



Features

- ESD/Surge Protection for 1 Line with Unidirectional.
- Provide ESD protection for each line to
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air / contact)
IEC 61000-4-4 (EFT) 80A (5/50ns)
IEC 61000-4-5 (Lightning) 60A (8/20 μs)
- Suitable for, **5V and below**, operating voltage applications
- Small 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

- Battery Contacts
- Power Manager System
- PDA's
- Portable Devices
- Digital Cameras
- Digital Frames
- Cellular Handsets and Accessories
- Notebooks, desktops, and servers
- Microprocessor-based equipment
- Peripherals

Description

AZ3005-01G is a design which includes a unidirectional ESD rated clamping cell to protect one power line, or one control line, or one low speed data line in an electronic systems. The AZ3005-01G has been specifically designed to protect sensitive components which are connected to power and control lines from

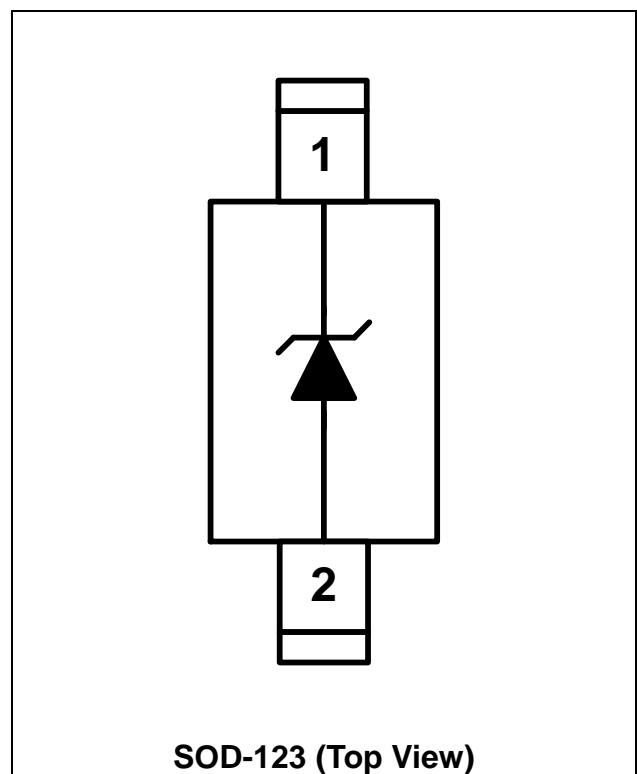
over-voltage damage and latch-up caused by Electrostatic Discharging (ESD), Electrical Fast Transients (EFT), Lightning, and Cable Discharge Event (CDE).

AZ3005-01G is a unique design which includes proprietary clamping cell in a single package.

During transient conditions, the proprietary clamping cell prevents over-voltage on the power line or control/data lines, protecting any downstream components.

