



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) 20A (8/20 μs)
- Suitable for, **12V 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

AZ4012-01G 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 AZ4012-01G has been specifically designed to protect sensitive components which are connected to power and control lines from over-voltage damage

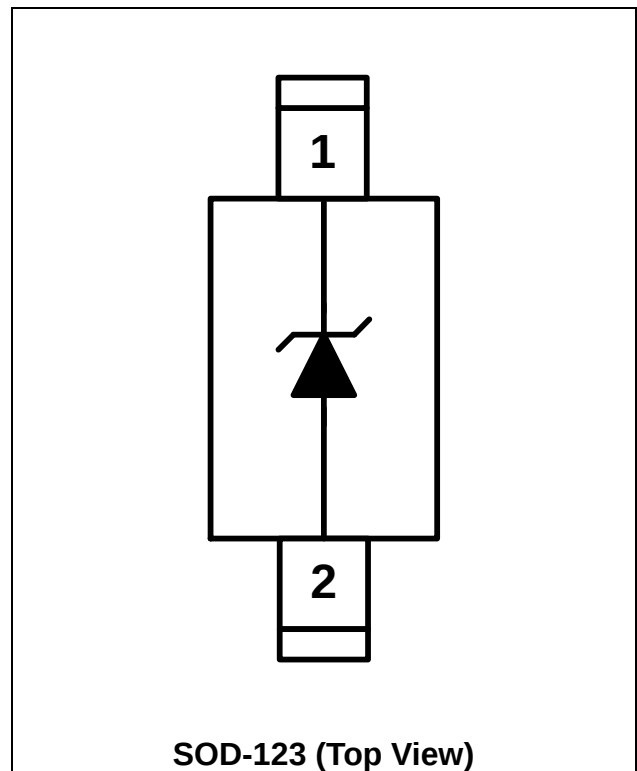
and latch-up caused by Electrostatic Discharging (ESD), Electrical Fast Transients (EFT), Lightning, and Cable Discharge Event (CDE).

AZ4012-01G 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.

AZ4012-01G 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

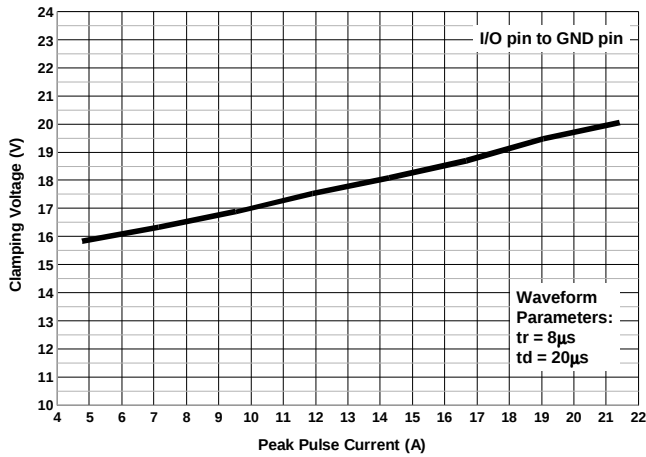
ABSOLUTE MAXIMUM RATINGS			
PARAMETER	PARAMETER	RATING	UNITS
Peak Pulse Current (tp =8/20μs)	I _{PP}	20	A
Operating Supply Voltage (pin-1 to pin-2)	V _{DC}	13	V
pin-1 to pin-2 ESD per IEC 61000-4-2 (Air)	V _{ESD-1}	±30	kV
pin-1 to pin-2 ESD per IEC 61000-4-2 (Contact)	V _{ESD-2}	±30	
Lead Soldering Temperature	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.			12	V
Reverse Leakage Current	I _{Leak}	V _{RWM} = 12V, 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	14.4		15.9	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.		16.5		V
ESD Clamping Voltage	V _{clamp}	IEC 61000-4-2 +6kV, T=25 °C, Contact mode, pin-1 to pin-2.		17.5		V
ESD Dynamic Turn-on Resistance	R _{dynamic}	IEC 61000-4-2 0~+6kV, T=25 °C, Contact mode, pin-1 to pin-2.		0.12		Ω
Channel Input Capacitance	C _{IN}	V _R = 0V, f = 1MHz, T=25 °C, pin-1 to pin-2.		290	320	pF

