to obtain enough suppression of ESD induced transient, good circuit board is critical. Thus, the following guidelines are recommended:

- Minimize the path length between the protected lines and the AZ2025-04R.
- Place the AZ2025-04R near the input terminals or connectors to restrict transient coupling.
- The ESD current return path to ground should be kept as short as possible.
- Use ground planes whenever possible.
- NEVER route critical signals near board edges and near the lines which the ESD transient easily injects to.

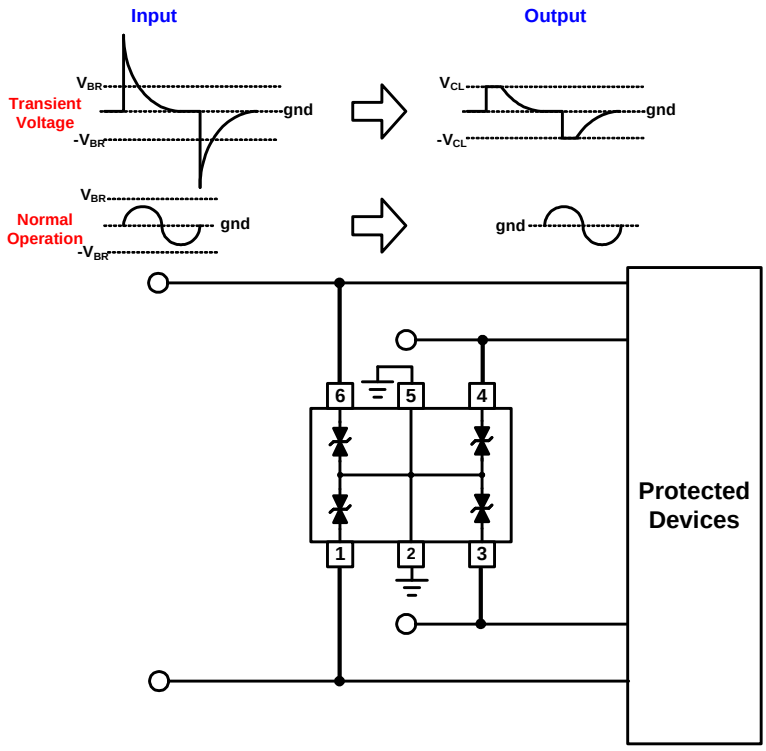


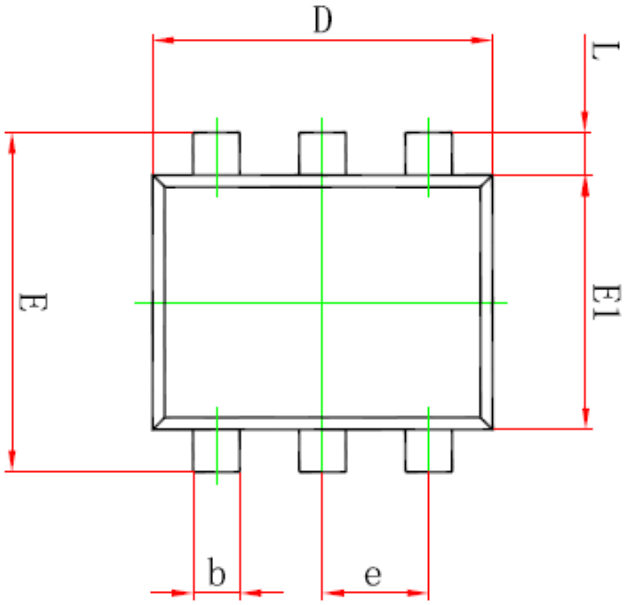
Fig. 1

Mechanical Details

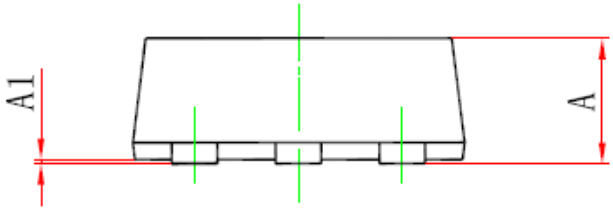
SOT563

PACKAGE DIAGRAMS

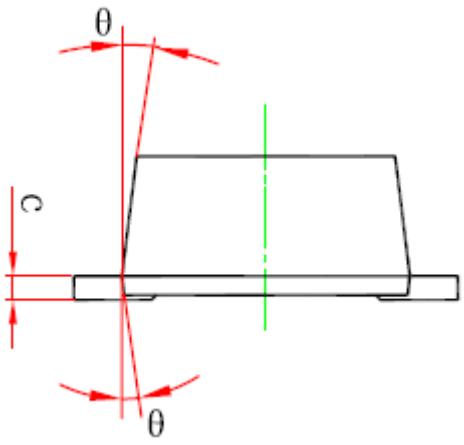
TOP VIEW



SIDE VIEW



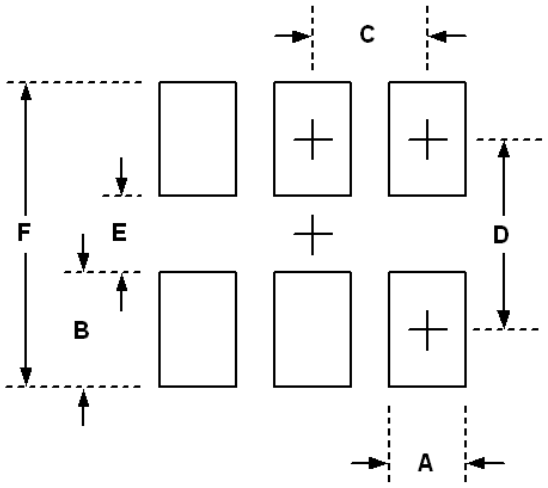
END VIEW



PACKAGE DIMENSIONS

SYMBOL	Millimeters		
	MIN.	NOMINAL	MAX.
A	0.525	-	0.60
A1	0	-	0.05
e	0.45	-	0.55
c	0.09	-	0.16
D	1.50	-	1.70
b	0.17	-	0.27
E1	1.10	-	1.30
E	1.50	-	1.70
L	0.10	-	0.30
θ	7^{o} REF		

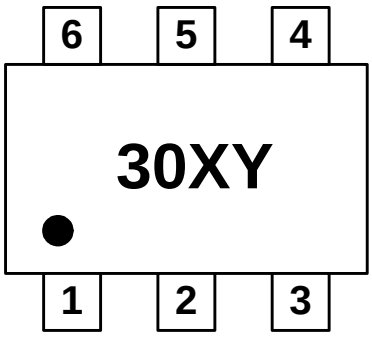
LAND LAYOUT



Dimensions	
Index	**Millimeter**
A	0.30
B	0.50
C	0.50
D	1.40
E	0.90
F	1.90

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



30=Device Code
X=Date Code
Y=Control Code

Part Number	Marking Code
AZ2025-04R (Green Part)	**30XY**
AZ2025-04R (Engineering Part)	5UXY

Ordering Information

PN#	Material	Type	Reel size	MOQ/interal box	MOQ/carton
AZ2025-04R.R7G	Green	T/R	7 inch	4 reel=12,000/box	6 box=72,000/carton

Revision History

Revision	Modification Description
Revision 2009/11/04	Initial Release.
Revision 2011/06/18	1. Update the Company Logo. 2. Add the Ordering Information.