AZ3005-01G 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



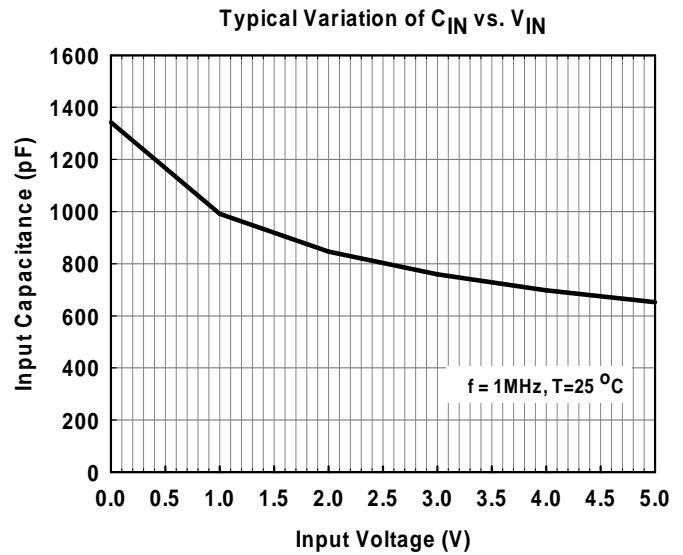
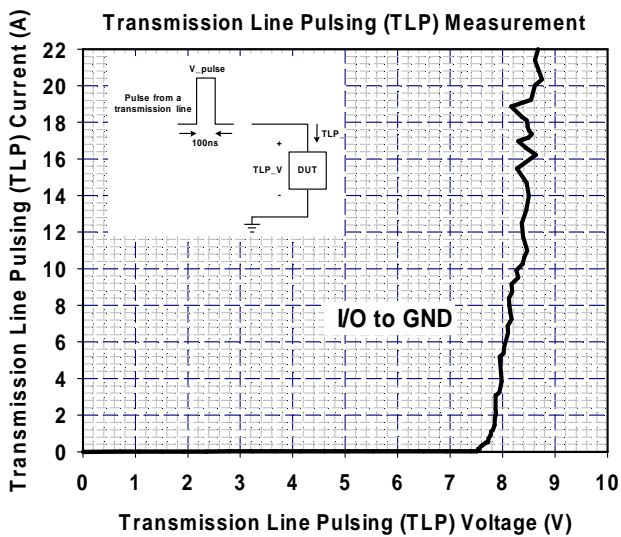
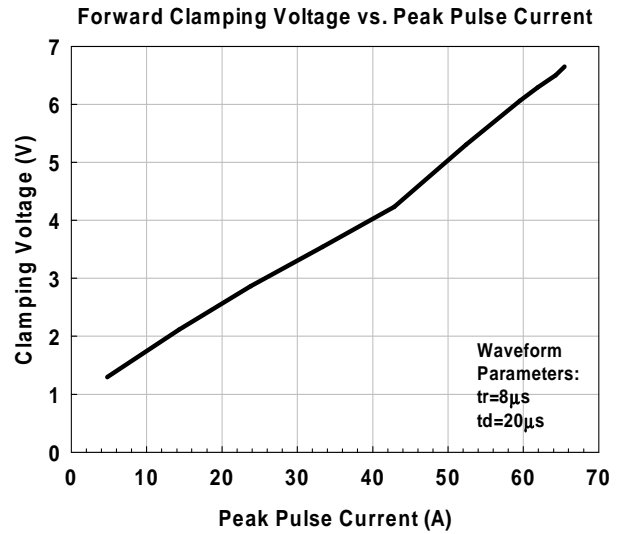
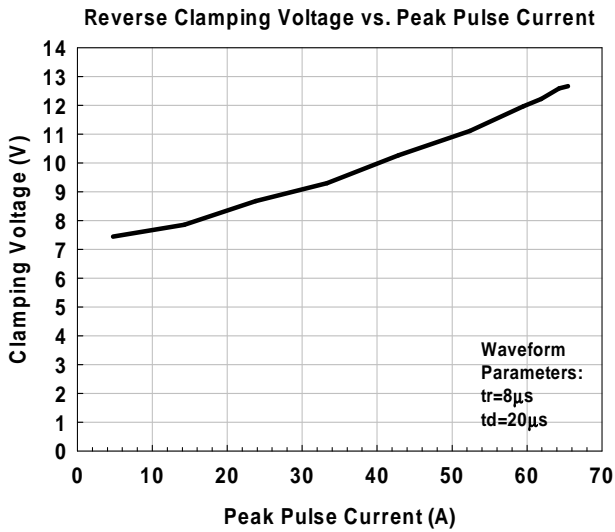
SOD-123 (Top View)



SPECIFICATIONS

| ABSOLUTE MAXIMUM RATINGS | | | |
|--|--------------------|---------------|-------|
| PARAMETER | SYMBOL | RATING | UNITS |
| Peak Pulse Current (tp =8/20μs) | I _{PP} | 60 | A |
| Operating Supply Voltage (pin-1 to pin-2) | V _{DC} | 5.5 | V |
| Pin-1 to pin-2 ESD per IEC 61000-4-2 (Air) | V _{ESD-1} | ±30 | kV |
| Pin-1 to pin-2 ESD per IEC 61000-4-2 (Contact) | V _{ESD-2} | ±30 | |
| 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} | Pin-1 to pin-2, T=25 °C. | | | 5 | V |
| Reverse Leakage Current | I _{Leak} | V _{RWM} = 5V, T=25 °C, pin-1 to pin-2. | | | 1 | μA |
| Reverse Breakdown Voltage | V _{BV} | I _{BV} = 1mA, T=25 °C, pin-1 to pin-2 | 6.0 | 7.4 | 9.0 | V |
| Forward Voltage | V _F | I _F = 15mA, T=25 °C, pin-2 to pin-1 | 0.6 | | 1.2 | V |
| Surge Clamping Voltage | V _{CL-surge} | I _{PP} =5A, tp=8/20us, T=25 °C, pin-1 to pin-2 | | 7.5 | 10.0 | V |
| | | I _{PP} =30A, tp=8/20us, T=25 °C, pin-1 to pin-2. | | 9.0 | 11.0 | V |
| | | I _{PP} =60A, tp=8/20us, T=25 °C, pin-1 to pin-2 | | 12.0 | 15.0 | V |
| ESD Clamping Voltage | V _{clamp} | IEC 61000-4-2 +6kV, T=25 oC, Contact mode, pin-1 to pin-2. | | 8.5 | | V |
| ESD Dynamic Turn-on Resistance | R _{dynamic} | IEC 61000-4-2 0~+6kV, T=25 oC, Contact mode, pin-1 to pin-2. | | 0.06 | | Ω |
| Channel Input Capacitance | C _{IN} | V _R = 0V, f = 1MHz, T=25 °C, pin-1 to pin-2. | | 1.3 | 1.5 | nF |

