

Features

- ESD Protection for 1 line with Unidirectional
- Provide ESD protection for the protected line to
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
IEC 61000-4-4 (EFT) $\pm 80\text{A}$ (5/50ns)
IEC 61000-4-5 (Lightning) 12A (8/20 μs)
- Suitable for, **7.0V and below**, operating voltage applications
- **0402 small DFN 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
- USB Vbus Protection
- Industrial Application
- Portable Devices
- Hand Held Portable Applications
- Data and I/O lines protection
- Cellular Handsets and Accessories
- Notebooks, desktops, and servers
- Peripherals

Description

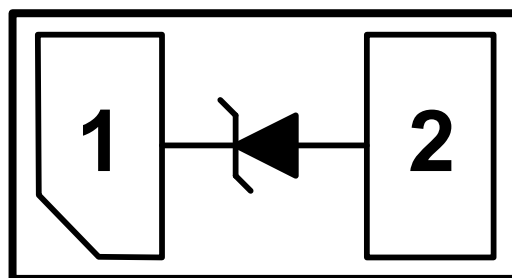
AZ4107-01F is a design which includes a unidirectional ESD rated clamping cell to protect one power line, or one control line, or one low speed data line in an electronic system. The AZ4107-01F has been specifically designed to protect sensitive components which are connected to power and control lines from

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

AZ4107-01F 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.

AZ4107-01F 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



DFN1006P2X (Bottom View)
(1.0mm x 0.6mm x 0.45mm)

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	SYMBOL	RATING	UNITS
Peak Pulse Current (tp=8/20μs)	I _{PP}	12	A
Operating Supply Voltage (pin-1 to pin-2)	V _{DC}	7.7	V
ESD per IEC 61000-4-2 (Air)	V _{ESD-1}	±30	kV
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.			7.0	V
Reverse Leakage Current	I _{Leak}	V _{RWM} = 7V, T=25 °C, pin-1 to pin-2.			0.1	μA
Reverse Breakdown Voltage	V _{BV}	I _{BV} = 1mA, T=25 °C, pin-1 to pin-2.	8		10.5	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=8/20μs, T=25 °C, pin-1 to pin-2.		9.2		V
ESD Clamping Voltage (Note 1)	V _{clamp}	IEC 61000-4-2 +8kV (I _{TLP} = 16A), Contact mode, T=25 °C, pin-1 to pin-2.		10		V
ESD Dynamic Turn-on Resistance	R _{dynamic}	IEC 61000-4-2 0~+8kV, T= 25 °C, Contact mode, pin-1 to pin-2.		0.1		Ω
Channel Input Capacitance	C _{IN}	V _R = 0V, f = 1MHz, T=25 °C, pin-1 to pin-2.		160	200	pF

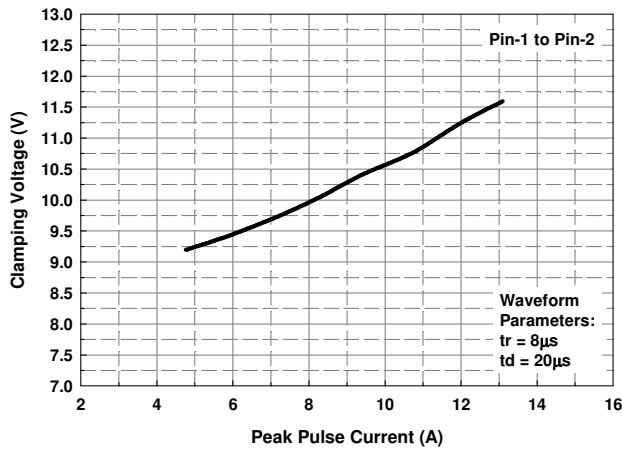
Note 1: ESD Clamping Voltage was measured by Transmission Line Pulsing (TLP) System.

TLP conditions: Z₀= 50Ω, t_p= 100ns, t_r= 1ns.

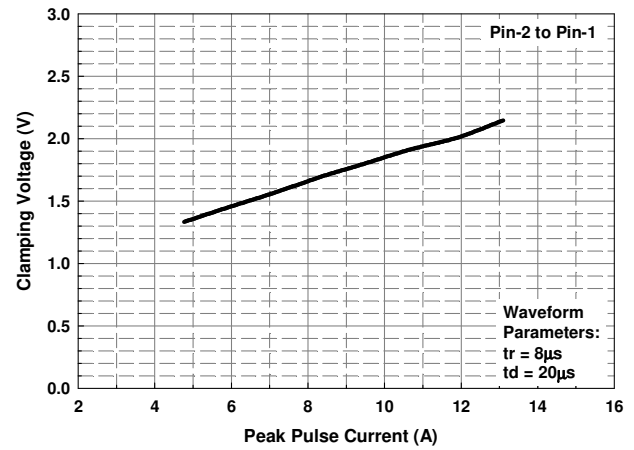


Typical Characteristics

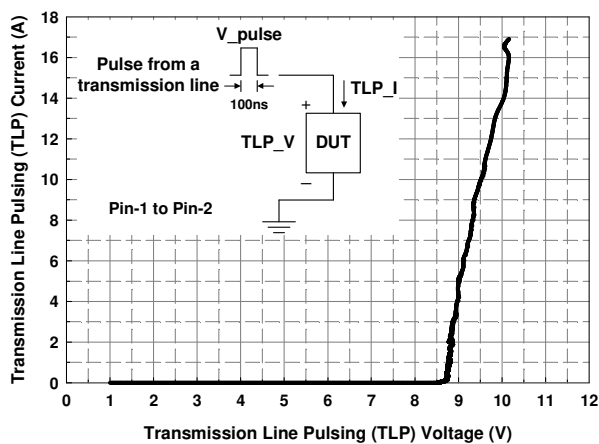
Reverse Clamping Voltage vs. Peak Pulse Current



