Features

- ESD Protect for 1 Line with Bi-directional
- Provide ESD protection for the protected line to **IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)**
- Suitable for, **100V and below**, operation voltage applications.
- Small SOT23-3L package saves board space
- Protect one I/O line or one power line
- Fast turn-on and low clamping voltage
- Solid-state silicon-avalanche and active circuit triggering technology
- Green Part

Applications

- Power Supply Protection
- Power Management
- Industrial Application
- Portable Devices
- Cellular Handsets and Accessories
- Notebooks, desktops, and servers
- Microprocessor-based equipment
- Peripherals

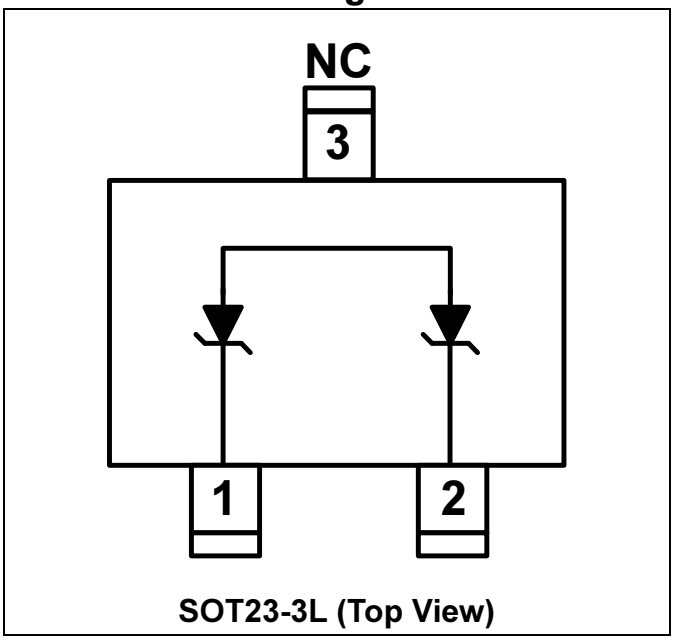
Description

AZ4200-01S is a design which includes a bi-directional ESD rated clamping cell to protect one power line, or one control line, or one low speed data line in an electronic system. The AZ4200-01S 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).

AZ4200-01S 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.

AZ4200-01S 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



SOT23-3L (Top View)

SPECIFICATIONS

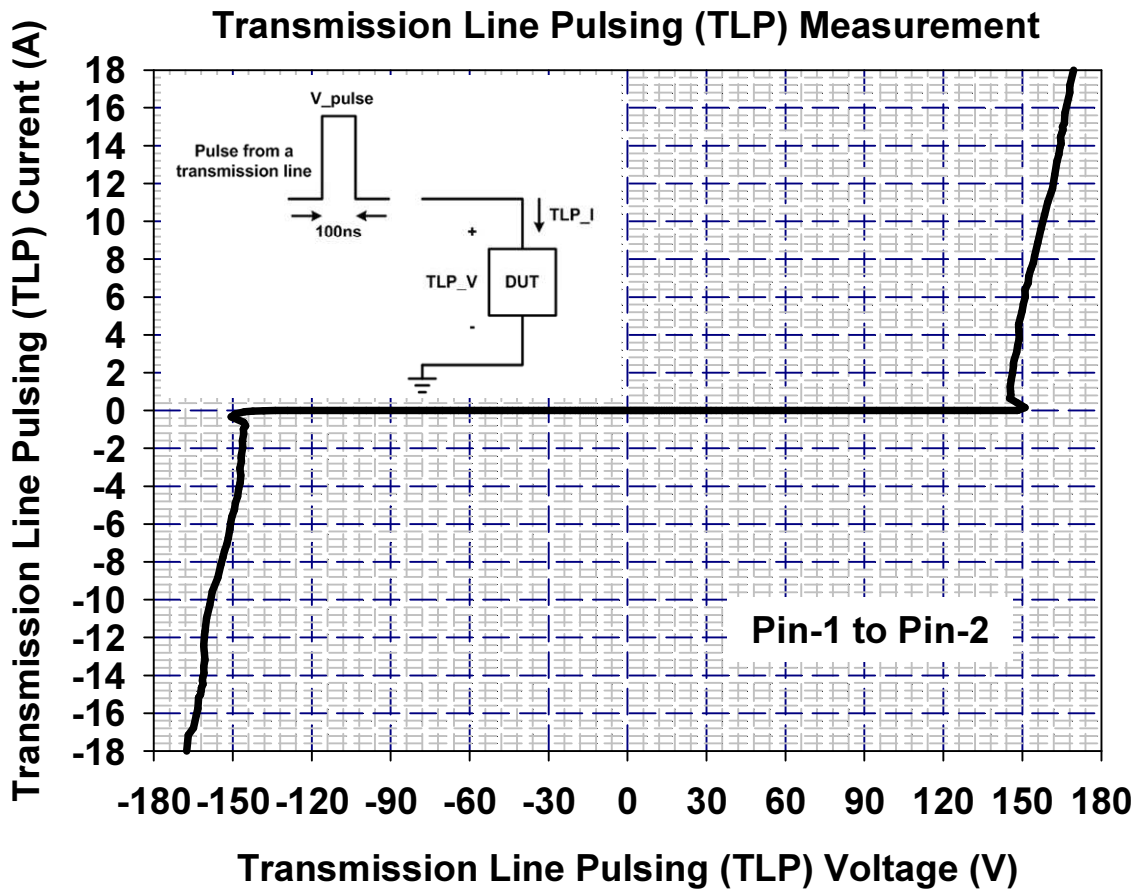
ABSOLUTE MAXIMUM RATINGS			
PARAMETER	**SYMBOL**	**RATING**	**UNITS**
Operating Supply Voltage	V_{DC}	±100	V
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±15 ±8	kV
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	°C
Operating Temperature	T_{OP}	-55 to +85	°C
Storage Temperature	T_{STO}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS						
PARAMETER	**SYMBOL**	**CONDITIONS**	**MINI**	**TYP**	**MAX**	**UNITS**
Reverse Stand-Off Voltage	V_{RWM}	T=25 °C.	-100		100	V
Reverse Leakage Current	I_{Leak}	V_{RWM} = ±100V, T=25 °C.			2.5	μA
Reverse Breakdown Voltage	V_{BV}	I_{BV} = 1mA, T=25 °C.	120		150	V
ESD Clamping Voltage (Note 1)	V_{clamp}	IEC 61000-4-2 +8kV (I_{TLP} = 16A), T=25 °C, Contact mode.		168		V
Channel Input Capacitance	C_{IN}	V_R= 0V, f = 1MHz, T=25 °C.			10	pF