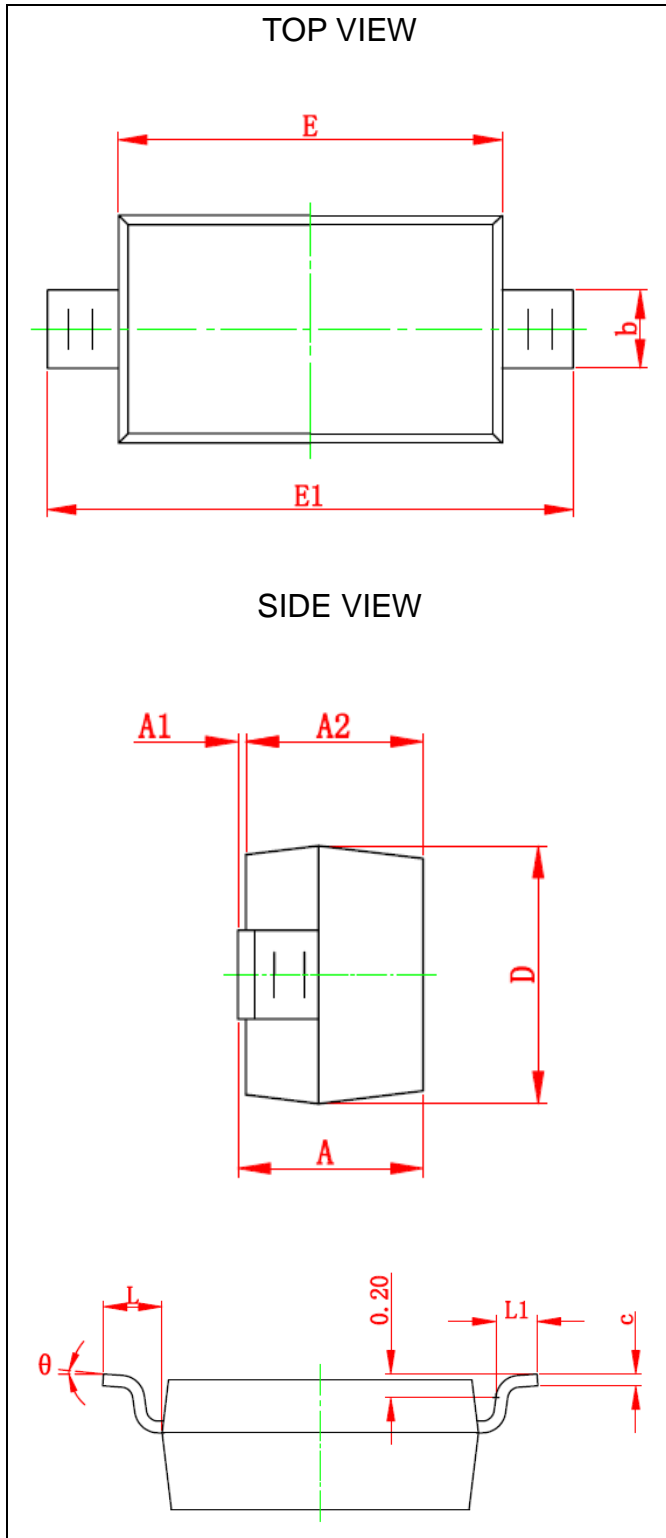




Mechanical Details

SOD-123

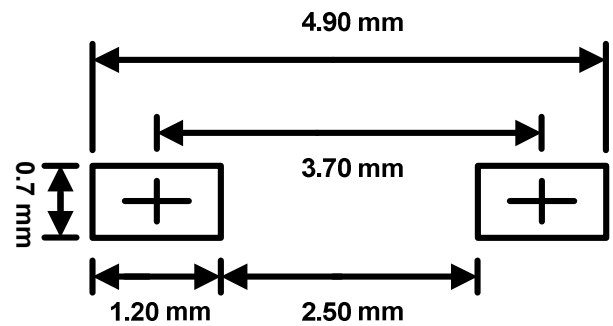
PACKAGE DIAGRAMS



PACKAGE DIMENSIONS

| Symbol | Millimeters | | Inches | |
|----------|-------------|-------|-----------|-------|
| | MIN. | MAX. | MIN. | MAX. |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.450 | 0.650 | 0.018 | 0.026 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 2.600 | 2.800 | 0.102 | 0.110 |
| E1 | 3.550 | 3.850 | 0.140 | 0.152 |
| L | 0.500 REF | | 0.020 REF | |
| L1 | 0.250 | 0.450 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |

LAND LAYOUT

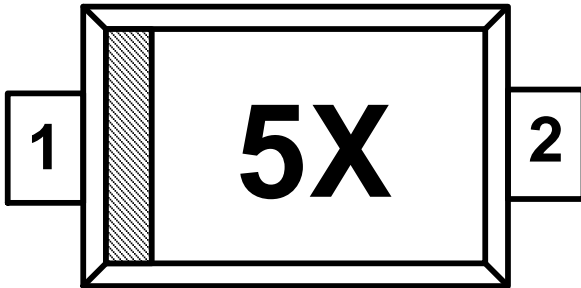


Notes:

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



5 = Device Code
X = Date Code

| Part Number | Marking Code |
|-------------|--------------|
| AZ3005-01G | 5X |

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

Ordering Information

| PN# | Material | Type | Reel size | MOQ | MOQ/internal box | MOQ/carton |
|----------------|----------|------|-----------|------------|--------------------|----------------------|
| AZ3005-01G.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 2013/10/03 | Preliminary Release. |
| Revision 2014/07/30 | Formal Release. |
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