



Features

- ESD Protection for 1 Line with Bi-directional
- Provide ESD protection for the protected line to IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- **Ultra low capacitance: 0.5pF typical**
- Suitable for, **17V and below**, operating voltage applications
- **0402 small DFN package** saves board space
- Protect one I/O 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
- Desktop and Notebooks PCs
- Consumer Applications

Description

AZ4217-01F is a design which includes a bi-directional ESD rated clamping cell to protect high speed data interfaces in an electronic systems. The AZ4217-01F has been specifically designed to protect sensitive components which are connected to data and transmission lines from over-voltage caused by Electrostatic Discharging (ESD).

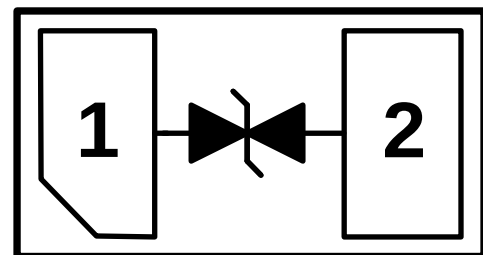
AZ4217-01F is a unique design which includes proprietary clamping cells with ultra low capacitance in a small package. During transient conditions, the proprietary clamping cells prevent

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

AZ4217-01F is bi-directional and may be used on lines where the signal swings above and below ground.

AZ4217-01F 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



DFN1006P2E (Bottom View)

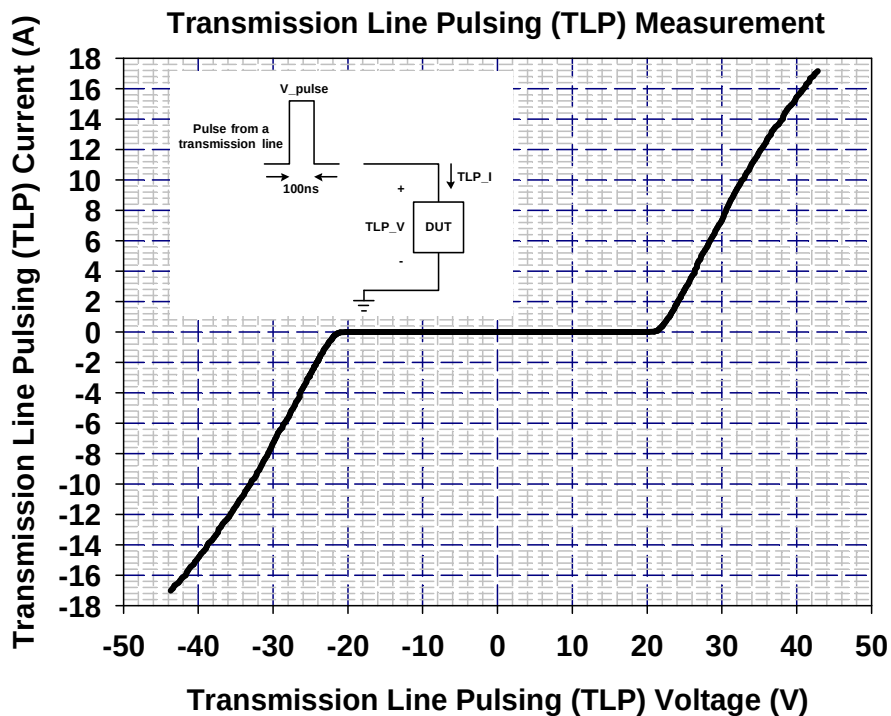
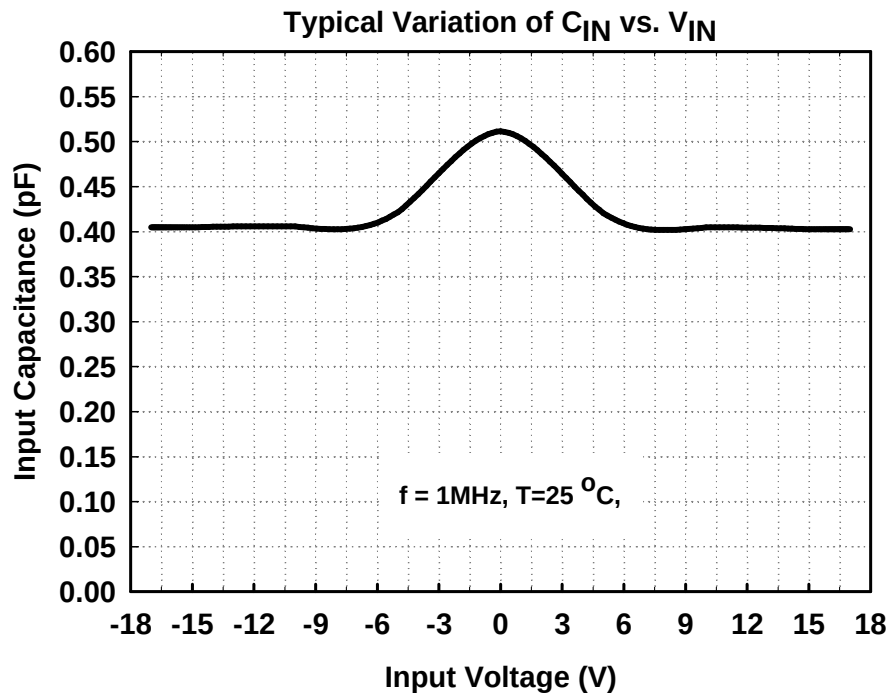
SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	SYMBOL	RATING	UNITS
Operating DC Voltage (I/O to GND)	V_{DC}	± 18	V
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 8	kV
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	$^{\circ}C$
Operating Temperature	T_{OP}	-40 to +85	$^{\circ}C$
Storage Temperature	T_{STO}	-55 to +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS						
PARAMETER	SYMBOL	CONDITIONS	MINI	TYP	MAX	UNITS
Stand-Off Voltage	V_{RWM}	$T=25^{\circ}C$, I/O to GND, or GND to I/O.			17	V
Leakage Current	I_{Leak}	$V_{RWM} = 17V$, $T=25^{\circ}C$, I/O to GND, or GND to I/O.			1	μA
Breakdown Voltage	V_{BV}	$I_{BV} = 1mA$, $T=25^{\circ}C$, I/O to GND, or GND to I/O.	18.7			V
ESD Clamping Voltage	V_{clamp}	IEC 61000-4-2, 6kV Contact mode, $T=25^{\circ}C$, I/O to GND, or GND to I/O.		45		V
ESD Dynamic Turn-on Resistance	$R_{dynamic}$	IEC 61000-4-2, 0~6kV, Contact mode, $T=25^{\circ}C$, I/O to GND, or GND to I/O.		1.3		Ω
Input Capacitance	C_{IN}	$V_R = 0V$, $f = 1MHz$, $T=25^{\circ}C$, I/O to GND.		0.5	0.65	pF



