

General Description

The AOZ8831-24 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 1.0 x 0.6 package. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 13\text{kV}$ contact discharge).

The AOZ8831-24 comes in an RoHS compliant DFN package and is rated over a -40°C to $+125^{\circ}\text{C}$ ambient temperature range.

The ultra-small 1.0 x 0.6 x 0.4mm 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

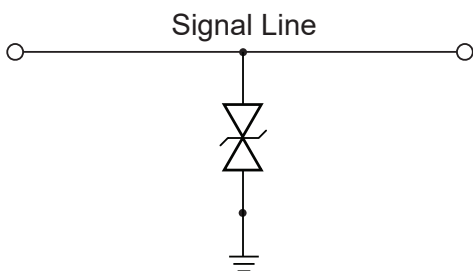
- ESD protection for high-speed data lines:
 - Exceeds: IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 13\text{kV}$ (contact)
 - Human Body Model (HBM) $\pm 15\text{kV}$
- Small package saves board space
- Ultra low capacitance: 0.35pF
- Low clamping voltage
- Operating voltage: 24V
- Pb-free device

Applications

- Portable handheld devices
- Notebook computers
- Digital Cameras
- Portable GPS



Typical Application



Bidirection Protection of Single Line

Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8831DT-24	-40°C to +125°C	DFN 1.0 x 0.6	Green Product



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	24V
Peak Pulse Current (I_{PP}), $t_P = 8/20\mu s$	1.2A
Peak Pulse Power, $t_P = 8/20\mu s$	60W
Storage Temperature (T_S)	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact ⁽¹⁾	±13kV
ESD Rating per IEC61000-4-2, Air ⁽¹⁾	±15kV
ESD Rating per Human Body Model ⁽²⁾	±15kV

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

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

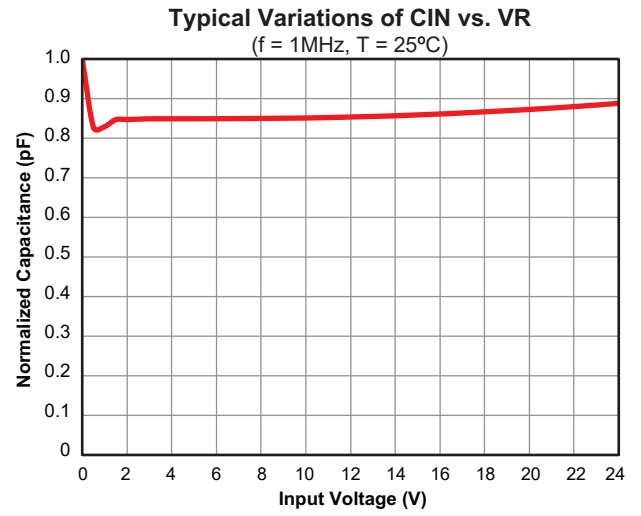
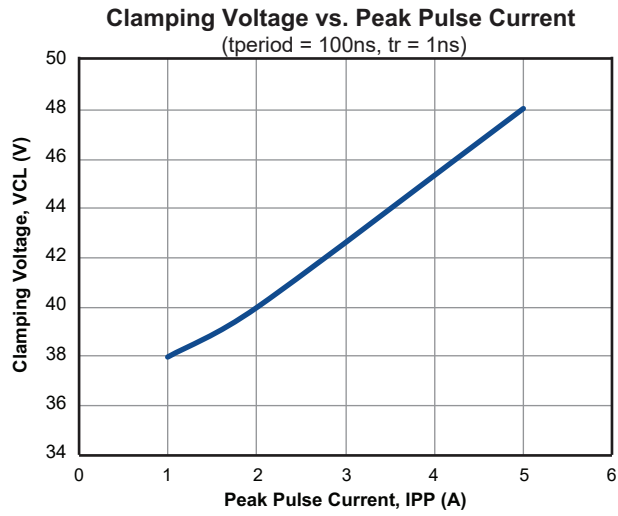
Symbol	Parameter	Diagram
I_{PP}	Maximum Reverse Peak Pulse Current ⁽³⁾ (100ns Transmission Line Pulse (TLP))	
V_{CL}	Clamping Voltage @ I_{PP} ⁽³⁾	
V_P	Peak Voltage (IEC61000-4-5 8/20 μs , Surge Current $I_{PEAK} = 1\text{A}$)	
V_{RWM}	Working Peak Reverse Voltage	
I_R	Maximum Reverse Leakage Current	
V_{BR}	Breakdown Voltage	
C_J	Capacitance @ $V_R = 0$ and $f = 1\text{MHz}$	

