



Features

- ESD Protect for 2 Lines with Bi-directional
- Provide ESD protection for the protected line to **IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 15\text{kV}$ (contact)**
IEC 61000-4-4 (EFT) 40A (5/50ns)
Cable Discharge Event (CDE)
- Small SOT523 package saves board space
- Protect two I/O lines or two power lines
- Fast turn-on and Low clamping voltage
- Low operating voltage: 5V
- Solid-state silicon-avalanche and active circuit triggering technology
- Green Part

Applications

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

Description

AZ5A25-02R is a design which includes two bi-directional ESD rated clamping cells to protect two power lines, or two control lines, or two low speed data lines in an electronic systems. The AZ5A25-02R 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).

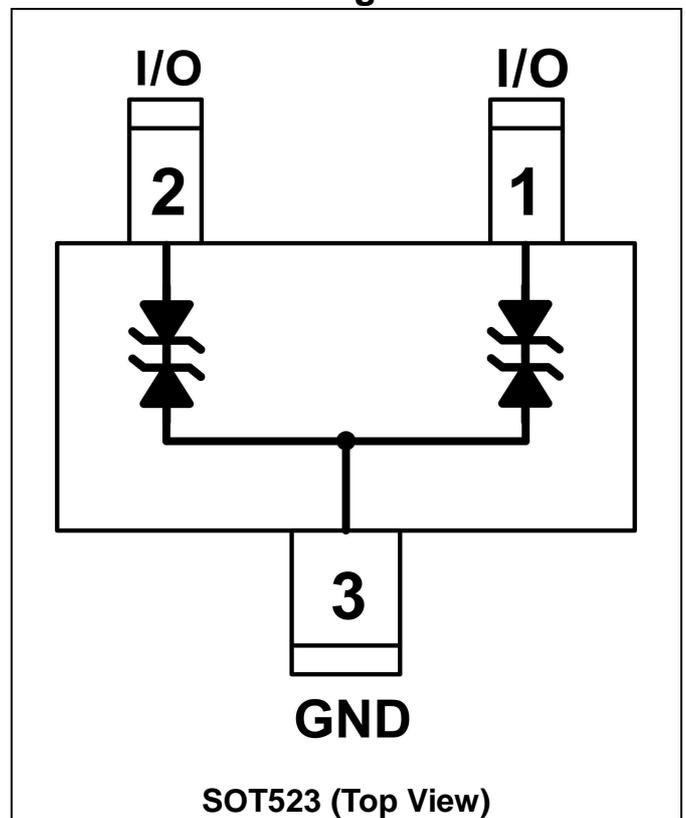
AZ5A25-02R is a unique design which includes proprietary clamping cells in a single package. During transient conditions, the proprietary clamping cells prevent over-voltage on the power

lines or control/data lines, protecting any downstream components.

AZ5A25-02R is bi-directional and may be used on lines where the signal swings above and below ground.

AZ5A25-02R may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge).