Typical Characteristics



Applications Information

The AZ4217-01F is designed to protect one line against System ESD pulse by clamping it to an acceptable reference. It provides bi-directional protection.

The usage of the AZ4217-01F is shown in Fig. 1. Protected line, such as data line, control line, or power line, is connected at pin 1. The pin 2 is connected to a ground plane on the board. In order to minimize parasitic inductance in the board traces, all path lengths connected to the pins of AZ4217-01F should be kept as short as possible.

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 AZ4217-01F.
- Place the AZ4217-01F 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.

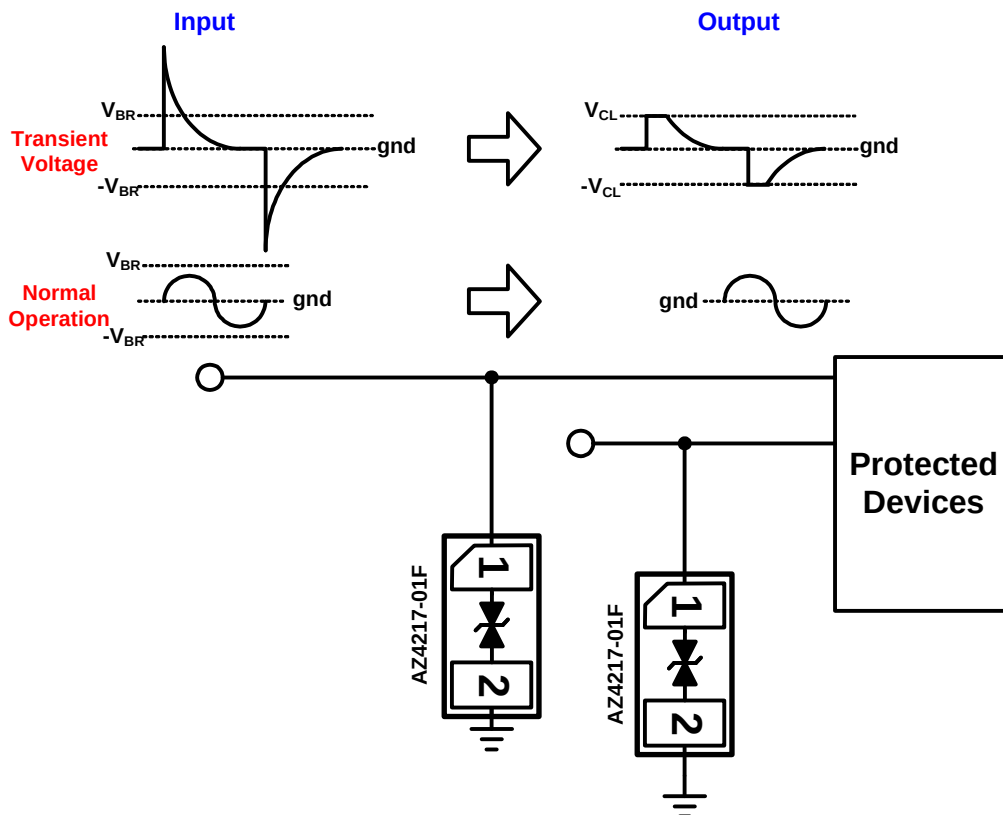


Fig. 1

Fig. 2 shows another simplified example of using AZ4217-01F to protect the control line, high speed data line, and power line from ESD transient stress.

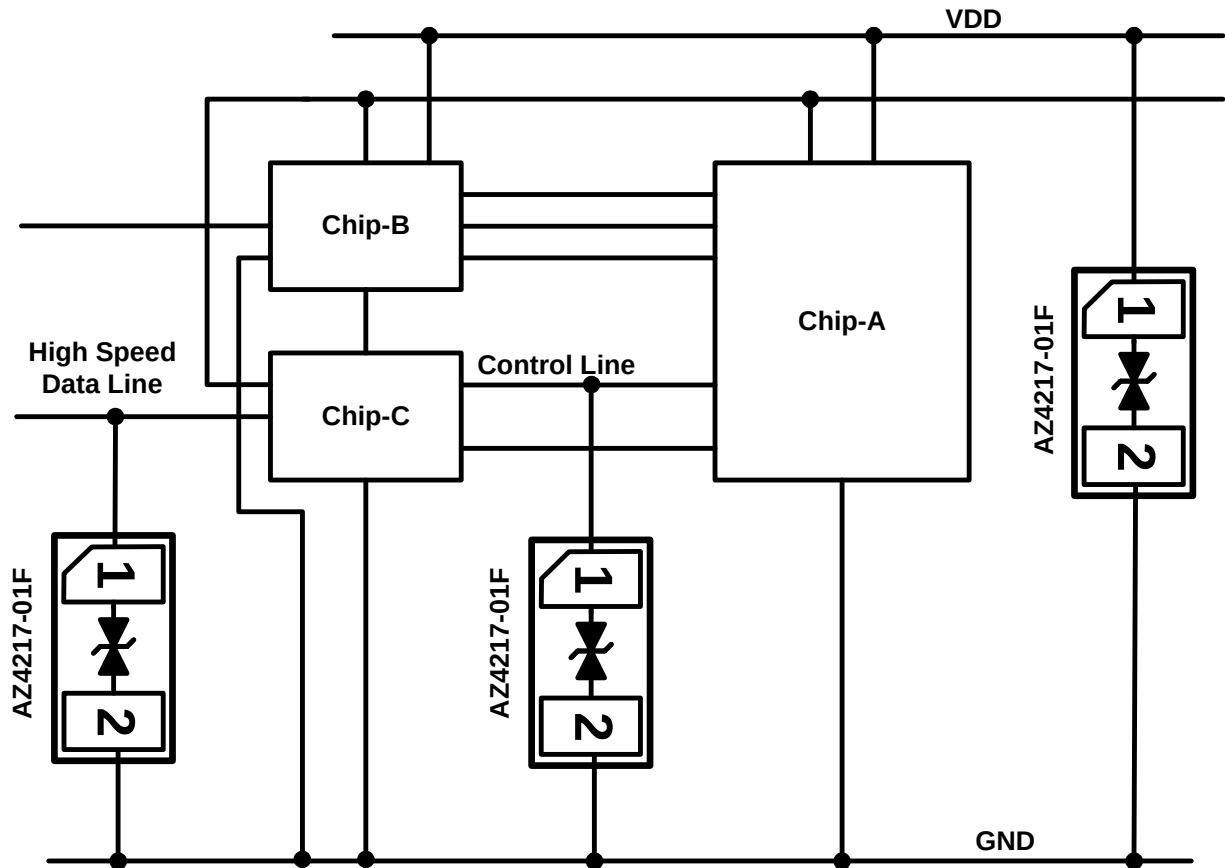
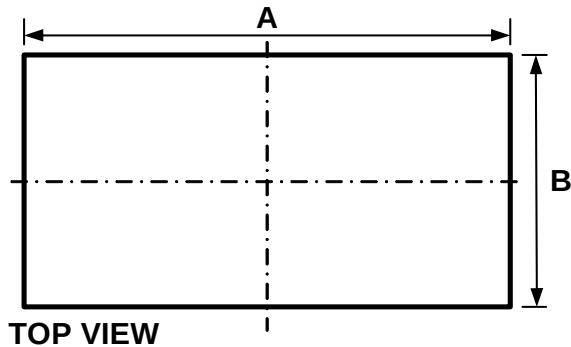