Device	Device Marking	V_{RWM} (V) Max.	V_{BR} (V) Min.	I_R (μA) Max.	V_{CL} Max.			V_P (V) Max.	C_J (pF)		
					$I_{PP} = 1\text{A}$	$I_{PP} = 2\text{A}$	$I_{PP} = 5\text{A}$		Min.	Typ.	Max.
AOZ8831DT-24	2	24	26	0.1	38	40	48	45	0.2	0.35	0.5

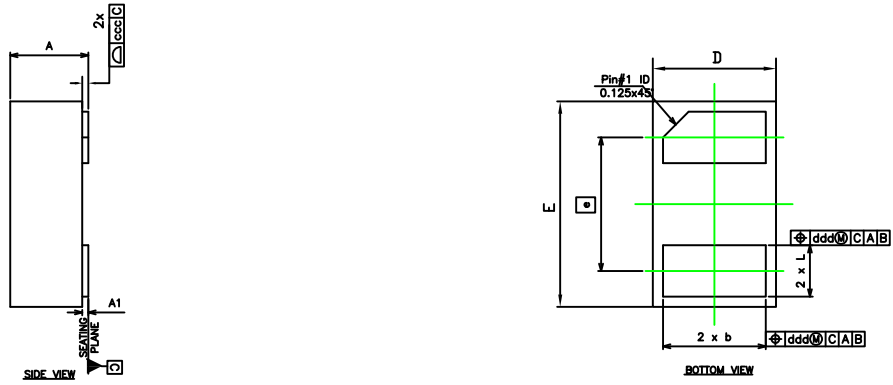
Notes:

3. These specifications are guaranteed by design and characterization.

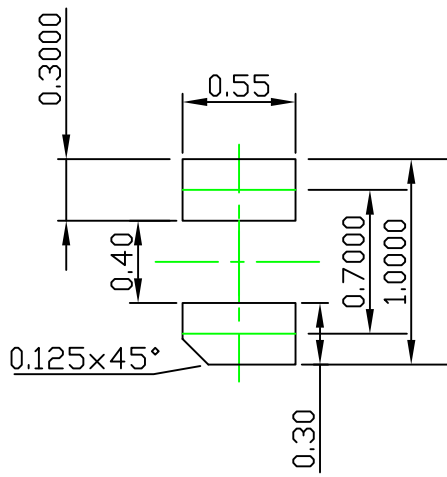
Typical Performance Characteristics



Package Dimensions, DFN 1.0 x 0.6



RECOMMENDED LAND PATTERN

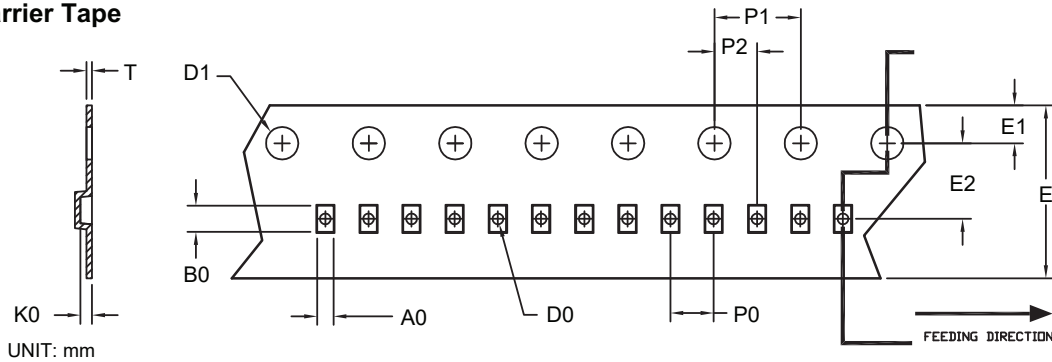


UNIT: mm

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.31	0.38	0.40	0.012	0.015	0.016
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
D	0.55	0.60	0.65	0.022	0.024	0.026
E	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
L	0.20	0.25	0.30	0.008	0.010	0.012
ccc	0.03			0.001		
ddd	0.10			0.004		

Tape and Reel Dimensions, DFN 1.0 x 0.6

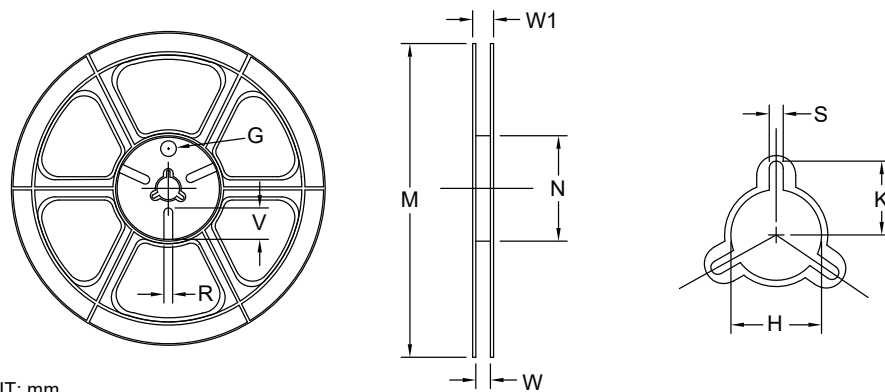
Carrier Tape



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	0.20 ±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	0.20 ±0.05	0.20 ±0.05

Reel

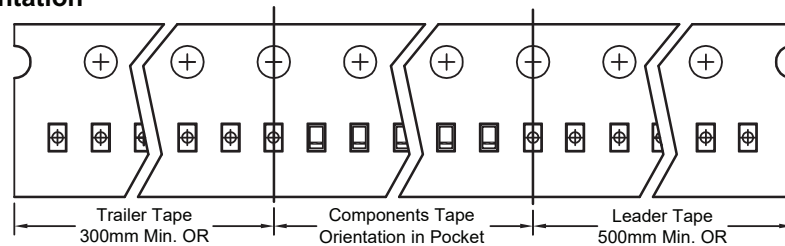


UNIT: mm

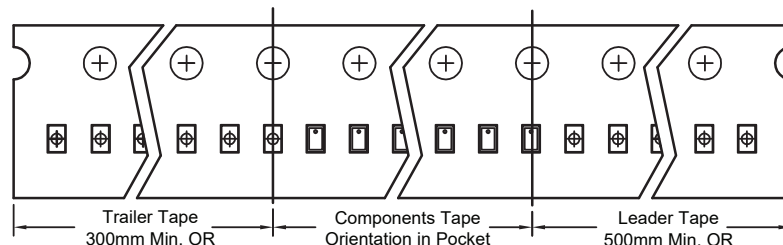
Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
8mm	ø178	ø178 ±0.5	ø55 ±1	8.4 +1.5/-0	Max. 14.4	ø13.0 ±0.5	Max. 10.1	2.0 ±0.5	N/A	N/A	N/A

Leader / Trailer & Orientation

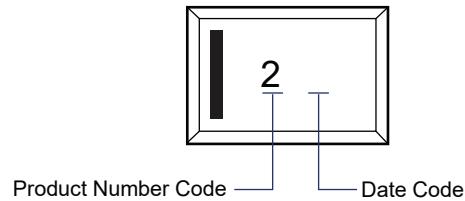
TVS
Unit Per Reel:
10000pcs



MOS
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.