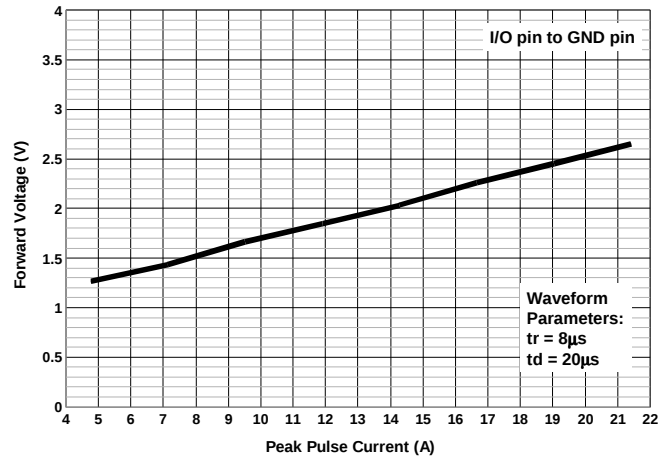


Typical Characteristics

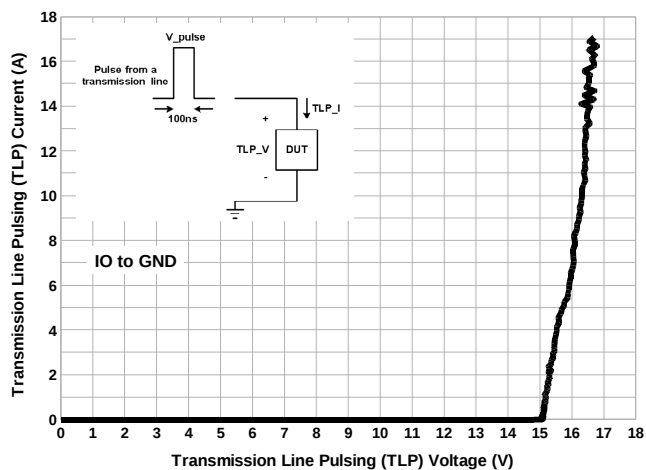
Reverse Clamping Voltage vs. Peak Pulse Current



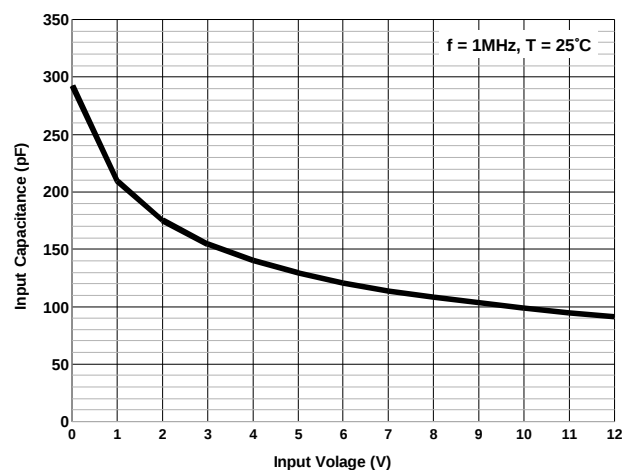
Forward Clamping Voltage vs. Peak Pulse Current



