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) 80A (8/20μs)
- For operating voltage of 5.0V and below
- **1.6mm x 1.0mm DFN package** saves board space
- High surge protection
- Fast turn-on and Low clamping voltage
- Solid-state silicon-avalanche and active circuit triggering technology
- ***Green Part***

Applications

- **Power Line Protection**
- **Vbat pin for Mobile Device**
- **Hand Held Portable Applications**
- **Battery Protection**
- **Mobile Phones**

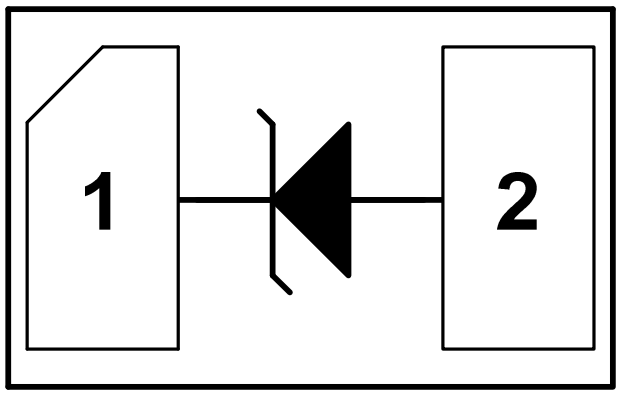
Description

AZ3105-01F 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 systems. The AZ3105-01F 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).

AZ3105-01F 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.

AZ3105-01F 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



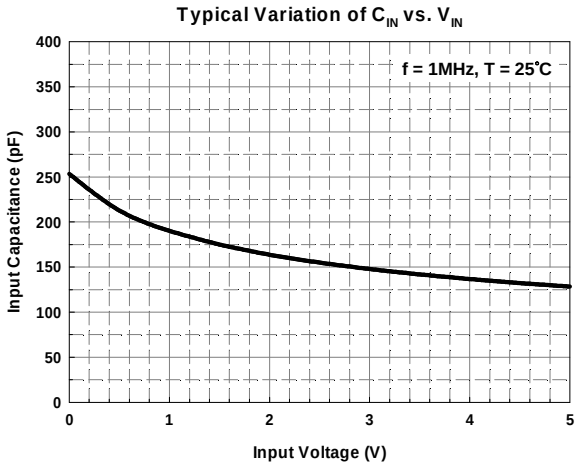
DFN1610P2E (Bottom View)

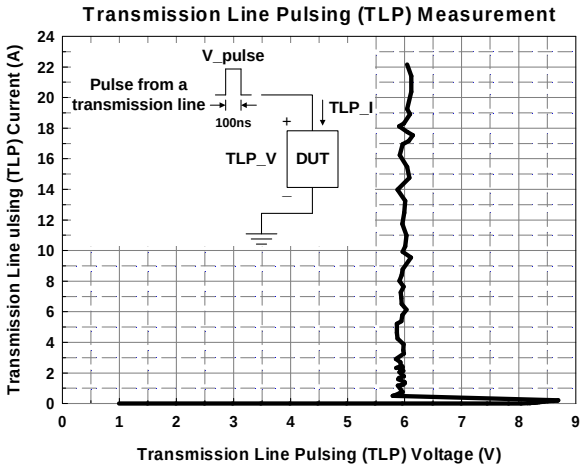
SPECIFICATIONS

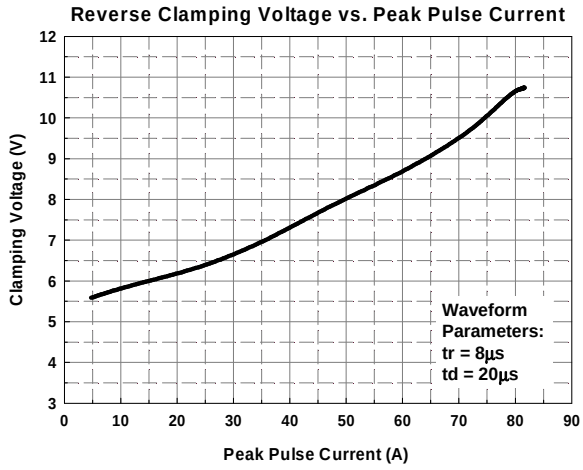
ABSOLUTE MAXIMUM RATINGS			
PARAMETER	**SYMBOL**	**RATING**	**UNITS**
Peak Pulse Current (tp=8/20μs)	I_{PP}	80	A
Operating Supply Voltage (pin-1 to pin-2)	V_{DC}	5.5	V
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±30 ±30	kV
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	°C
Operating Temperature	T_{OP}	-55 to +85	°C
Storage Temperature	T_{STO}	-55 to +150	°C

