Features

- ESD/Surge Protection for 1 Line with Unidirectional.
- Provide ESD protection for each line to
  IEC 61000-4-2 (ESD) ±30kV (air / contact)
  IEC 61000-4-4 (EFT) 80A (5/50ns)
  IEC 61000-4-5 (Lightning) 20A (8/20μs)
- 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

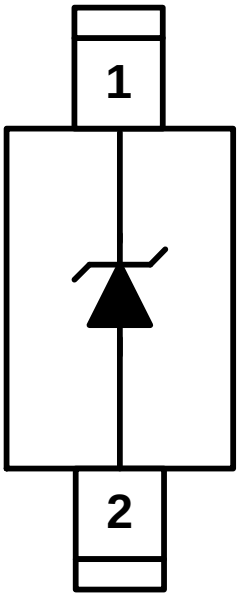
AZ4012-01G is a design which includes a unidirectional ESD rated clamping cell to protect one power line, or one control line, or one low speed data line in an electronic systems. The AZ4012-01G has been specifically designed to protect sensitive components which are connected to power and control lines 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 (±15kV air, ±8kV contact discharge).

Circuit Diagram / Pin Configuration



SOD-123 (Top View)

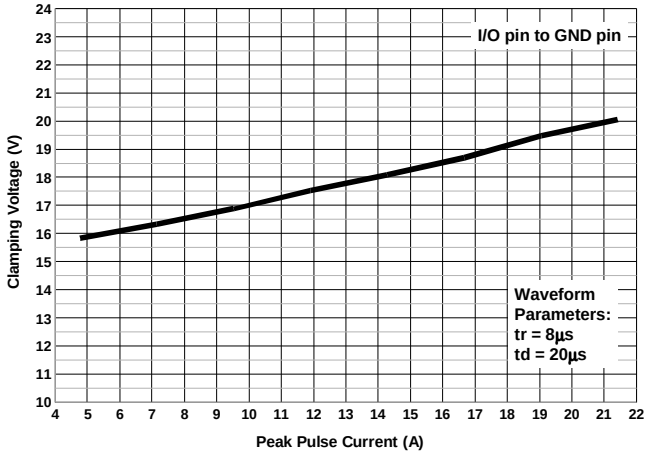
SPECIFICATIONS

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) pin-1 to pin-2 ESD per IEC 61000-4-2 (Contact)	V_{ESD-1} V_{ESD-2}	±30 ±30	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

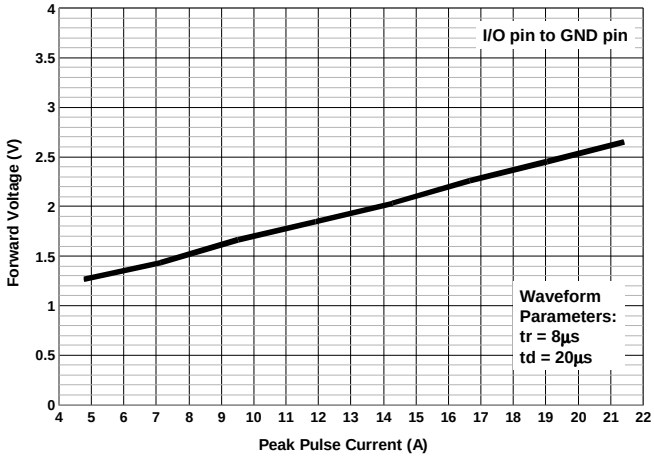
ELECTRICAL CHARACTERISTICS						
PARAMETER	**SYMBOL**	**CONDITIONS**	**MINI**	**TYP**	**MAX**	**UNITS**
Reverse Stand-Off Voltage	V_{RWM}	pin-1 to pin-2, T=25 °C.			12	V
Reverse Leakage Current	I_{Leak}	V_{RWM} = 12V, T=25 °C, pin-1 to pin-2.			1	μA
Reverse Breakdown Voltage	V_{BV}	I_{BV} = 1mA, T=25 °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

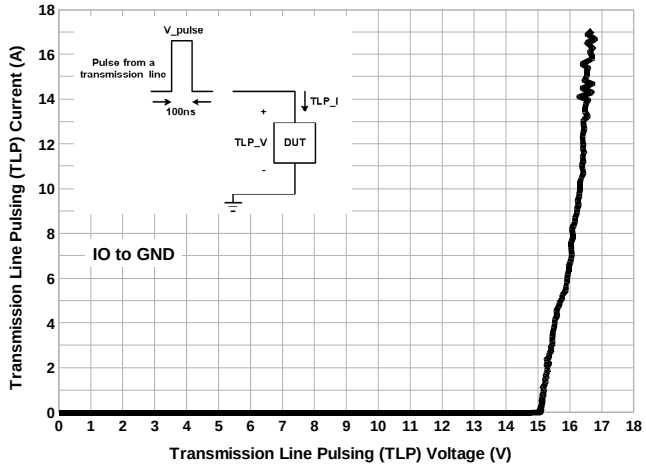
Reverse Clamping Voltage vs. Peak Pulse Current