Transmission Line Pulsing (TLP) Measurement



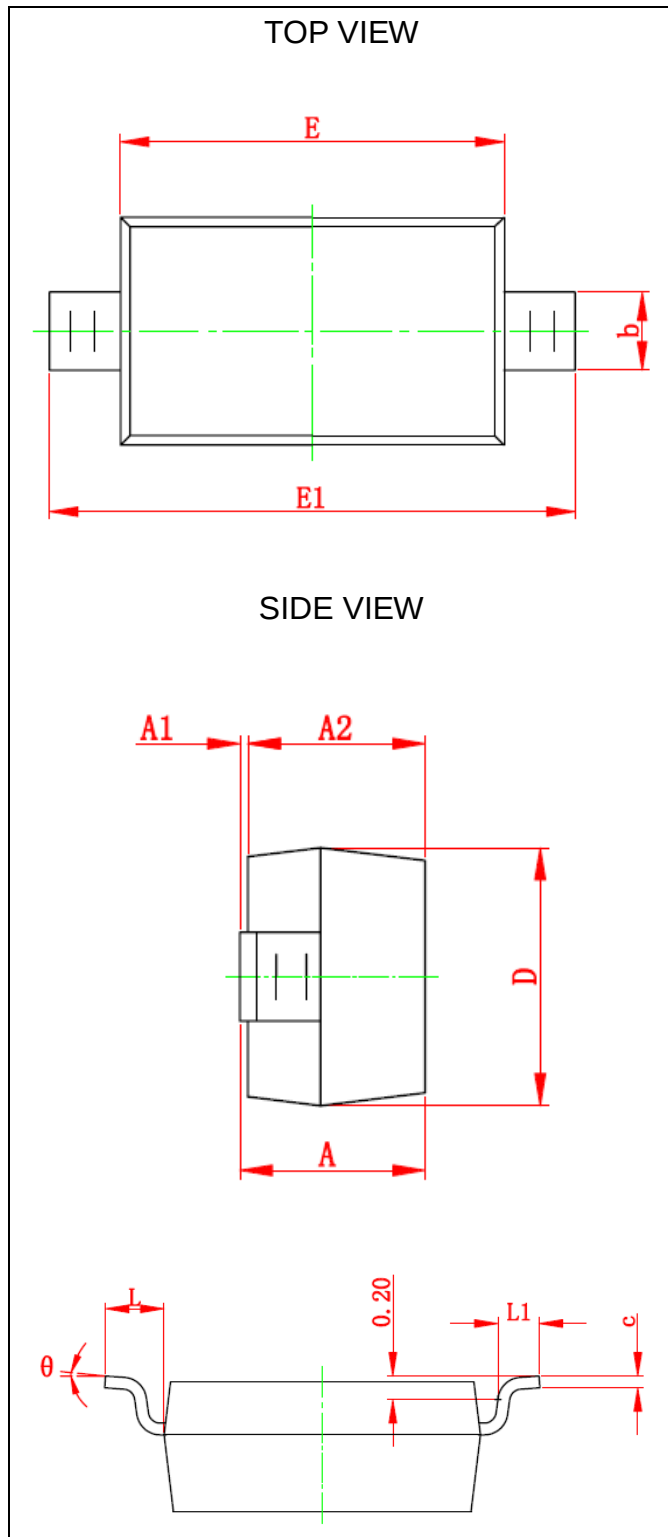
Typical Variation of C_{IN} vs. V_{IN}



Mechanical Details

SOD-123

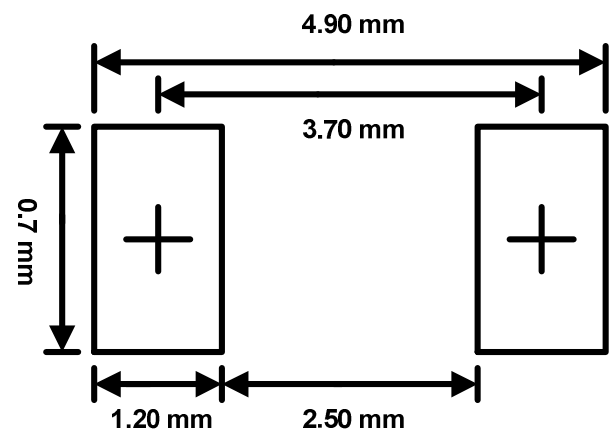
PACKAGE DIAGRAMS



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

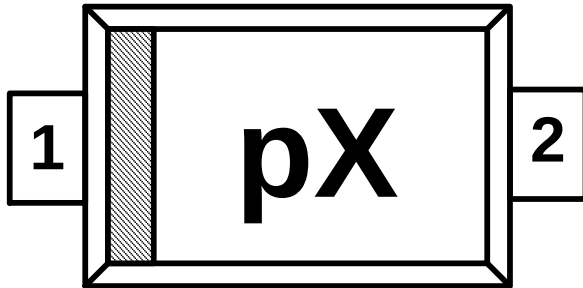


Notes:

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



p = Device Code
X = Date Code

Part Number	Marking Code
AZ4012-01G	pX

Ordering Information

PN#	Material	Type	Reel size	MOQ/interal box	MOQ/carton
AZ4012-01G.R7G	Green	T/R	7 inch	4 reel= 12,000/box	6 box =72,000/carton



Revision History

Revision	Modification Description
Revision 2012/07/23	1. Preliminary Release.
Revision 2013/08/01	1. Formal Release. 2. Add the Ordering Information.