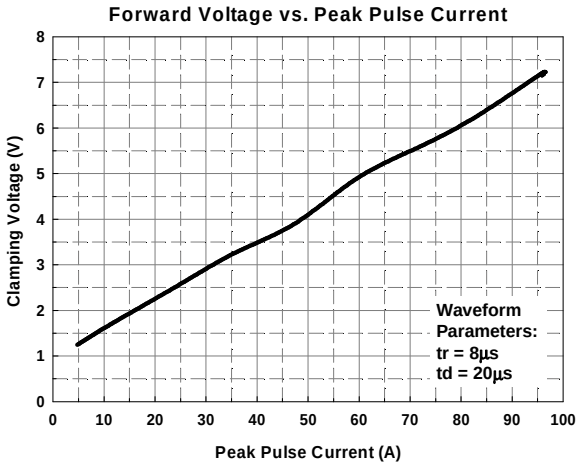
ELECTRICAL CHARACTERISTICS						
PARAMETER	**SYMBOL**	**CONDITIONS**	**MINI**	**TYP**	**MAX**	**UNITS**
Reverse Stand-Off Voltage	V_{RWM}	Pin-1 to pin-2, T=25 °C.			5.0	V
Reverse Leakage Current	I_{Leak}	V_{RWM} = 5.0V, T=25 °C, pin-1 to pin-2.			1	μA
Reverse Breakdown Voltage	V_{BV}	I_{BV} = 1mA, T=25 °C, pin-1 to pin-2.	6.0		9.0	V
Forward Voltage	V_F	I_F = 15mA, T=25 °C, pin-2 to pin-1.	0.6		1	V
Surge Clamping Voltage	$V_{CL-surge}$	I_{PP}= 5A, tp=8/20μs, T=25 °C, pin-1 to pin-2.		5.7		V
		I_{PP}= 40A, tp=8/20μs, T=25 °C, pin-1 to pin-2.		7.0		
		I_{PP}= 80A, tp=8/20μs, T=25 °C, pin-1 to pin-2.		10.5		
ESD Clamping Voltage	V_{clamp}	IEC 61000-4-2 +6kV, Contact mode, T=25 °C, pin-1 to pin-2		6.0		V
ESD Dynamic Turn-on Resistance	$R_{dynamic}$	IEC 61000-4-2 0~+6kV, T=25 °C, Contact mode, pin-1 to pin-2.		0.01		Ω
Channel Input Capacitance	C_{IN}	V_R = 0V, f = 1MHz, T=25 °C, pin-1 to pin-2.		250	300	pF