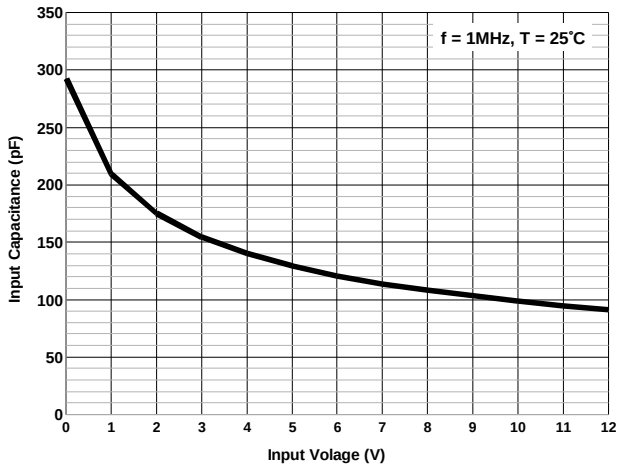
Forward Clamping Voltage vs. Peak Pulse Current



Transmission Line Pulsing (TLP) Measurement



Typical Variation of CIN vs. VIN

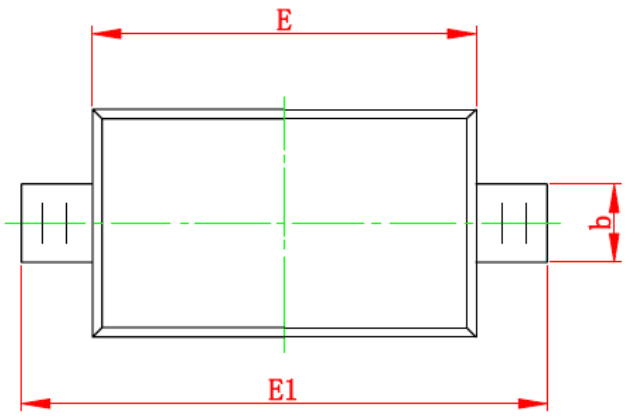


Mechanical Details

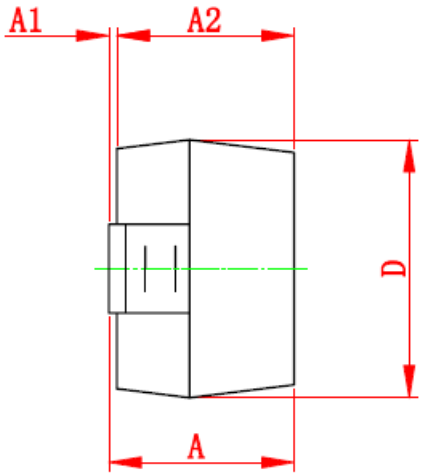
SOD-123

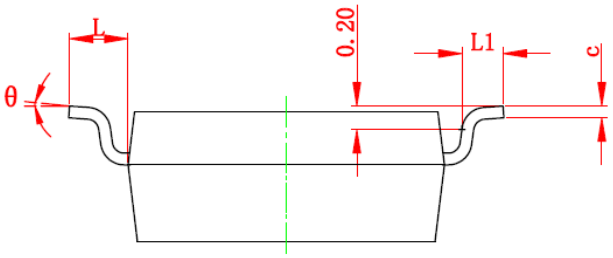
PACKAGE DIAGRAMS

TOP VIEW



SIDE VIEW

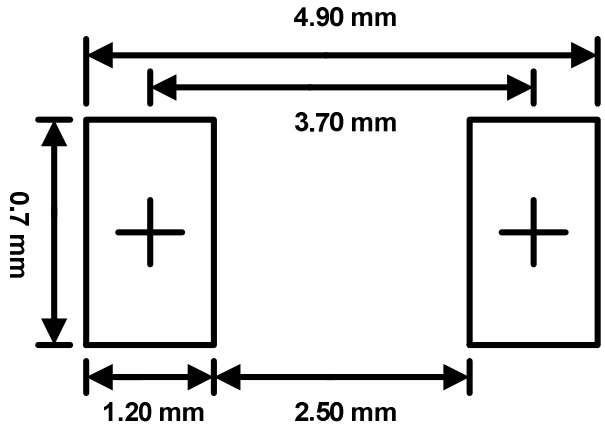




PACKAGE DIMENSIONS

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°

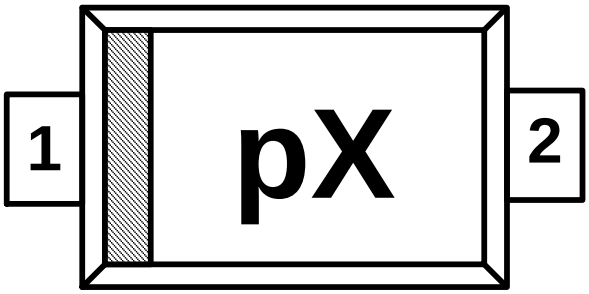
LAND LAYOUT



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.