

## General Description

The AOZ8131DI-05L is an ultra low capacitance one-line bi-directional 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 TVS diode in an ultra-small DFN 1006 package. It 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).

The AOZ8131DI-05L comes in an RoHS compliant DFN 1006 package and is rated over a  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  ambient temperature range.

The ultra-small  $1.0 \times 0.6 \times 0.5\text{mm}$  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

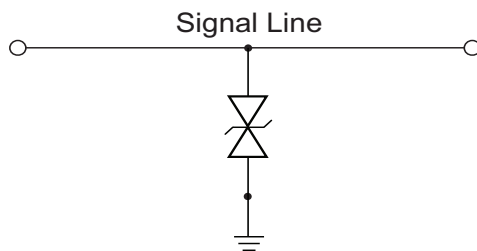
- ESD protection for high-speed data lines:
  - Exceeds:
    - IIEC 61000-4-2 (ESD)  $\pm 24\text{kV}$  (air),  $\pm 24\text{kV}$  (contact)
    - IEC 61000-4-4 (EFT)  $\pm 40\text{A}$  (5/50nS)
    - IEC 61000-4-5 (Lightning)  $\pm 4\text{A}$
  - Human Body Model (HBM)  $\pm 30\text{kV}$
- Small package saves board space
- Ultra low capacitance:  $1.25\text{pF}$
- Low clamping voltage
- Low operating voltage:  $5.0\text{V}$
- Pb-free device

## Applications

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

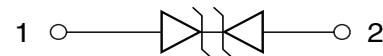


## Typical Application



**Bidirection Protection of Single Line**

## Pin Configuration



## Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8131DI-05L	-40°C to +85°C	DFN 1.0 x 0.6-2L	RoHS Compliant Green Product



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

## Absolute Maximum Ratings

Exceeding the Absolute Maximum ratings may damage the device.

Parameter	Rating
Peak Pulse Current ( $I_{PP}$ ), $t_P = 8/20\mu s$	4A
Storage Temperature ( $T_S$ )	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact <sup>(1)</sup>	±24kV
ESD Rating per IEC61000-4-2, Air <sup>(1)</sup>	±24kV
ESD Rating per Human Body Model <sup>(2)</sup>	±30kV

Notes:

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

## Maximum Operating Ratings

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

## Electrical Characteristics

$T_A = 25^\circ C$  unless otherwise specified.

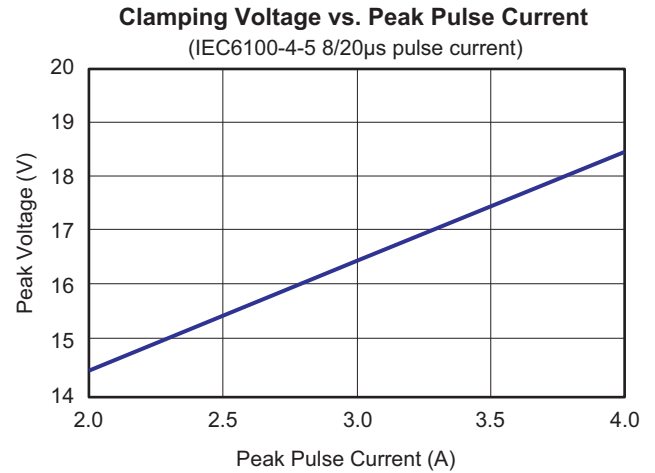
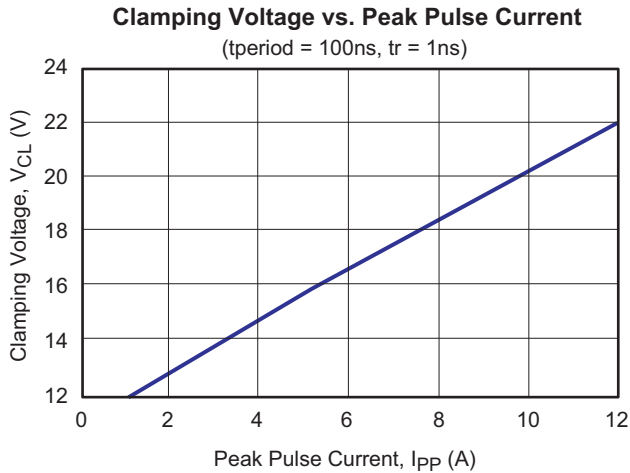
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_{CL}$	Clamping Voltage @ $I_{PP}$ (IEC61000-4-5 8/20 $\mu s$ pulse)
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current
$V_{BR}$	Breakdown Voltage
$I_T$	Test Current
$P_{pk}$	Peak Power Dissipation (IEC61000-4-5 8/20 $\mu s$ pulse)
$C_J$	Max. Capacitance @ $V_R = 0$ and $f = 1MHz$

### Electrical Characteristics

T<sub>A</sub> = 25°C unless otherwise noted.

Device	Device Marking	V <sub>RWM</sub> (V) Max.	V <sub>BR</sub> (V) Min. I <sub>T</sub> = 1mA	I <sub>R</sub> (μA) Max.	V <sub>CL</sub> Max.		P <sub>pk</sub> (W)	C <sub>J</sub> (pF)	
					I <sub>PP</sub> = 2A	I <sub>PP</sub> = 4A		Typ.	Max.
AOZ8131DI-05L	B	5.0	6.0	0.1	14.50	18.50	75	1.25	2.0

### Typical Performance Characteristics



## LEGAL DISCLAIMER

Applications or uses as critical components in life support devices or systems are not authorized. AOS does not assume any liability arising out of such applications or uses of its products. AOS reserves the right to make changes to product specifications without notice. It is the responsibility of the customer to evaluate suitability of the product for their intended application. Customer shall comply with applicable legal requirements, including all applicable export control rules, regulations and limitations.

AOS' products are provided subject to AOS' terms and conditions of sale which are set forth at:

[http://www.aosmd.com/terms\\_and\\_conditions\\_of\\_sale](http://www.aosmd.com/terms_and_conditions_of_sale)

## LIFE SUPPORT POLICY

ALPHA AND OMEGA SEMICONDUCTOR PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
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.