Typical Characteristics



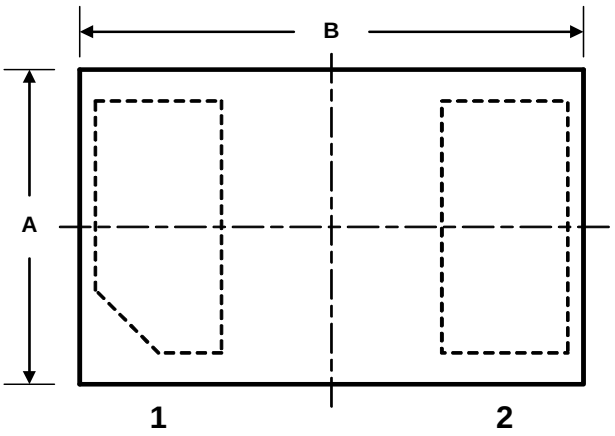




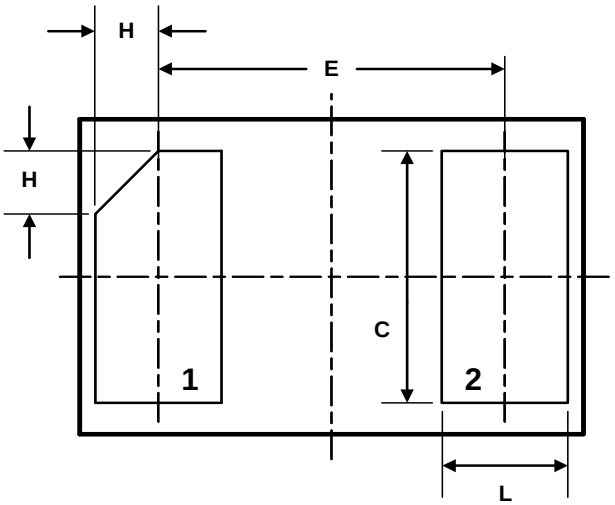


Mechanical Details

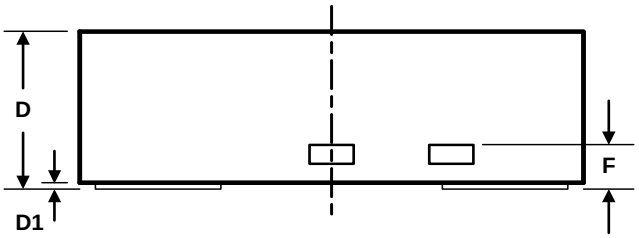
DFN1610P2E
PACKAGE DIAGRAMS



Top View



Bottom View



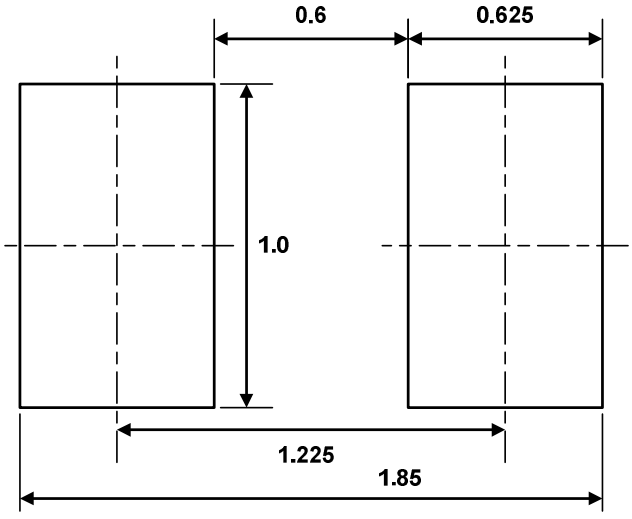
Side View

PACKAGE DIMENSIONS

SYMBOL	Millimeter		
	Min.	Typ.	Max.
A	0.95	1.00	1.05
B	1.55	1.60	1.65
C	0.75	0.80	0.85
D	0.45	0.50	0.55
D1	-	0.02	0.05
E	1.10BSC		
F	0.10	0.15	0.20
H	0.15	0.20	0.25
L	0.35	0.40	0.45

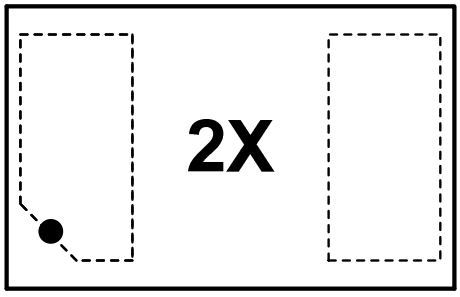
LAND LAYOUT

Unit: mm



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

2 = Device Code
X = Date Code

Part Number	Marking Code
AZ3105-01F (Green Part)	2X

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

Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
AZ3105-01F.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 2014/07/29	Preliminary Release.
Revision 2015/03/13	Formal Release.