

Features

- ESD Protect for 1 Line with Bi-directional
- Provide ESD protection for the protected line to IEC 61000-4-2 (ESD) ±20kV (air), ±18kV (contact)
 IEC 61000-4-4 (EFT) 40A (5/50ns)
 Cable Discharge Event (CDE)
- 0201 small DFN package saves board space
- Protect one I/O line or one power line
- Fast turn-on and Low clamping voltage
- For operating voltage of 24V and below
- Solid-state silicon-avalanche and active circuit triggering technology
- Green Part

Applications

- Mobile Phones
- Hand Held Portable Applications
- Computer Interfaces Protection
- Microprocessors Protection
- Serial and Parallel Ports Protection
- Control Signal Lines Protection
- Power lines on PCB Protection
- Latchup Protection

Description

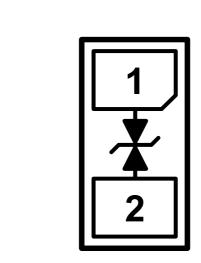
AZ4A24-01F is a design which includes one Bi-directional ESD rated clamping cell to protect one power line, or one control line, or one low speed data line in an electronic systems. The AZ4A24-01F has been specifically designed to protect sensitive components which are connected to power and control lines from over-voltage damage and latch-up caused by Electrostatic Discharging (ESD), Electrical Fast Transients (EFT), and Cable Discharge Event (CDE).

AZ4A24-01F 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.

AZ4A24-01F 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



DFN0603P2Y (Bottom View) (0.6mm x 0.3mm x 0.3mm)



SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	SYMBOL	RATING	UNITS
Operating Supply Voltage	V _{DC}	±26.4	V
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±20	kV
ESD per IEC 61000-4-2 (Contact)		±18	
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

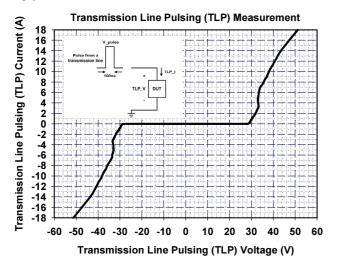
ELECTRICAL CHARACTERISTICS						
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Stand-Off Voltage	V_{RWM}	T=25 °C.	-24		24	٧
Leakage Current	I _{Leak}	V _{RWM} = ±24V, T=25 °C			0.1	μΑ
Breakdown Voltage	V _{BV}	I _{BV} = 1mA, T=25 °C	26.8		31.3	V
ESD Clamping Voltage (Note 1)	V _{clamp}	IEC 61000-4-2 +8kV (I _{TLP} = 16A), T=25 °C, Contact mode.		48		V
ESD Dynamic Turn-on Resistance	R _{dynamic}	IEC 61000-4-2, 0~+8kV, T=25 °C, Contact mode		1.2		Ω
Channel Input Capacitance	C _{IN}	V _R = 0V, f = 1MHz, T=25 °C.		5.8	9	pF

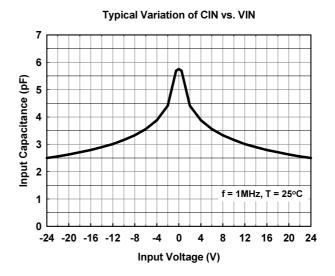
Note 1: ESD Clamping Voltage was measured by Transmission Line Pulsing (TLP) System.

TLP conditions: Z_0 = 50 Ω , t_p = 100ns, t_r = 1ns.



Typical Characteristics







Applications Information

The AZ4A24-01F is designed to protect one line against System ESD / EFT / Cable-Discharge pulses by clamping it to an acceptable reference. It provides bi-directional protection.

The usage of the AZ4A24-01F 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 AZ4A24-01F 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 AZ4A24-01F.
- Place the AZ4A24-01F 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.

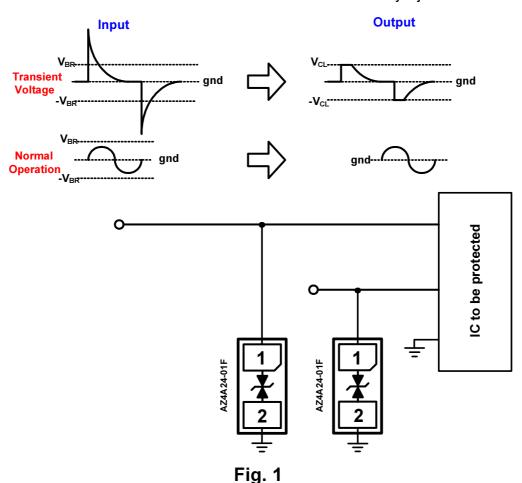


Fig. 2 shows another simplified example of using AZ4A24-01F to protect the control line, low

speed data line, and power line from ESD transient stress.

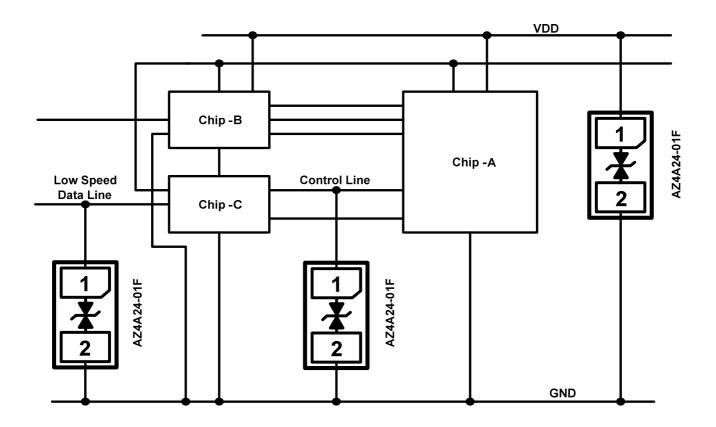
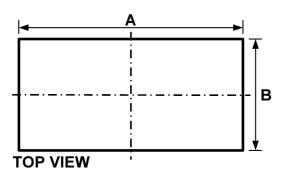


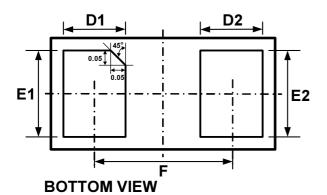
Fig. 2



Mechanical Details DFN0603P2Y PACKAGE DIAGRAMS

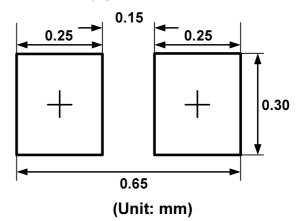






SYMBOL	Millimeters			
	MIN.	NOM.	MAX.	
Α	0.55	0.60	0.65	
В	0.25	0.30	0.35	
С	0.28	0.30	0.32	
C1	0.00	0.02	0.05	
D1	0.13	0.18	0.23	
D2	0.14	0.19	0.24	
E1/E2	0.20	0.25	0.30	
F		0.35		

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



Part Number	Marking Code	
AZ4A24-01F	ť	
(Green Part)	'	

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



Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
AZ4A24-01F.R7G	Green	T/R	7 inch	12,000/reel	4 reel= 48,000/box	6 box =288,000/carton

Revision History

Revision	Modification Description
Revision 2015/03/24	Preliminary Release.
Revision 2015/09/25	1. Update the ESD level per IEC61000-4-2.
	2. Add the EFT level per IEC61000-4-4.
Revision 2015/12/03	Formal Release.