Circuit Diagram / Pin Configuration





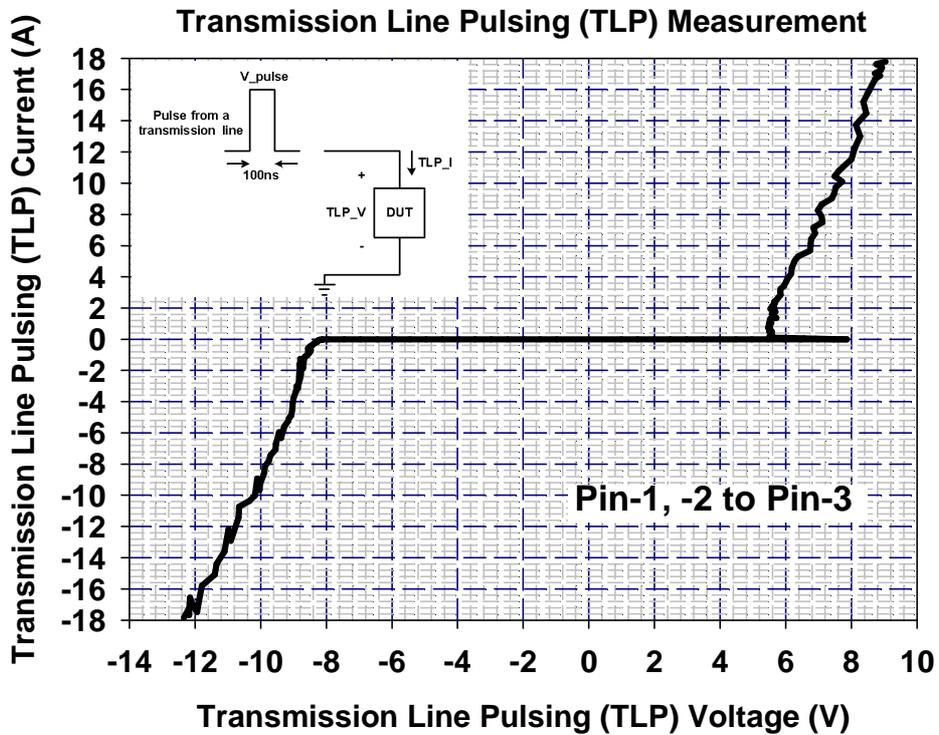
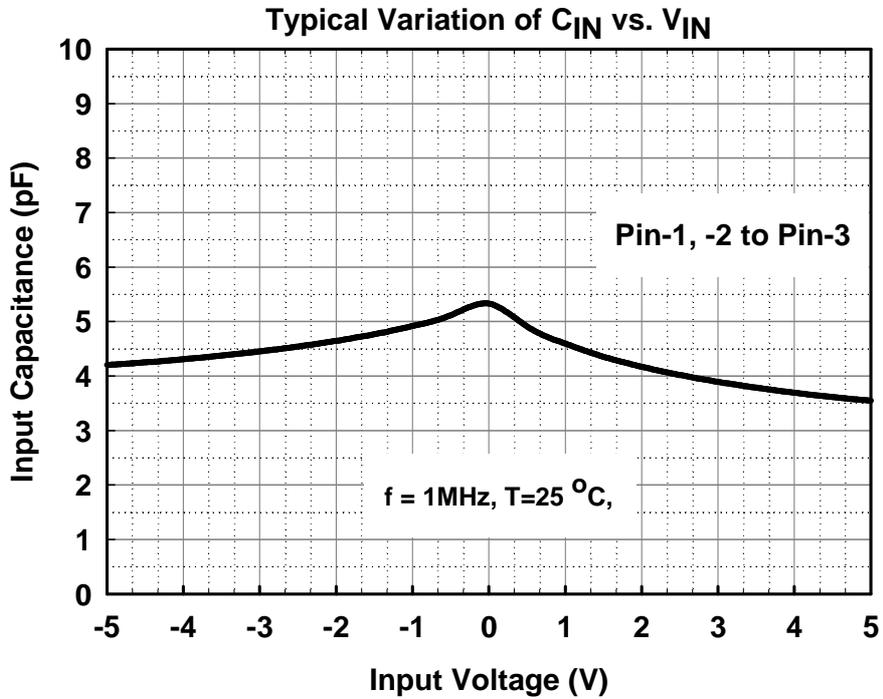
SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	PARAMETER	RATING	UNITS
Operating Supply Voltage (pin-1,-2 to pin-3)	V_{DC}	± 5.5	V
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	$^{\circ}C$
Operating Temperature	T_{OP}	-55 to +85	$^{\circ}C$
Storage Temperature	T_{STO}	-55 to +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS						
PARAMETER	SYMBOL	CONDITIONS	MINI	TYP	MAX	UNITS
Reverse Stand-Off Voltage	V_{RWM}	$T=25^{\circ}C$	-5		5	V
Reverse Leakage Current	I_{Leak}	$V_{RWM} = \pm 5V, T=25^{\circ}C.$			1	μA
Reverse Breakdown Voltage	V_{BV}	$I_{BV} = 1mA, T=25^{\circ}C.$	5.6		9	V
ESD Clamping Voltage	V_{ESD_CL}	IEC 61000-4-2 +6kV, $T=25^{\circ}C$, Contact mode		13		V
Channel Input Capacitance	C_{IN}	$V_R = 0V, f = 1MHz, T=25^{\circ}C.$		5.5	7	pF



Typical Characteristics





Applications Information

The AZ5A25-02R is designed to protect two lines against System ESD/EFT/Cable-Discharging pulses by clamping them to an acceptable reference. It provides bi-directional protection.

