

Features

- ESD Protection for 1 line with Uni-directional
- Provide ESD protection for the protected line to **IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 10\text{kV}$ (contact)**
- **Ultra low capacitance: 0.8pF typical**
- For low operating voltage applications: **5V and below**
- **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

- Antenna applications
- Hand Held Portable Applications
- USB2.0
- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- Display Port
- Desktop and Notebooks PCs
- Consumer Applications

Description

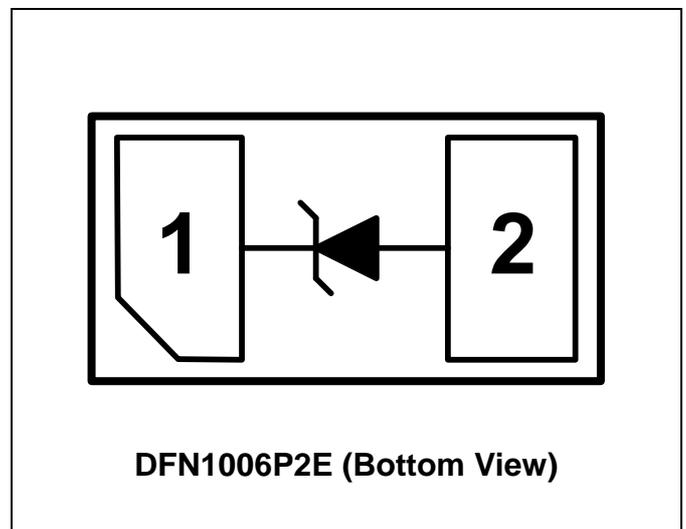
AZ5215-01F is a design which includes a uni-directional ESD rated clamping cell to protect high speed data interfaces in an electronic systems. The AZ5215-01F has been specifically designed to protect sensitive components which are connected to data and transmission lines from over-voltage caused by Electrostatic Discharging (ESD).

AZ5215-01F is a unique design which includes proprietary clamping cell with ultra low capacitance in a small package. During transient conditions, the proprietary clamping cell prevent

over-voltage on the control/data/power line, protecting any downstream components.

