AOZ8811-03

Ultra-Low Capacitance One-line TVS Diode

General Description

The AOZ8811-03 is a ultra-low capacitance one-line transient voltage suppressor diode designed to protect very 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. During transient conditions, the ultra-low capacitance one-line TVS diode directs the transient to ground. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±15kV contact discharge).

The AOZ8811-03 comes in an RoHS compliant DFN package and is rated over a -40°C to +85°C ambient temperature range.

The ultra-small DFN 1.0 x 0.6 x 0.4mm 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.

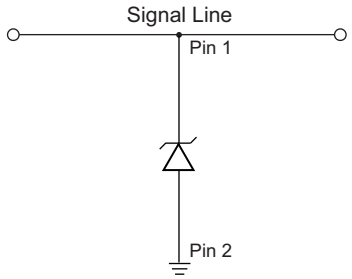
Features

- ESD protection for high-speed data lines:
  - Exceeds: IEC 61000-4-2 (ESD) ±20V (air), ±20kV (contact)
  - Human Body Model (HBM) ±15kV
- Small package saves board space
- Ultra-low capacitance: 0.5pF
- Low clamping voltage
- Low operating voltage: 3.6V
- Green product

Applications

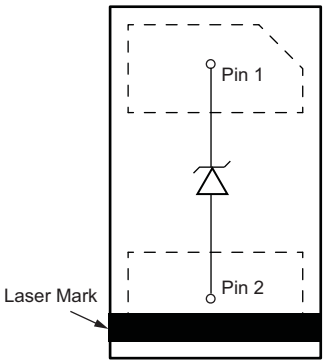
- Portable handheld devices
- Keypads, data lines, buttons
- Notebook computers
- Digital Cameras
- Portable GPS
- MP3 players

Typical Application



Unidirection Protection of Single Line

Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8811DT-03	-40°C to +85°C	DFN 1.0 x 0.6	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 for additional information.

Absolute Maximum Ratings

Exceeding the Absolute Maximum ratings may damage the device.

Parameter	Rating
VP – VN	3.6V
Peak Pulse Current (I_{PP}), t_P = 8/20µs	6A
Peak Pulse Power (P_{PP}), t_P = 8/20µs	40W
Storage Temperature (T_S)	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact(1)	±20kV
ESD Rating per IEC61000-4-2, Air(1)	±20kV
ESD Rating per Human Body Model(2)	±15kV

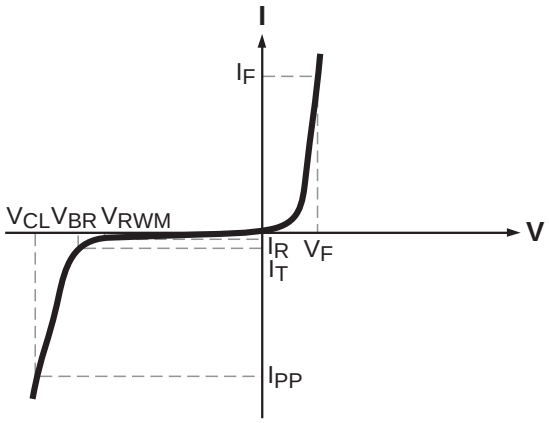
Notes:
1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 330Ω.
2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge}$ = 100pF, $R_{Discharge}$ = 1.5kΩ.

Maximum Operating Ratings

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 (IEC61000-4-5 8/20µs pulse)(3)	
V_{CL}	Clamping Voltage @ I_{PP}(3)	
V_{RWM}	Working Peak Reverse Voltage	
I_R	Maximum Reverse Leakage Current	
V_{BR}	Breakdown Voltage	
I_T	Test Current	
I_F	Forward Current	
V_F	Forward Voltage	
C_J	Capacitance @ V_R = 0 and f = 1MHz	

Electrical Characteristics

T_A = 25°C unless otherwise noted, V_F = 1V Max. @ I_F = 10mA for all types

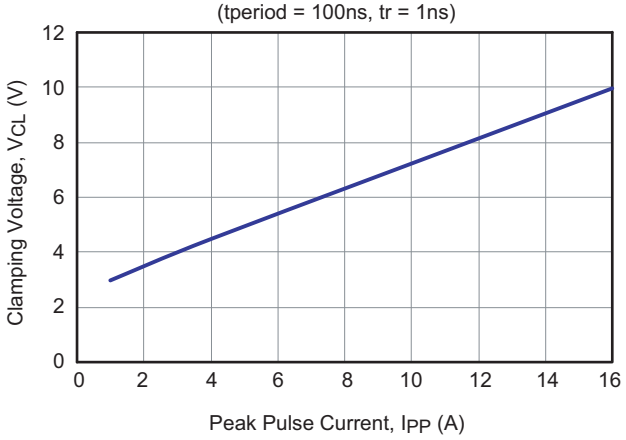
Device	Device Marking	V_{RWM} (V) Max.	V_{BR} (V)		I_R (µA) Max.	V_F (V) Typ.	V_{CL} Max.			C_J (pF)	
			Min.	Max.			I_{PP} = 1A	I_{PP} = 4A	I_{PP} = 6A	Typ.	Max.
AOZ8811DT-03	6	3.6	4.0	10.0	0.1	0.75	2.5	5.0	7.0	0.5	0.8