Fig. 2



Mechanical Details

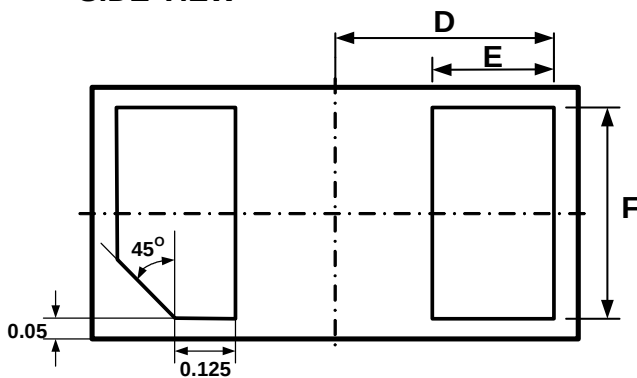
DFN1006P2E
PACKAGE DIAGRAMS



TOP VIEW



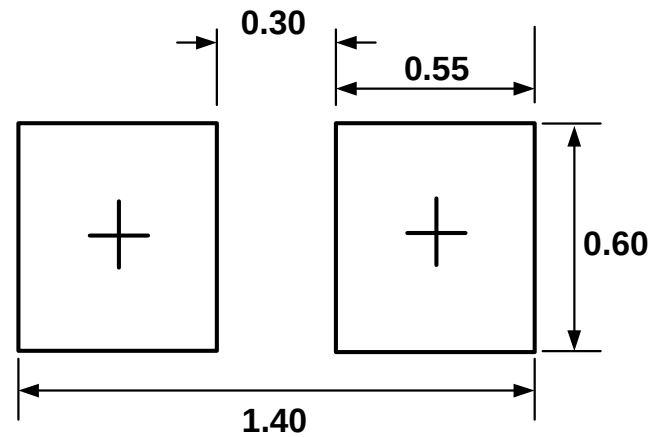
SIDE VIEW



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

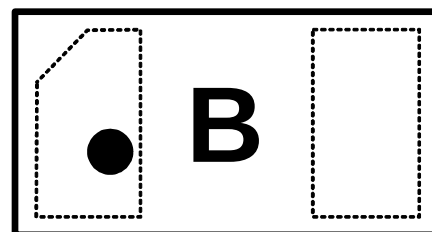


(Unit: mm)

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



Part Number	Marking Code
AZ4217-01F (Green Part)	B

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

Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
AZ4217-01F.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 2010/01/05	Preliminary Release.
Revision 2010/03/15	Update the dimensions in Package Diagrams and Land Layout.
Revision 2010/07/05	Formal Release.
Revision 2010/07/07	Update the dimension tolerances of E, F, in the Package Diagrams.
Revision 2010/07/13	In Package Diagrams, add the tolerant values for "A" and "B".
Revision 2011/07/28	1. Update the Company Logo. 2. Add the Ordering Information.
Revision 2014/09/10	1. Update the dimension tolerances of C in the Package Diagrams. 2. Update the Ordering Information.
Revision 2015/01/29	Update the Ordering Information.