AZ5215-01F 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





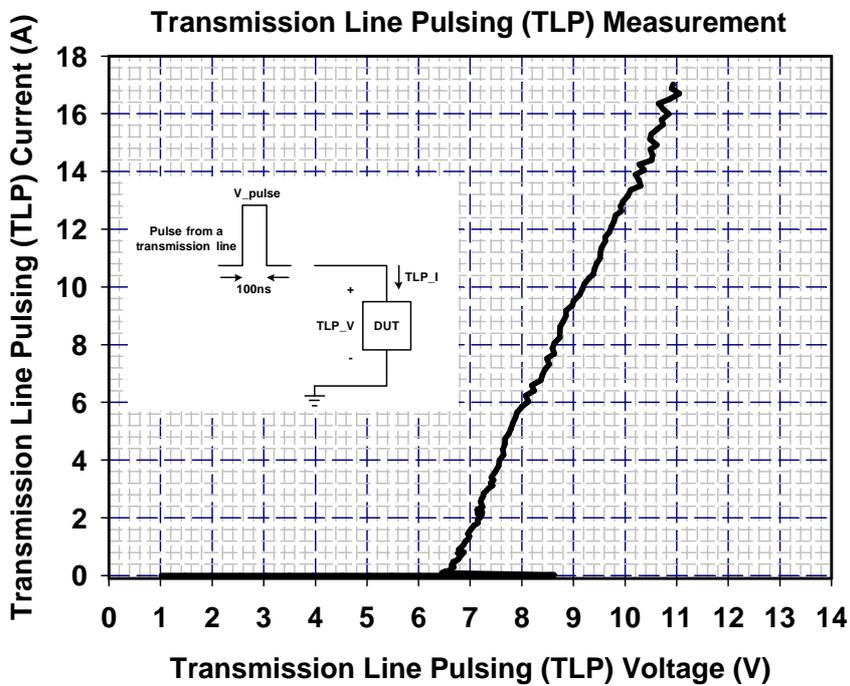
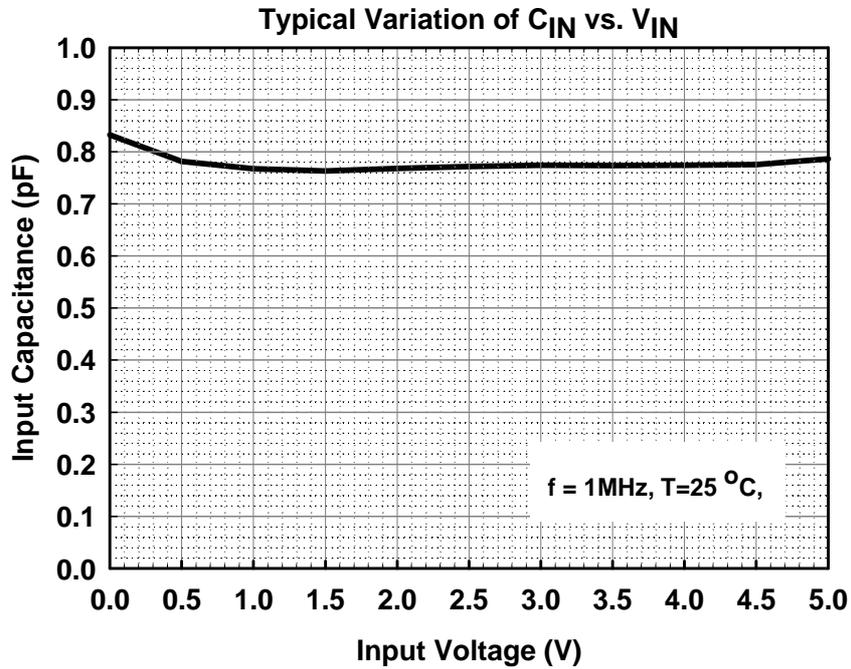
SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	SYMBOL	RATING	UNITS
Operating Supply Voltage (pin-1 to pin-2)	V_{DC}	6	V
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 10	
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	$^{\circ}C$
Operating Temperature	T_{OP}	-55 to +85	$^{\circ}C$
Storage Temperature	T_{STO}	-55 to +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS						
PARAMETER	SYMBOL	CONDITIONS	MINI	TYP	MAX	UNITS
Reverse Stand-Off Voltage	V_{RWM}	$T=25^{\circ}C$.			5	V
Reverse Leakage Current	I_{Leak}	$V_{RWM}=5V, T=25^{\circ}C$.			1	μA
Reverse Breakdown Voltage	V_{BV}	$I_{BV}=1mA, T=25^{\circ}C$.	6			V
Forward Voltage	V_F	$I_F=15mA, T=25^{\circ}C$.	0.6	0.8	1	V
ESD Clamping Voltage	V_{clamp}	IEC 61000-4-2 6kV, Contact mode, $T=25^{\circ}C$, I/O to GND		12		V
ESD Dynamic Turn-on Resistance	$R_{dynamic}$	IEC 61000-4-2, 0~6kV, Contact mode, $T=25^{\circ}C$, I/O to GND		0.3		Ω
Channel Input Capacitance	C_{IN}	$V_R=2.5V, f=1MHz, T=25^{\circ}C$.		0.8	1	pF



Typical Characteristics



Applications Information

The AZ5215-01F is designed to protect one line against System ESD pulses by clamping it to an acceptable reference.

The usage of the AZ5215-01F is shown in Fig. 1. Protected lines, such as data lines, control lines, or power lines, are connected at pin 1. The pin 2 should be connected directly to a ground plane on the board. All path lengths connected to the pins of AZ5215-01F should be kept as short as possible to minimize parasitic inductance in the board traces.

In order to obtain enough suppression of ESD induced transient, good circuit board is critical.