Note:

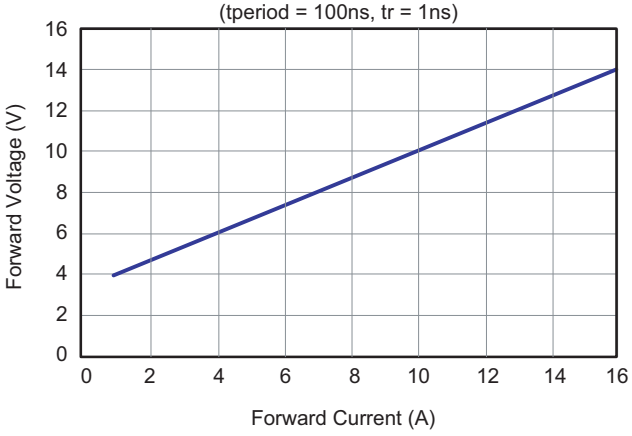
3. These specifications are guaranteed by design and characterization.

Typical Performance Characteristics

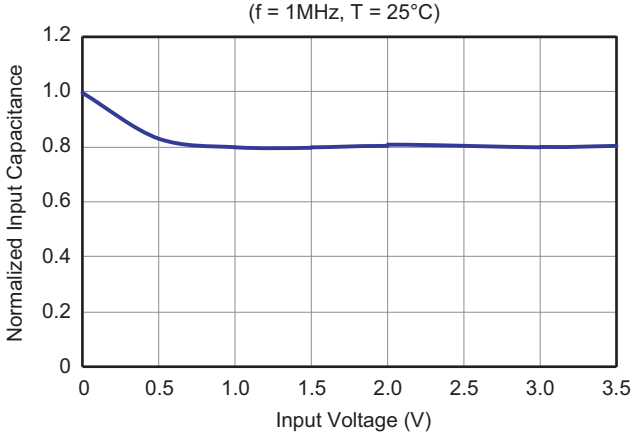
Clamping Voltage vs. Peak Pulse Current
(tperiod = 100ns, tr = 1ns)



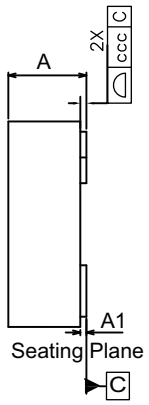
Forward Voltage vs. Forward Current
(tperiod = 100ns, tr = 1ns)



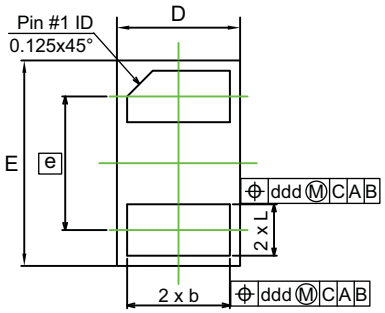
Typical Variation of CIN vs. VR
(f = 1MHz, T = 25°C)



Package Dimensions, DFN 1.0 x 0.6

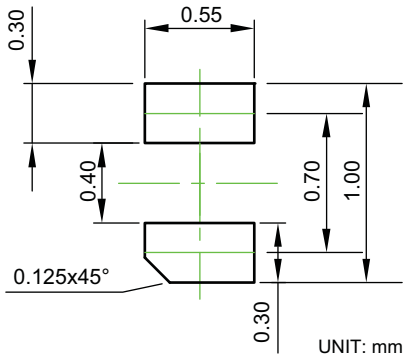


SIDE VIEW



BOTTOM VIEW

RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	0.31	0.38	0.40
A1	0.00	0.02	0.05
b	0.45	0.50	0.55
D	0.55	0.60	0.65
E	0.95	1.00	1.05
e	0.65 BSC		
L	0.20	0.25	0.30
ccc	0.03		
ddd	0.10		