The usage of the AZ5A25-02R is shown in Fig. 1. Protected lines, such as data lines, control lines, or power lines, are connected at pin 1 and pin 2 respectively. The pin 3 is 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 AZ5A25-02R 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 AZ5A25-02R.
- Place the AZ5A25-02R 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.

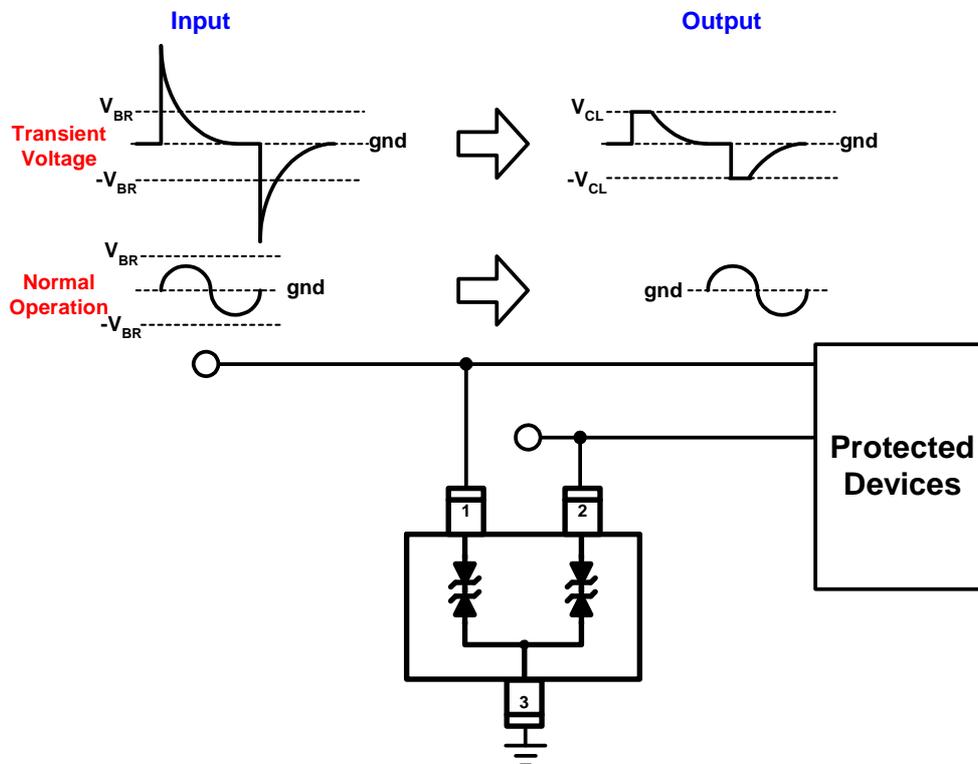
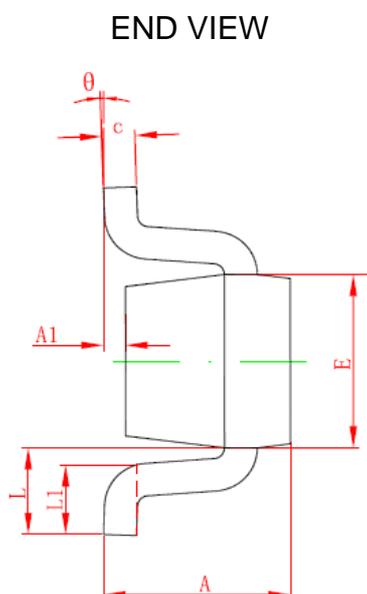
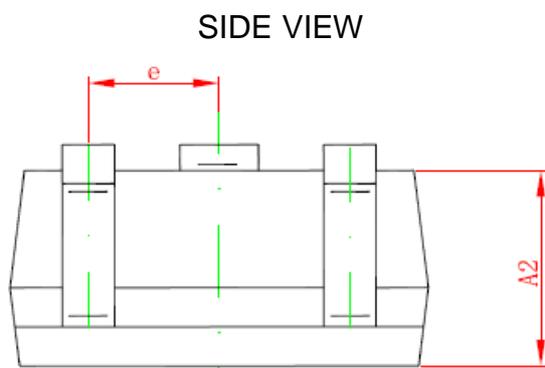
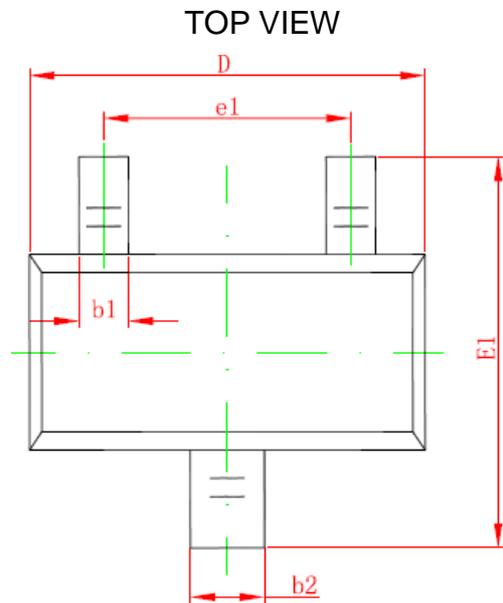


