AOZ8831ADI-05

Ultra Low Capacitance One-line Bidirectional TVS Diode

General Description

The AOZ8831ADI-05 is an ultra low capacitance one-line bidirectional transient voltage suppressor diode designed to protect high speed data lines and voltage sensitive electronics from high transient conditions and ESD.

This device incorporates one bidirectional TVS diode in an ultra-small DFN 1.0x0.6 footprint package. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±15kV contact discharge).

The AOZ8831ADI-05 comes in an RoHS compliant package and is rated over a -40°C to +85°C ambient temperature range.

The ultra-small 1.0 x 0.6 x 0.5mm DFN package makes it ideal for applications where PCB space is a premium. The small size and high ESD protection makes it ideal for protecting voltage sensitive electronics from high transient conditions and ESD.

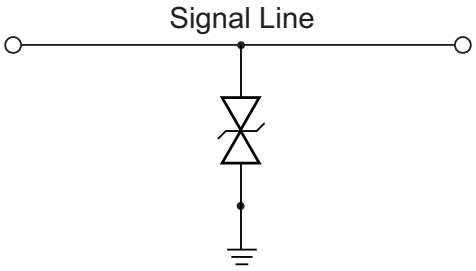
Features

- ESD protection for high-speed data lines:
  - Exceeds: IEC 61000-4-2 (ESD), ±25kV (contact), ±30kV (air)
  - Human Body Model (HBM) ±25kV
- Small package saves board space
- Ultra low capacitance: 0.30pF
- Low clamping voltage
- Low operating voltage: 5.0V
- Pb-free device

Applications

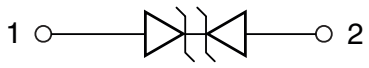
- Portable handheld devices
- Keypads, data lines, buttons
- Notebook computers
- Digital cameras
- Portable GPS
- MP3 players

Typical Application



Bidirection Protection of Single Line

Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8831ADI-05	-40°C to +85°C	DFN 1.0 x 0.6	Green Product 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	Rating
VP – VN	5V
Peak Pulse Current (I_{PP}), t_P = 8/20µs	2.5A
Peak Pulse Power, t_P = 8/20µs	40W
Storage Temperature (T_S)	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact(1)	±25kV
ESD Rating per IEC61000-4-2, Air(1)	±30kV
ESD Rating per Human Body Model(2)	±25kV

Notes:

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

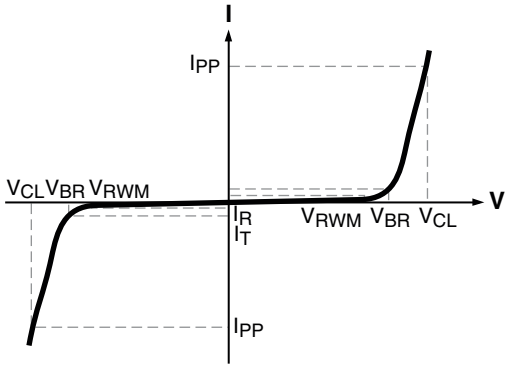
Maximum Operating Conditions

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

Parameter	Rating
Junction Temperature (T_J)	-40°C to +125°C

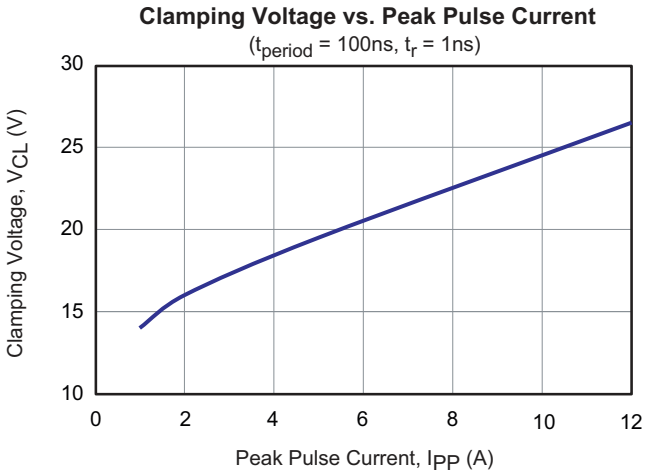
Electrical Characteristics

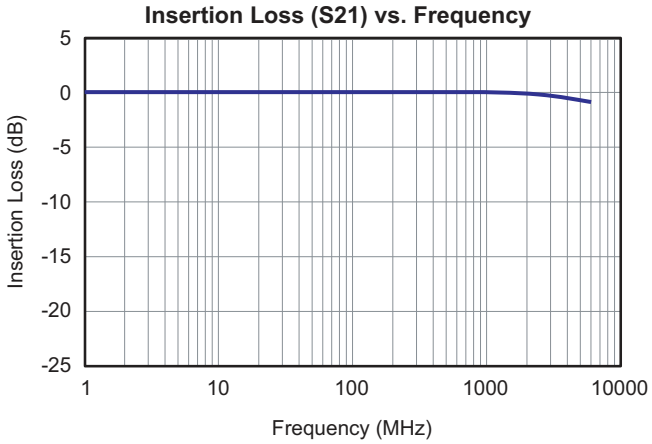
T_A = 25°C unless otherwise specified.

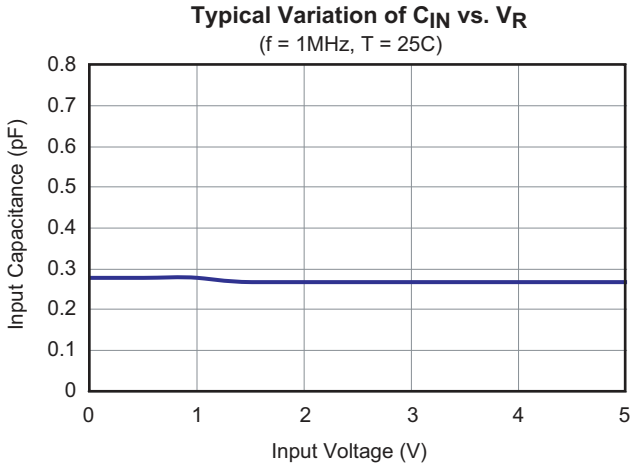
Symbol	Parameter	Diagram
I_{PP}	Maximum Reverse Peak Pulse Current (100ns Transmission Line Pulse (TLP))	
V_{CL}	Clamping Voltage @ I_{PP}	
V_{SURGE_MAX}	Peak Voltage at I_{SURGE} = 2A (IEC61000-40-5 8/20µs pulse current)	
V_{RWM}	Working Peak Reverse Voltage	
I_R	Maximum Reverse Leakage Current	
V_{BR}	Breakdown Voltage	
P_{PK}	Peak Power Dissipation	
C_J	Capacitance @ V_R = 0 and f = 1MHz	

Device	Device Marking	V_{RWM} (V) Max.	V_{BR} (V)		I_R (nA) Max.	V_{SURGE} (V) Max.	V_{CL} Max.			C_J (pF)	
			Min.	Max.			I_{PP} = 1A	I_{PP} = 2A	I_{PP} = 5A	Typ.	Max.
AOZ8831ADI-05	T	5.0	6.0	10.0	50.0	15.5	14.0	16.0	19.5	0.30	0.45

Typical Performance Characteristics







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2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.