

## ESD Protection Diodes

## AZ4024E

## Features

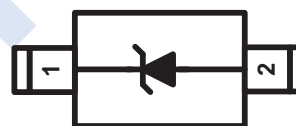
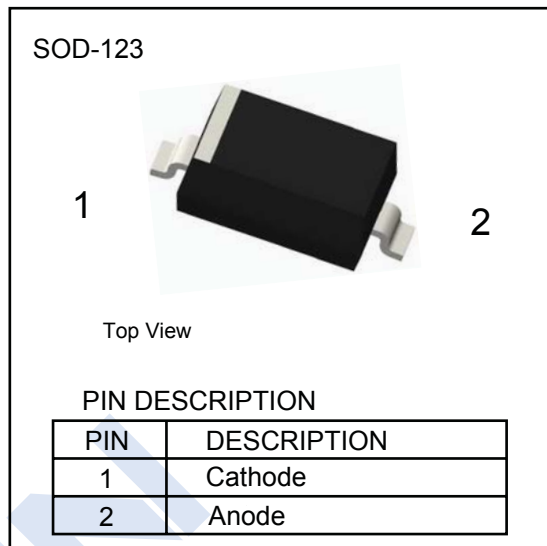
- ESD/Surge Protection for 1 Line with Unidirectional.
- Provide ESD protection for each line to  
**IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (air / contact)**  
**IEC 61000-4-4 (EFT) 80A (5/50ns)**  
**IEC 61000-4-5 (Lightning) 25A (8/20 $\mu\text{s}$ )**
- Suitable for, **24V and below**, operating voltage applications
- Small 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

- Battery Contacts
- Power Manager System
- PDA's
- Portable Devices
- Digital Cameras
- Digital Frames
- Cellular Handsets and Accessories
- Notebooks, desktops, and servers
- Microprocessor-based equipment
- Peripherals

## Description

AZ4024E 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 AZ4024E 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).

AZ4024E 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.

AZ4024E 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).

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## ■ Absolute Maximum Ratings

PARAMETER	SYMBOL	RATING	UNITS
Peak Pulse Current (tp =8/20μs)	I <sub>PP</sub>	25	A
Operating Supply Voltage (pin-1 to pin-2)	V <sub>DC</sub>	26.4	V
Pin-1 to pin-2 ESD per IEC 61000-4-2 (Air)	V <sub>ESD-1</sub>	±30	kV
Pin-1 to pin-2 ESD per IEC 61000-4-2 (Contact)	V <sub>ESD-2</sub>	±30	
Lead Soldering Temperature	T <sub>SOL</sub>	260 (10 sec.)	°C
Operating Temperature	T <sub>OP</sub>	-55 to +85	°C
Storage Temperature	T <sub>STO</sub>	-55 to +150	°C

## ■ Electrical Characteristics

PARAMETER	SYMBOL	CONDITIONS	MINI	TYP	MAX	UNITS
Reverse Stand-Off Voltage	V <sub>RWM</sub>	Pin-1 to pin-2, T=25 °C.			24	V
Reverse Leakage Current	I <sub>Leak</sub>	V <sub>RWM</sub> = 24V, T=25 °C, pin-1 to pin-2.			1	μA
Reverse Breakdown Voltage	V <sub>BV</sub>	I <sub>BV</sub> = 1mA, T=25 °C, pin-1 to pin-2	26.7		29.5	V
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 15mA, T=25 °C, pin-2 to pin-1	0.6		1.2	V
Surge Clamping Voltage	V <sub>CL-surge</sub>	I <sub>PP</sub> =5A, tp=8/20us, T=25 °C, pin-1 to pin-2		30		V
ESD Clamping Voltage	V <sub>clamp</sub>	IEC 61000-4-2 +6kV, T=25 °C, Contact mode, pin-1 to pin-2.		32		V
ESD Dynamic Turn-on Resistance	R <sub>dynamic</sub>	IEC 61000-4-2 0~+6kV, T=25 °C, Contact mode, pin-1 to pin-2.		0.14		Ω
Channel Input Capacitance	C <sub>IN</sub>	V <sub>R</sub> = 0V, f = 1MHz, T=25 °C, pin-1 to pin-2.		450	540	pF