Fig. 1



Mechanical Details

SOT523 PACKAGE DIAGRAMS

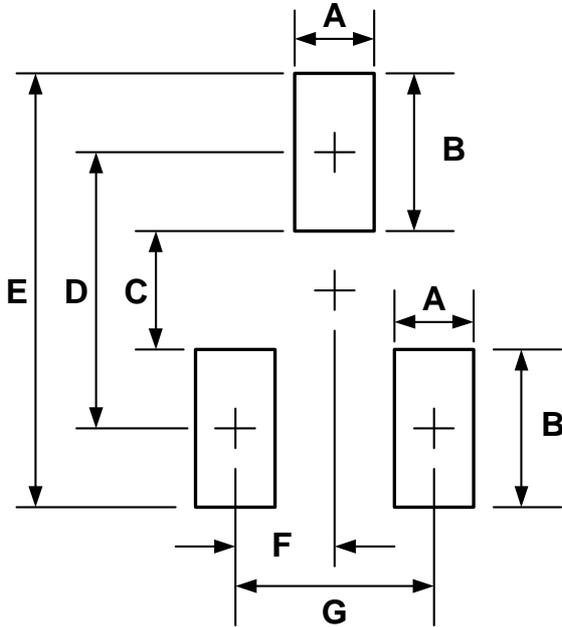


PACKAGE DIMENSIONS

SYMBOL	Millimeters	
	MIN.	MAX.
A	0.70	0.90
A1	0.00	0.10
A2	0.70	0.80
b1	0.15	0.25
b2	0.25	0.35
c	0.10	0.20
D	1.50	1.70
E	0.70	0.90
E1	1.45	1.75
e	0.50 TYP.	
e1	0.90	1.10
L	0.40 REF.	
L1	0.26	0.46
θ	0°	8°



LAND LAYOUT

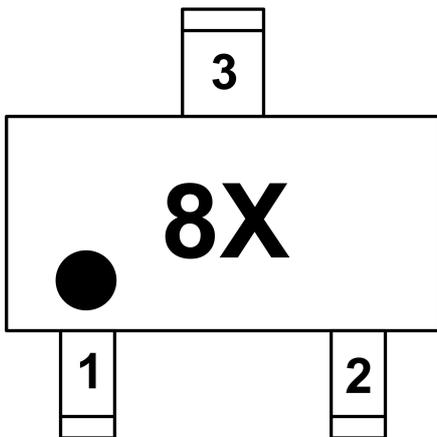


Dimensions		
Index	Millimeter	Inches
A	0.40	0.016
B	0.80	0.031
C	0.60	0.024
D	1.40	0.055
E	2.20	0.087
F	0.50	0.020
G	1.00	0.039

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



Part Number	Marking Code
AZ5A25-02R	8X

X = Date Code



Revision History

Revision	Modification Description
Revision 2013/09/10	Formal Release.