# AOZ8224CI-05

## Four-line Bi-directional TVS Diode

## General Description

The AOZ8224CI-05 is a four-line bi-directional transient voltage suppressor diode designed to protect voltage sensitive electronics from high transient conditions and ESD.

This device incorporates eight TVS diodes in a small SOT-23 package. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (± 15 kV air, ± 8 kV contact discharge).

The AOZ8224CI-05 comes in a SOT-23 package and is rated over a -40°C to +85°C ambient temperature range.

The small SOT-23 package makes the AOZ8224CI-05 ideal for applications where PCB space is a premium. The small size and high ESD protection is ideal for protecting voltage sensitive electronics from high transient conditions and ESD.

## Features

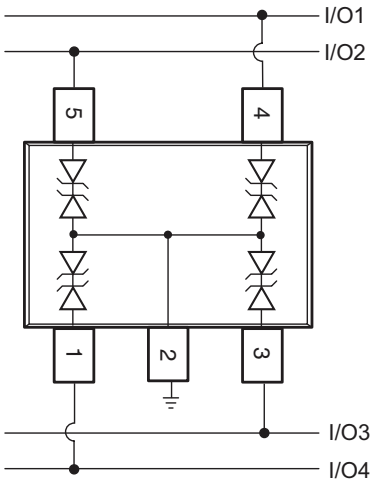
- ESD protection for high-speed data lines:
  - Exceeds IEC 61000-4-2 (ESD) ± 30 kV (air), ± 30 kV (contact)
  - Human Body Model (HBM) ± 30 kV
  - IEC 61000-4-5 (Lightning) 5 A (8/20 µs)
- IEC 61000-4-4 (EFT) ± 40A
- Small package saves board space
- Low insertion loss
- Low clamping voltage
- Low operating voltages: 5.0 V

## Applications

- Portable handheld devices
- Keypads, data lines, buttons
- Notebook computers
- Digital cameras
- Portable GPS
- MP3 players

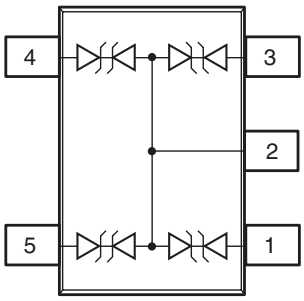
Green Product

## Typical Application




**Bidirection Protection of Four Lines**

## Pin Configuration




**SOT-23**
**(Top View)**

## Ordering Information

| Part Number | Ambient Temperature Range | Package | Environmental |
|---|---|---|---|
| AOZ8224CI-05 | -40°C to +85°C | SOT-23-5L | Green Product<br>RoHS Compliant |

AOS Green Products use reduced levels of Halogens, and are also RoHS compliant.
Please visit www.aosmd.com/media/AOSGreenPolicy.pdf for additional information.

## Absolute Maximum Ratings

*Exceeding the Absolute Maximum Ratings may damage the device.*

| Parameter | AOZ8224CI-05 |
|---|---|
| Peak Pulse Current, $t_P$ = 8/20 µs | 5 A |
| Peak Pulse Power, $t_P$ = 8/20 µs | 70 W |
| Storage Temperature ($T_S$) | -65°C to +150°C |
| ESD Rating per IEC61000-4-2, Contact(1) | ± 30 kV |
| ESD Rating per IEC61000-4-2, Air(1) | ± 30 kV |
| ESD Rating per Human Body Model(2) | ± 30 kV |

**Notes:**

1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150 pF, $R_{Discharge}$ = 330 Ω.
2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge}$ = 100 pF, $R_{Discharge}$ = 1.5 kΩ.

## Maximum Operating Ratings

*The device is not guaranteed to operate beyond the Maximum Operating Conditions.*

| Parameter | Rating |
|---|---|
| Junction Temperature ($T_J$) | -40°C to +85°C |

## Electrical Characteristics

$T_A$ = 25°C unless otherwise specified.

| Symbol | Parameter | | Symbol | Parameter |
|---|---|---|---|---|
| $I_{PP}$ | Maximum Reverse Peak Pulse Current | | $I_F$ | Forward Current |
| $V_{CL}$ | Clamping Voltage @ $I_{PP}$ | | $V_F$ | Forward Voltage |
| $V_{RWM}$ | Working Peak Reverse Voltage | | $P_{pk}$ | Peak Power Dissipation |
| $I_R$ | Maximum Reverse Leakage Current | | $C_J$ | Max. Capacitance @ $V_R$ = 0 and f = 1 MHz |
| $V_{BR}$ | Breakdown Voltage | | | |

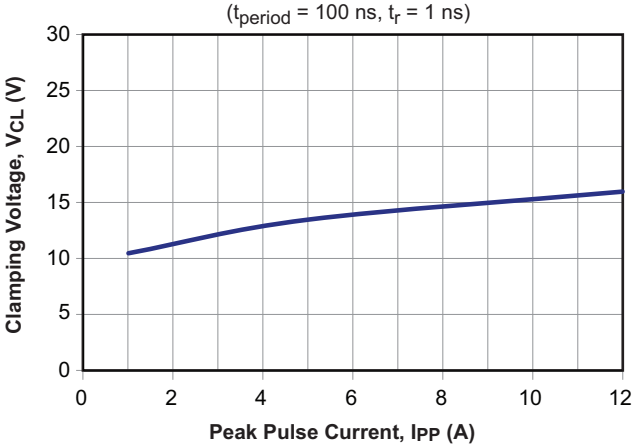
## Electrical Characteristics

$T_A$ = 25°C unless otherwise noted, $V_F$ = 1 V Max. @ $I_F$ = 15 mA for all types

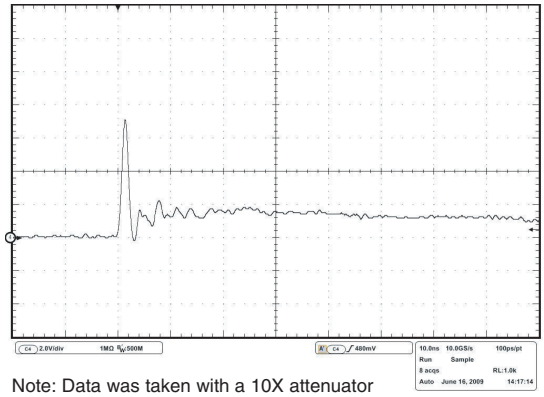
| Device | Device Marking | $V_{RWM}$ (V) Max. | $V_{BR}$ (V) Min @ 5mA | $I_R$ (µA) Max. | $V_F$ (V) Typ. | $V_{CL}$ Max. | | $C_J$ (pF) Typ. | $C_J$ (pF) Max. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $I_{PP}$ = 1 A | $I_{PP}$ = 10 A | | |
| AOZ8224CI-05 | AZ | 5.0 | 5.5 | 0.1 | 0.75 | 11.0 | 15.0 | 13.0 | 14.0 |

## Typical Performance Characteristics

**Clamping Voltage vs. Peak Pulse Current**
($t_{period}$ = 100 ns, $t_r$ = 1 ns)




**ESD Clamping**
**8kV Contact per IEC61000-4-2**



Note: Data was taken with a 10X attenuator

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