

General Description

The AOZ8832 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 0201 footprint package. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (± 15 kV air, ± 15 kV contact discharge).

The AOZ8832 comes in an RoHS compliant package and is rated over a -40°C to $+85^{\circ}\text{C}$ ambient temperature range.

The ultra-small 1.0mm x 0.6 mm x 0.5 mm DFN package makes the AOZ8832 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

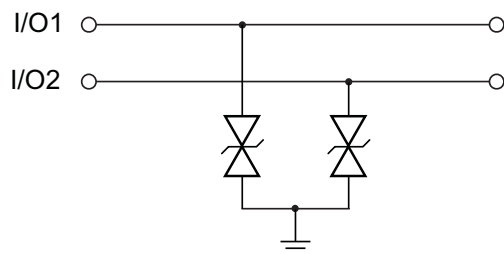
- ESD protection for high-speed data lines:
 - Exceeds: IEC 61000-4-2 (ESD) ± 12 kV (air), ± 12 kV (contact)
 - Human Body Model (HBM) ± 15 kV
- Ultra low capacitance: 0.4 pF
- Low clamping voltage
- Low operating voltage: 5.0 V
- Pb-free device

Applications

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

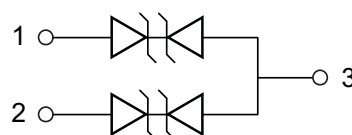


Typical Application



Bidirection Protection of Two Lines

Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8832DI-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	5 V
Peak Pulse Current (I_{PP}), $t_P = 8/20\mu s$ (IEC61000-4-5)	2 A
Peak Pulse Power, $t_P = 8/20\mu s$	30 W
Storage Temperature (T_S)	-65 °C to +150 °C
ESD Rating per IEC61000-4-2, Contact ⁽¹⁾	±12 kV
ESD Rating per IEC61000-4-2, Air ⁽¹⁾	±12 kV
ESD Rating per Human Body Model ⁽²⁾	±15 kV

Notes:

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

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

$T_A = 25^\circ\text{C}$ unless otherwise specified. Specifications in **BOLD** indicate a temperature range of -40°C to $+85^\circ\text{C}$.

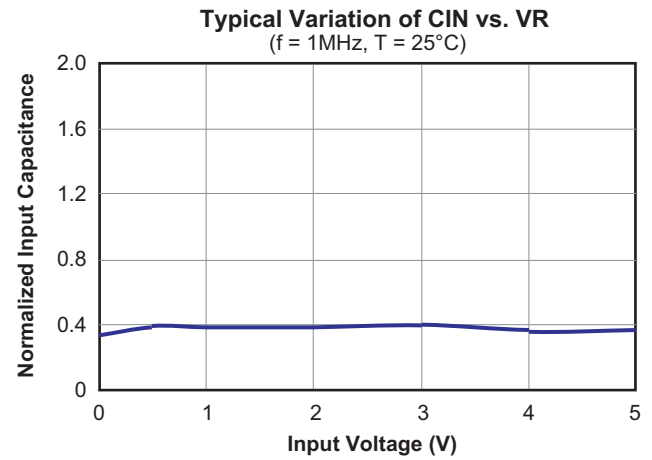
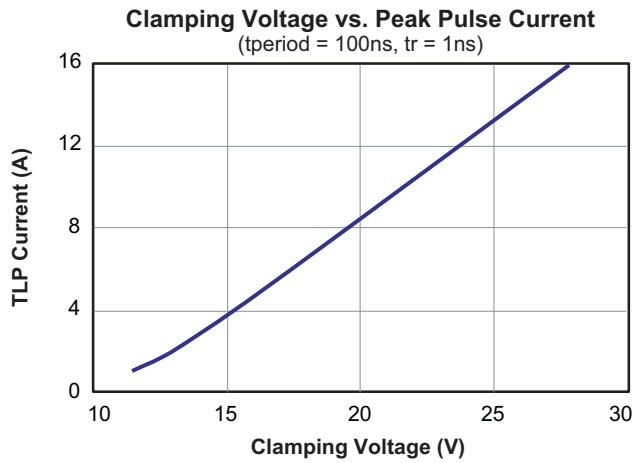
Symbol	Parameter	Diagram
I_{PP}	Maximum Reverse Peak Pulse Current	
V_{CL}	Clamping Voltage @ I_{PP}	
V_{RWM}	Working Peak Reverse Voltage	
I_R	Maximum Reverse Leakage Current	
V_{BR}	Breakdown Voltage	
P_{PK}	Peak Power Dissipation	
C_J	Capacitance @ $V_R = 0$ and $f = 1\text{ MHz}$	