Thus, the following guidelines are recommended:

- Minimize the path length between the protected lines and the AZ5215-01F.
- Place the AZ5215-01F near the input terminals or connectors to restrict transient coupling.
- The ESD current return path to ground should be kept as short as possible.
- Use ground planes whenever possible.
- NEVER route critical signals near board edges and near the lines which the ESD transient easily injects to.

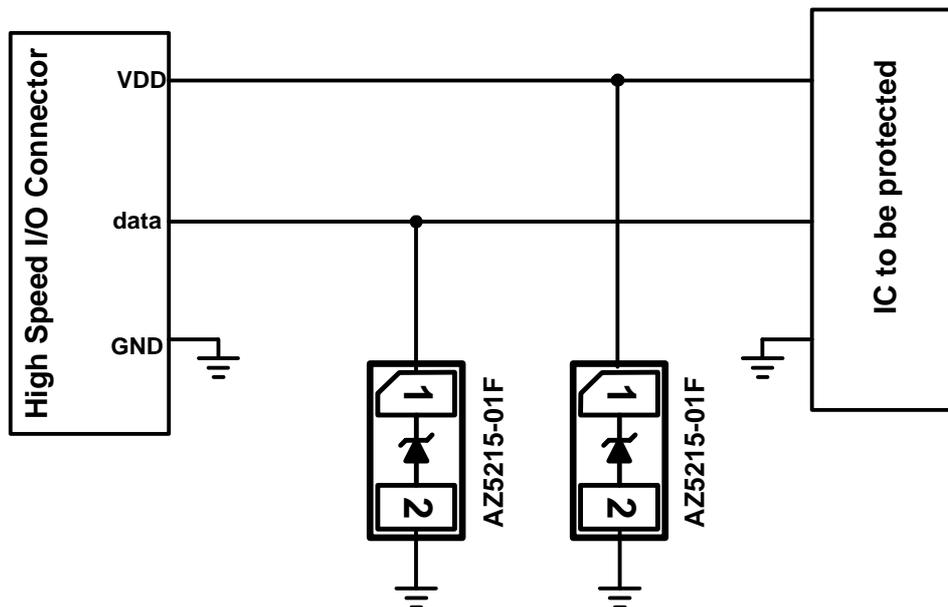


Fig. 1



Fig. 2 shows another simplified example of using AZ5215-01F to protect the control lines, high speed data lines, and power lines from ESD transient stress.

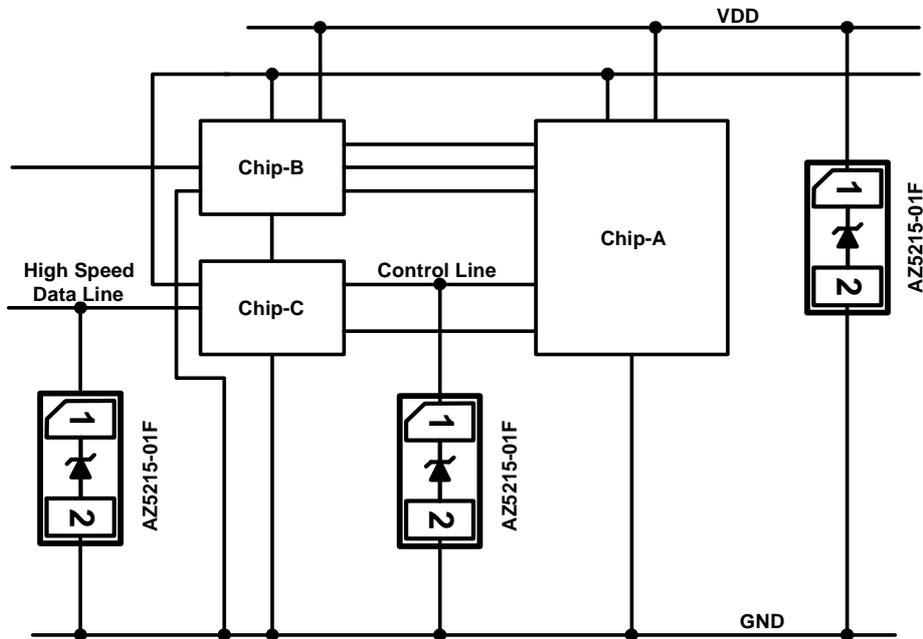
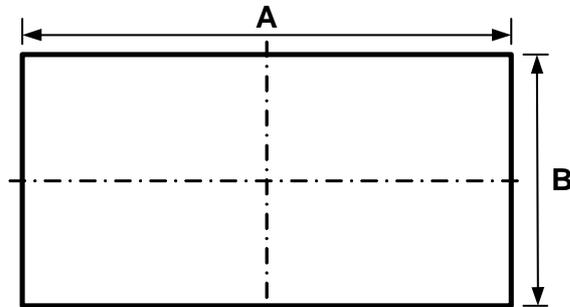