Note 1: ESD Clamping Voltage was measured by Transmission Line Pulsing (TLP) System.

TLP conditions: Z_0= 50Ω, t_p= 100ns, t_r= 1ns.

Typical Characteristics



Applications Information

The AZ4200-01S is designed to protect one line against System ESD pulses by clamping them to an acceptable reference. It provides bi-directional protection.

The usage of the AZ4200-01S is shown in Fig. 1. Protected lines, such as data lines, control lines, or power lines, are connected at pin 1. The pin 2 should be connected directly to a ground plane. The pin 3 (NC Pin) should be floating. In order to minimize parasitic inductance in the board traces, all path lengths connected to the pins of AZ4200-01S 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 AZ4200-01S.
- Place the AZ4200-01S 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.

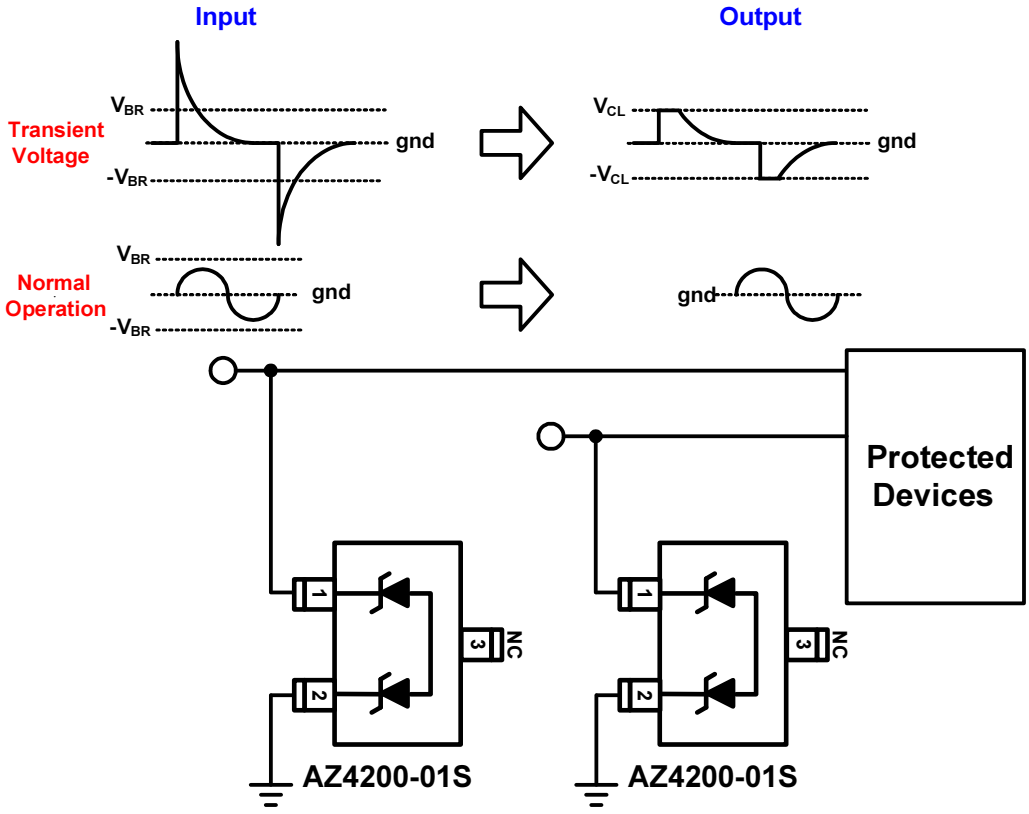
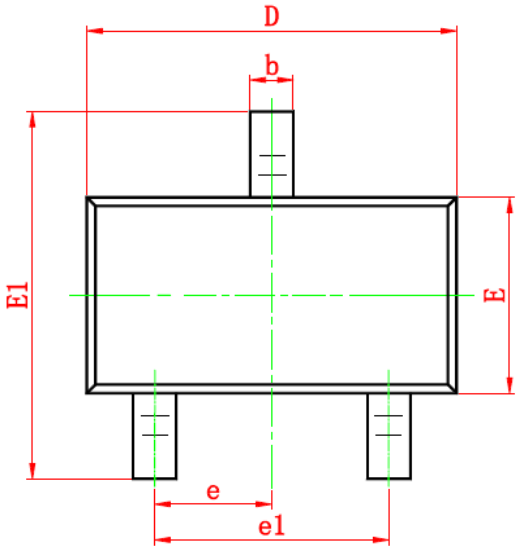