## ■ Marking

Marking	8X
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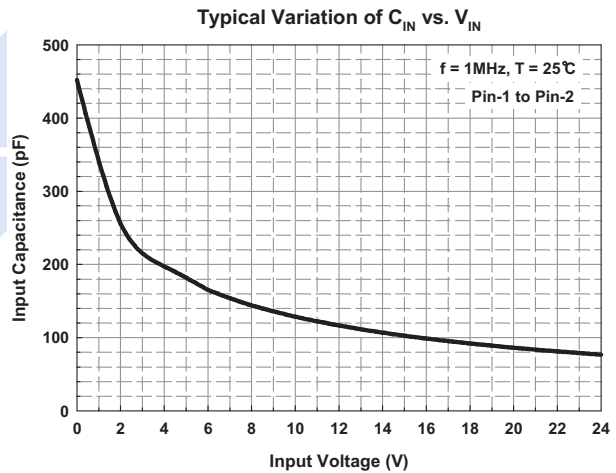
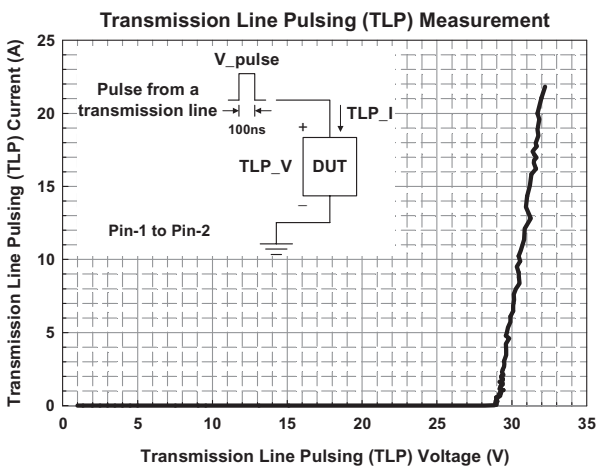
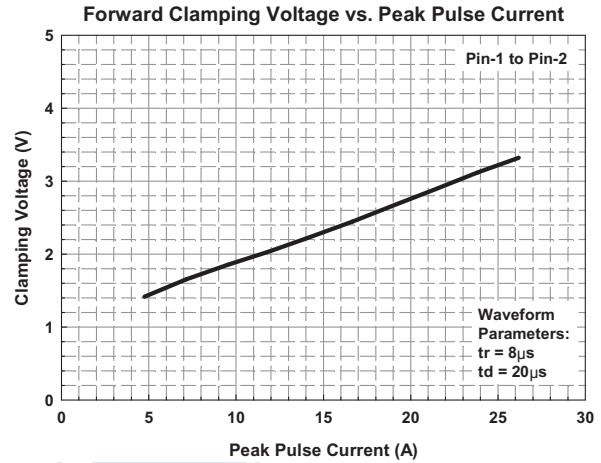
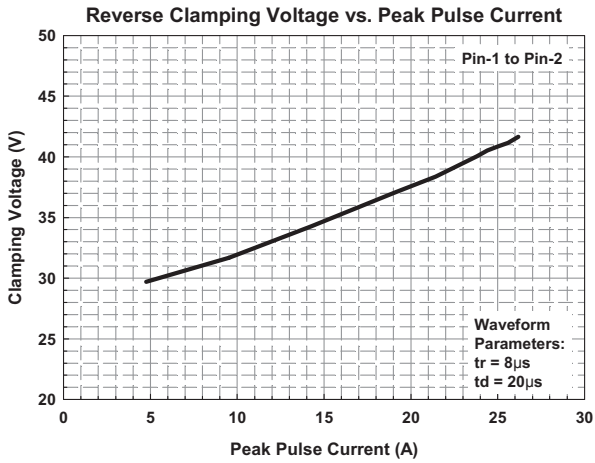
8 = Device Code

X = Date Code

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### ■ Typical Characteristics