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V_{RWM}	Reverse Working Voltage ⁽³⁾	Between pins 1 and 2			5.0	V
V_{BR}	Reverse Breakdown Voltage ⁽⁴⁾	$I_T = 1\text{ mA}$, between pins 1 and 2	6.0	9.4	10.0	V
I_R	Reverse Leakage Current	$V_{RWM} = 5\text{ V}$, between pins 1 and 2		0.05	0.1	μA
V_{CL}	Channel Clamp Voltage	$I_{PP} = 1\text{ A}$, $t_P = 100\text{ ns}$, between pins 1 and 2		11.5	14.0	V
		$I_{PP} = 2\text{ A}$, $t_P = 100\text{ ns}$, between pins 1 and 2		13.0	16.0	V
		$I_{PP} = 5\text{ A}$, $t_P = 100\text{ ns}$, between pins 1 and 2		16.3	19.5	V
		$I_{PP} = 1\text{ A}$, IEC61000-4-5, 8/20 μs , between pins 1 and 2		12.8	15.5	V
		$I_{PP} = 2\text{ A}$, IEC61000-4-5, 8/20 μs , between pins 1 and 2		15.3	20.0	V
C_J	Junction Capacitance	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$, between pins 1 and 2		0.4	0.6	pF

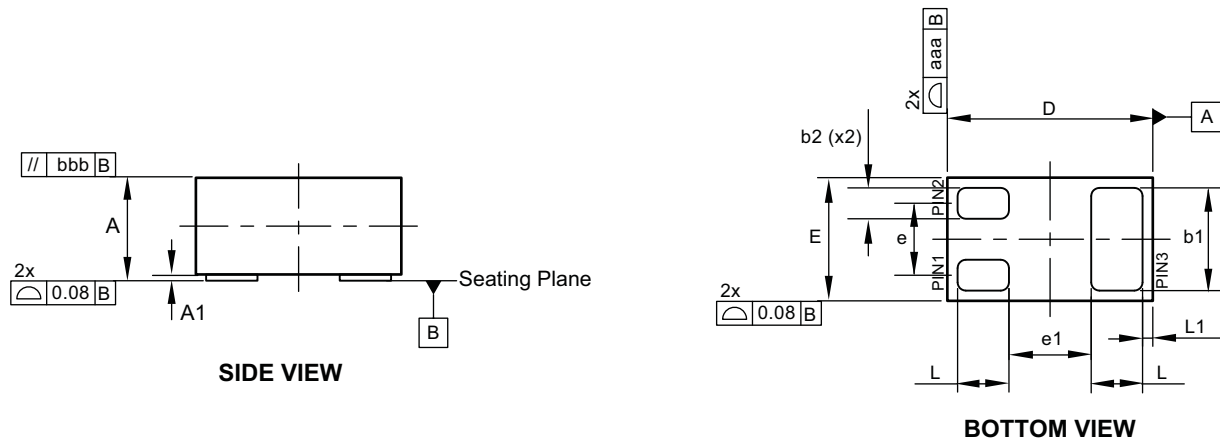
Notes:

- The working peak reverse voltage (V_{RWM}) should be equal to or greater than the DC or continuous peak operating voltage level.
- V_{BR} is measured at the pulse test current I_T .

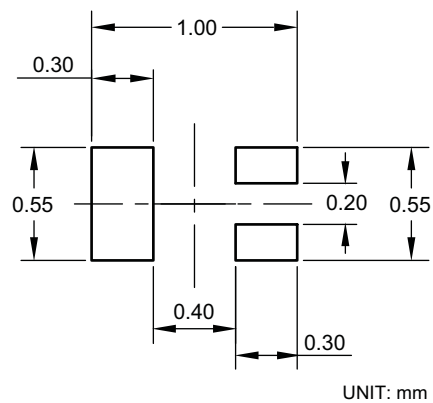
Typical Performance Characteristics



Package Dimensions, DFN 1.0x0.6_3L



RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	0.50	0.52	0.55
A1	0.00	0.03	0.05
b1	0.45	0.50	0.55
b2	0.10	0.15	0.20
D	0.95	1.00	1.075
E	0.55	0.60	0.675
e	---	0.35	---
e1	---	0.40	---
L	0.20	0.25	0.30
L1	---	0.05	---
aaa	0.15		
bbb	0.05		