Fig. 1

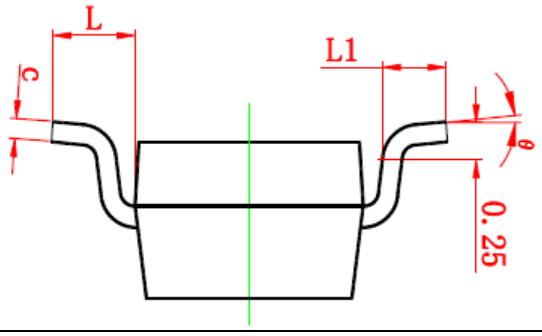
Mechanical Details

SOT23-3L PACKAGE DIAGRAMS

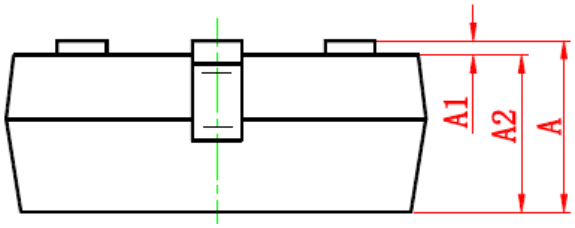
TOP VIEW



END VIEW



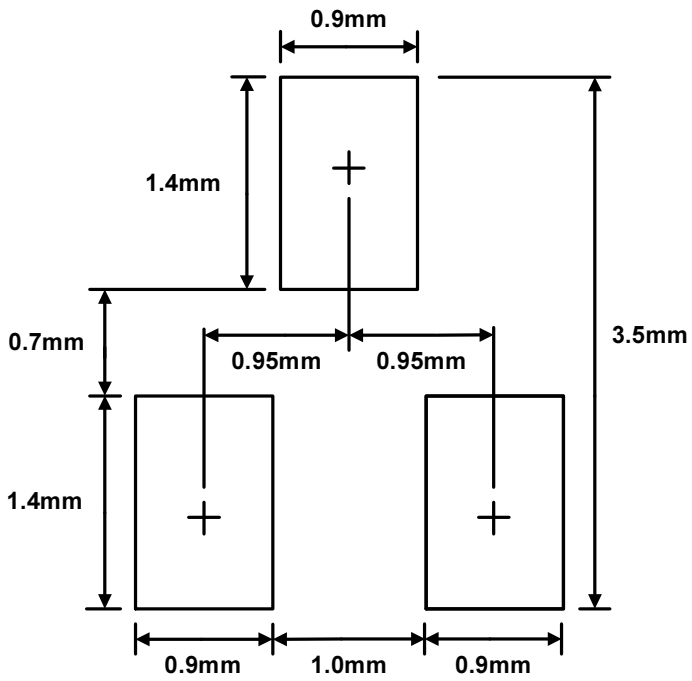
SIDE VIEW



PACKAGE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

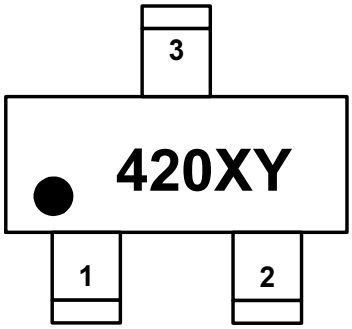
LAND LAYOUT



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



420 = Device Code
X = Date Code
Y = Control Code

Part Number	Marking Code
AZ4200-01S.R7G (Green Part)	420XY

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

Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
AZ4200-01S.R7G	Green	T/R	7 inch	3,000/reel	4 reels= 12,000/box	6 boxes =72,000/carton

Revision History

Revision	Modification Description
Revision 2014/06/26	Preliminary Release.
Revision 2017/05/11	Formal Release.