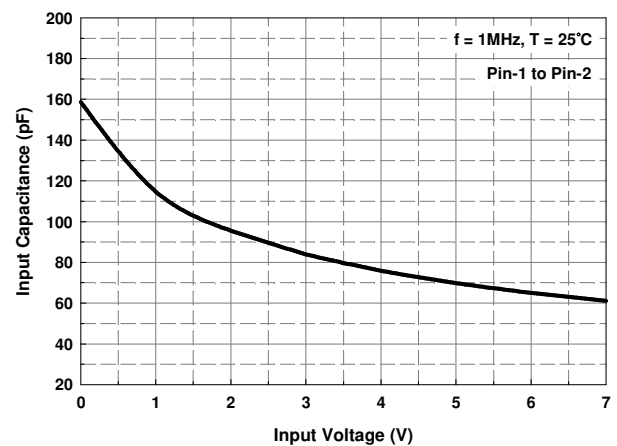
Forward Clamping Voltage vs. Peak Pulse Current



Transmission Line Pulsing (TLP) Measurement



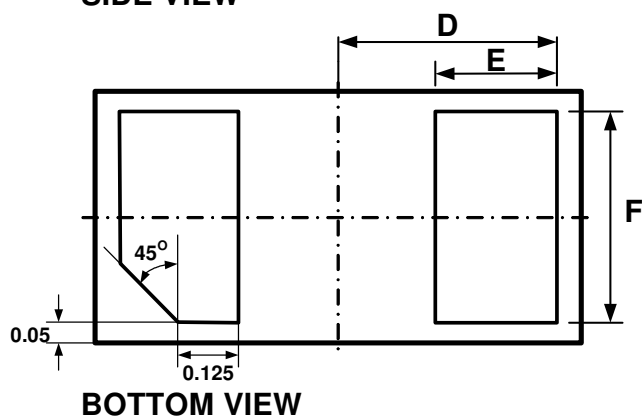
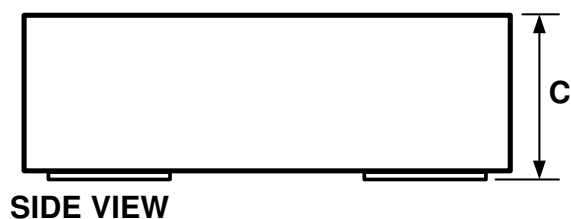
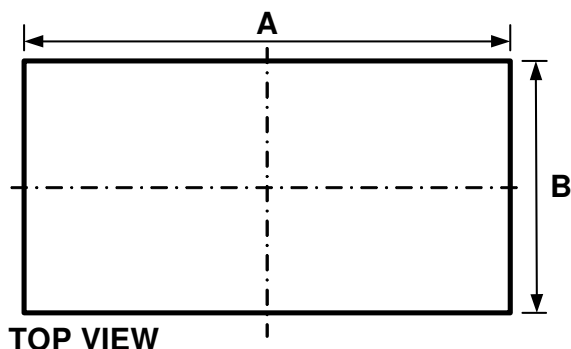
Typical Variation of C_{IN} vs. V_{IN}



Mechanical Details

DFN1006P2X

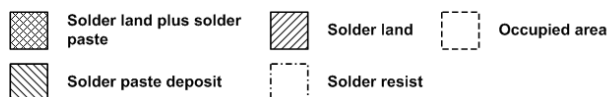
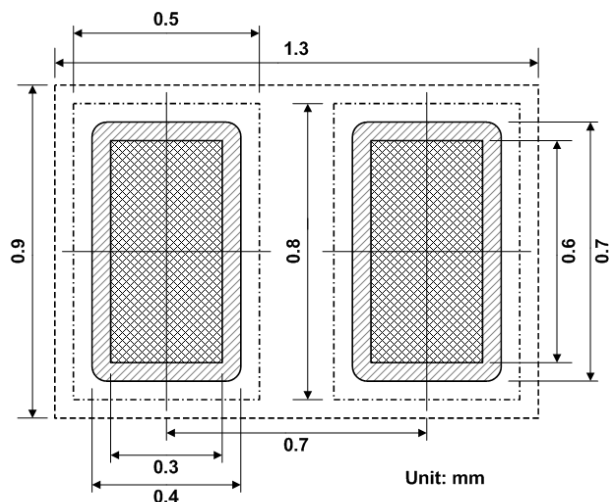
PACKAGE DIAGRAMS



PACKAGE DIMENSIONS

Symbol	Millimeters		Inches	
	min	max	min	max
A	0.95	1.05	0.037	0.041
B	0.55	0.65	0.022	0.026
C	0.41	0.55	0.016	0.022
D	0.45		0.018	
E	0.20	0.30	0.008	0.012
F	0.45	0.55	0.018	0.022

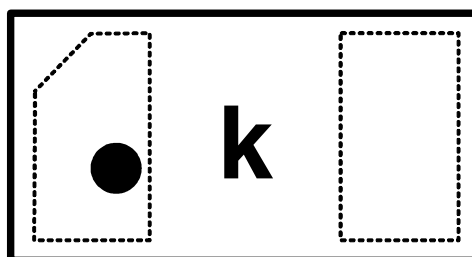
LAND LAYOUT



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



Top View

k = Device Code

Part Number	Marking Code
AZ4107-01F.R7GR (Green Part)	k

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

Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
AZ4107-01F.R7GR	Green	T/R	7 inch	12,000/reel	4 reels = 48,000/box	6 boxes = 288,000/carton

Revision History

Revision	Modification Description
Revision 2015/04/27	Preliminary Release.
Revision 2017/05/15	Formal Release.