Dimensions in inches

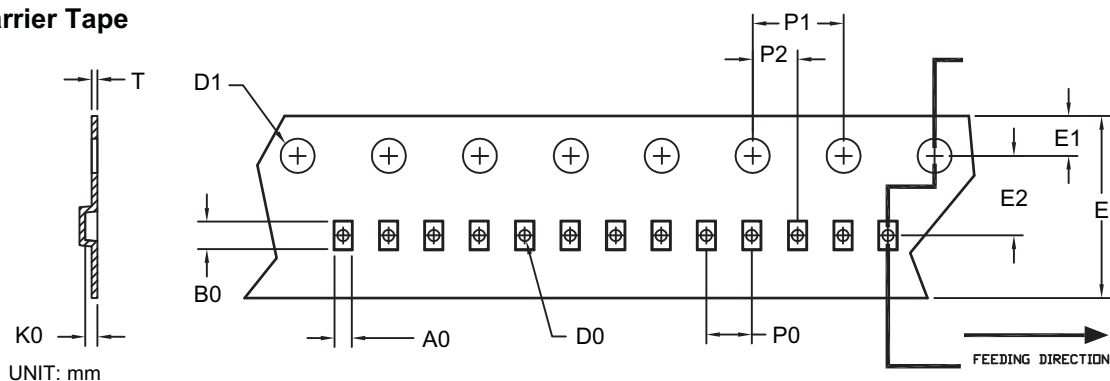
Symbols	Min.	Nom.	Max.
A	0.019	0.020	0.022
A1	0.000	0.001	0.002
b1	0.018	0.020	0.022
b2	0.004	0.006	0.008
D	0.037	0.039	0.042
E	0.022	0.024	0.027
e	---	0.014	---
e1	---	0.016	---
L	0.008	0.010	0.012
L1	---	0.002	---
aaa	0.006		
bbb	0.002		

Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. Coplanarity applies to the exposed heat sink slug as well as the terminals.

Tape and Reel Dimensions, DFN 1.0x0.6

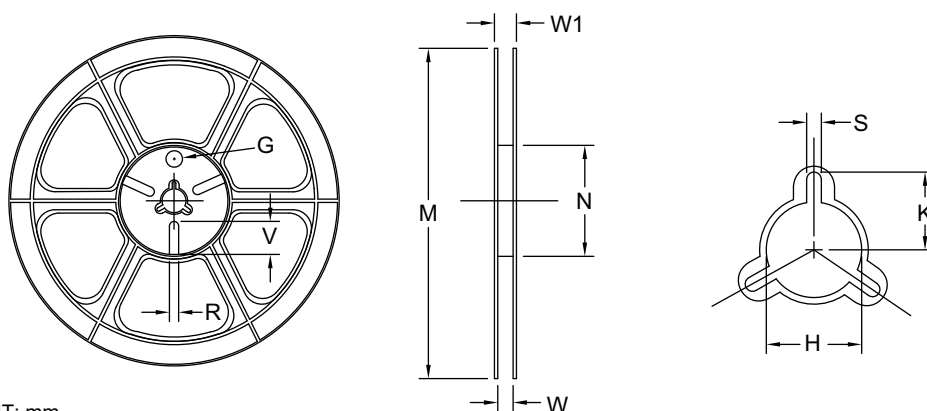
Carrier Tape



UNIT: mm

Option	Package	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
A	DFN 1.0x0.6/ DFN 1.0x0.6A (8 mm)	0.69 ±0.05	1.19 ±0.05	0.66 ±0.05	0.40 ±0.05	1.50 ±0.10	8.00 +0.3/-0.1	1.75 ±0.10	3.50 ±0.05	2.00 ±0.05	4.00 ±0.10	2.00 ±0.05	0.23 ±0.02
B	DFN 1.0x0.6/ DFN 1.0x0.6A (8 mm)	0.65 ±0.04	1.05 ±0.04	0.61 ±0.04	0.40 ±0.05	1.50 ±0.10	8.00 +0.3/-0.1	1.75 ±0.10	3.50 ±0.05	2.00 ±0.10	4.00 ±0.10	2.00 ±0.05	0.20 ±0.05

Reel

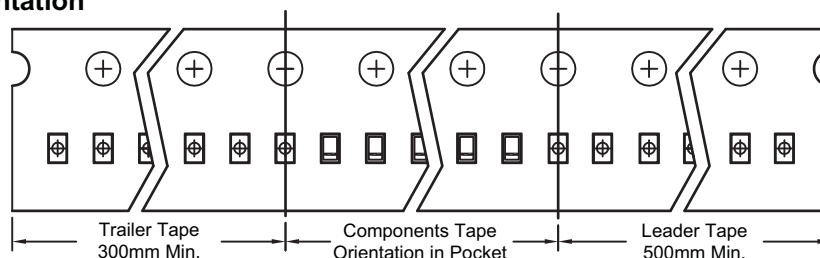


UNIT: mm

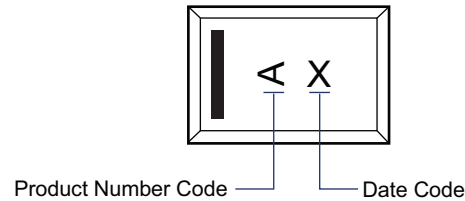
Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
8mm	ø178	ø178 ±0.5	ø55 ±1	8.4 +1.5/-0	Max. 14.4	ø13.0 ±0.5	Max. 10.1	2.0 ±0.5	N/A	N/A	N/A

Leader / Trailer & Orientation

TVS
Unit Per Reel:
10000pcs



Part Marking



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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.