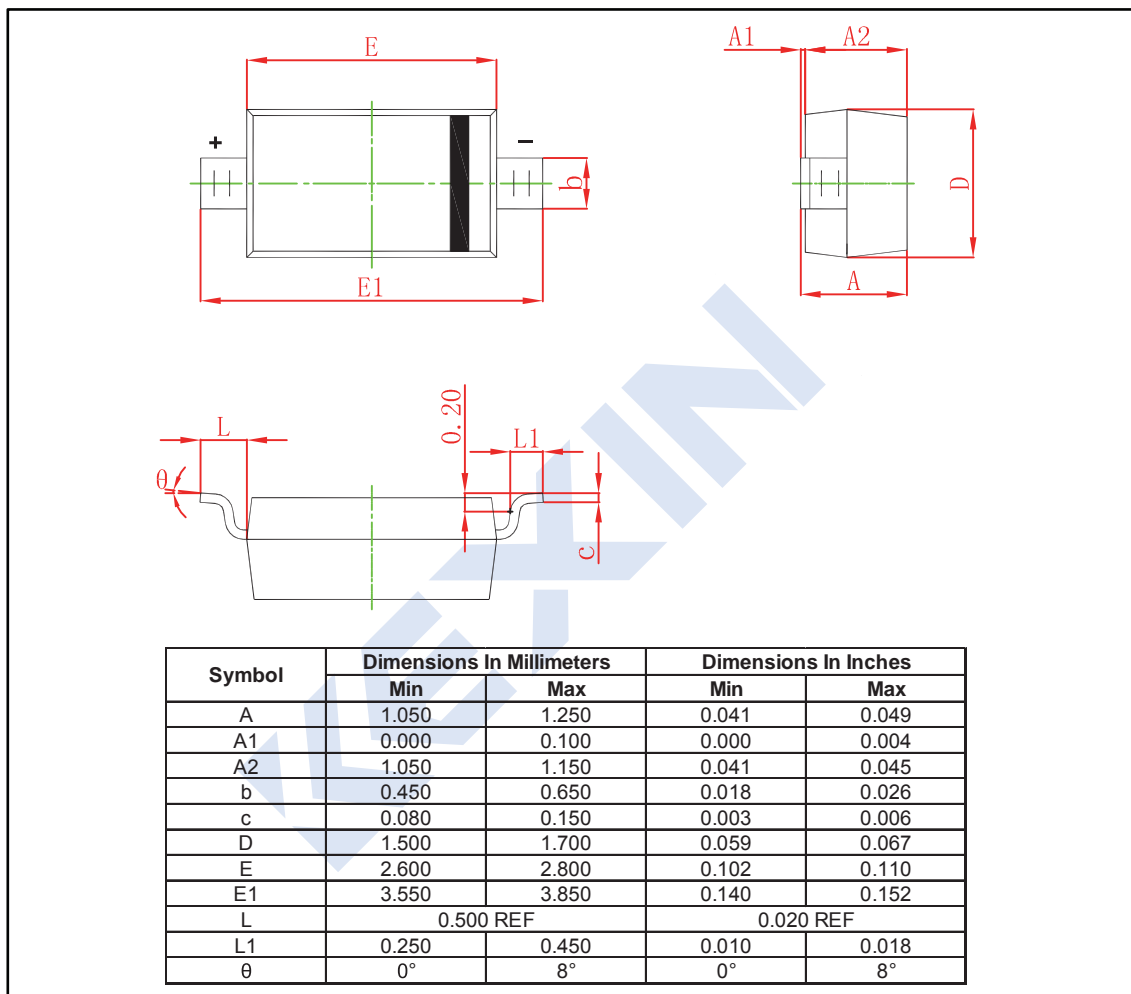
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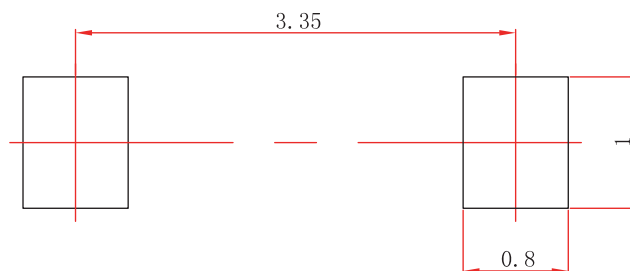
## ■ Package Outline Dimensions

Plastic surface mounted package; 2 leads

SOD-123



## ■ The Recommended Mounting Pad Size

**Note:**

1. Controlling dimension in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.