Dimensions in inches

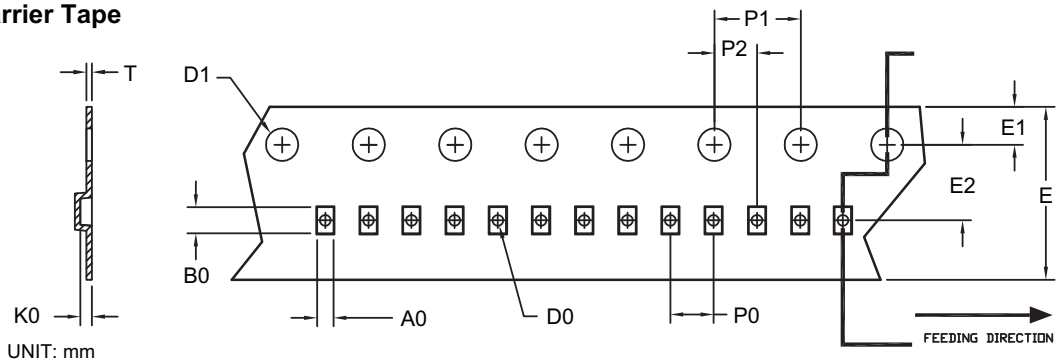
Symbols	Min.	Nom.	Max.
A	0.012	0.015	0.016
A1	0.000	0.001	0.002
b	0.018	0.020	0.022
D	0.022	0.024	0.026
E	0.037	0.039	0.041
e	0.026 BSC		
L	0.008	0.010	0.012
ccc	0.001		
ddd	0.004		

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 1.0 x 0.6

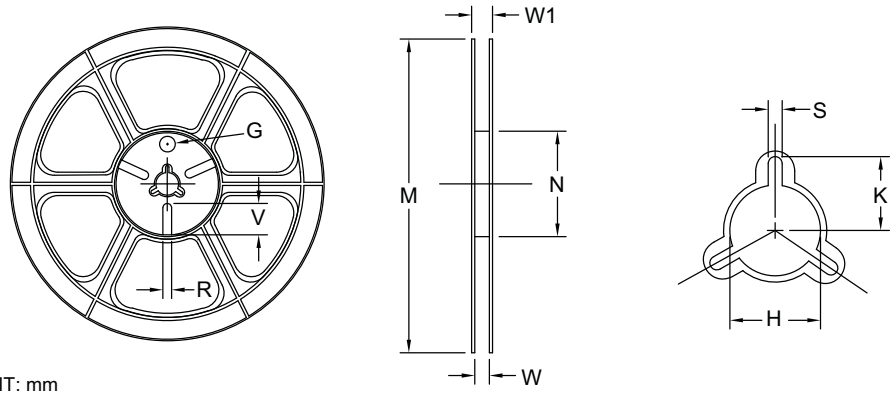
Carrier Tape



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	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

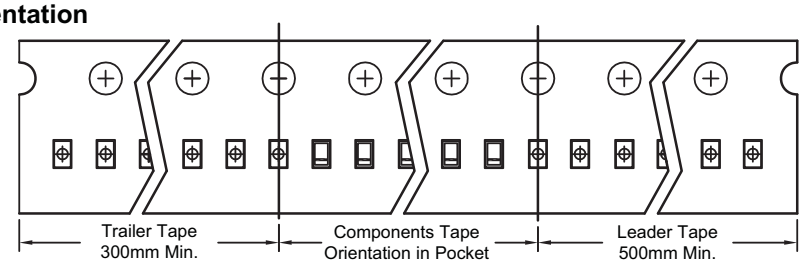


UNIT: mm

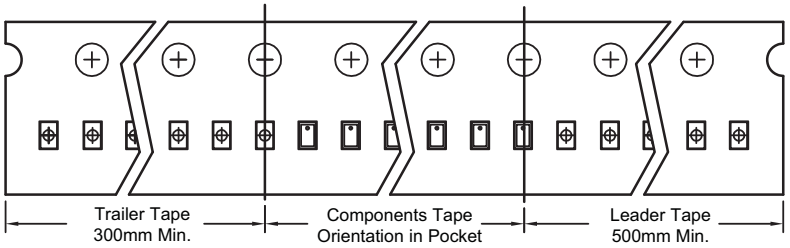
Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
8mm	ø178	ø178 ±0.5	ø55 ±1	8.4 +1.5/-0	Max. 14.4	ø13.0 ±0.5	Max. 10.1	2.0 ±0.5	N/A	N/A	N/A

Leader / Trailer & Orientation

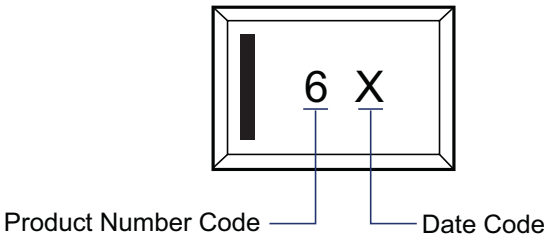
TVS
Unit Per Reel:
10000pcs



MOS
Unit Per Reel:
10000pcs



Part Marking



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