Fig. 2



Mechanical Details

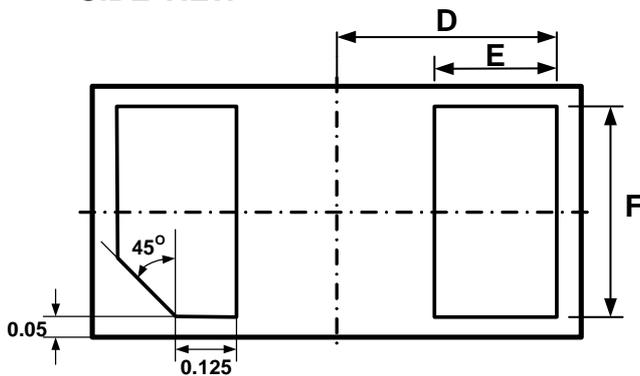
DFN1006P2E PACKAGE DIAGRAMS



TOP VIEW



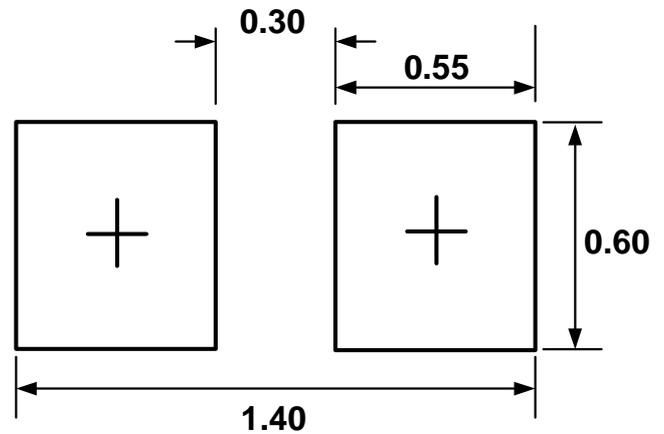
SIDE VIEW



BOTTOM VIEW

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	0.45	0.60	0.018	0.024
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

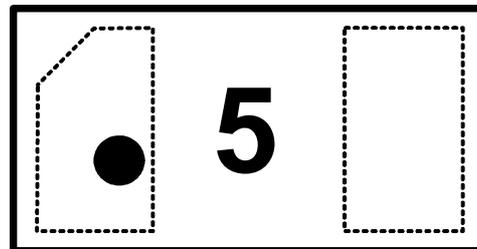


(Unit: mm)

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

Part Number	Marking Code
AZ5215-01F (Green Part)	5

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



Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
AZ5215-01F.R7GR	Green	T/R	7 inch	12,000/reel	4 reel=48,000/box	6 box=288,000/carton

Revision History

Revision	Modification Description
Revision 2010/04/15	Preliminary Release.
Revision 2010/07/07	1. Update the dimension tolerances of E, F, in the Package Diagrams. 2. Eliminate the C1 dimension.
Revision 2010/07/13	In Package Diagrams, add the tolerant values for "A" and "B".
Revision 2010/11/22	Formal Release
Revision 2011/07/30	1. Update the Company Logo. 2. Add the Ordering Information.
Revision 2014/10/02	1. Update the dimension tolerances of C in the Package Diagrams. 2. Update the Ordering Information.
Revision 2015/01/29	Update the Ordering Information.