AOZ8311

410W Peak Power One-line TVS Diode

General Description

The AOZ8311 is a one-line 410W peak power transient voltage suppressor diode designed to protect voltage sensitive electronics from high transient conditions and ESD.

This device incorporates one TVS diode in an ultra-small 1.6 x 0.8mm package. The AOZ8311 is designed for line protection from high surge transients up to 380W peak power (8/20µs). It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±8kV contact discharge).

The ultra-small 1.6 x 0.8 x 0.5mm 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.

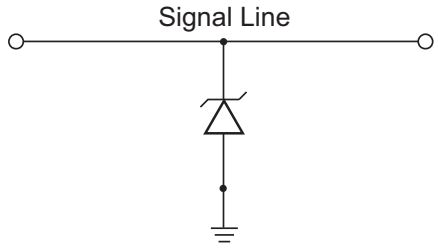
Features

- ESD protection for high-speed data lines:
  - Exceeds: IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
  - Human Body Model (HBM) ±24kV
- Small package saves board space
- Low insertion loss
- Peak power: 410W (8/20µs)

Applications

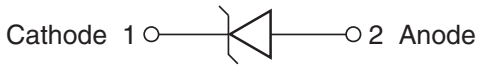
- Portable devices
- Communication systems
- Medical equipment
- Industrial equipment

Typical Application



Unidirection Protection of Single Line

Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package
AOZ8311DI-26	-40°C to +85°C	DFN 1.6x0.8x0.5mm

Absolute Maximum Ratings

Exceeding the Absolute Maximum ratings may damage the device.

Parameter	Rating
Peak Power Dissipation (P_{pk}) t_p = 8/20µs	410W
Storage Temperature (T_S)	-65°C to +150°C
Operating Temperature	-55°C to +125°C
ESD Rating per IEC61000-4-2, Contact(3)	±30kV
ESD Rating per IEC61000-4-2, Air(3)	±30kV
ESD Rating per Human Body Model(3)	±24kV

Notes:

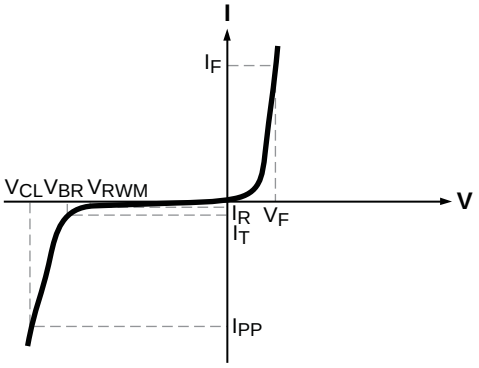
1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 410Ω.
2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge}$ = 100pF, $R_{Discharge}$ = 1.5kΩ.
3. These parameters are guaranteed by design and characterization.

Maximum Operating Ratings

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

Electrical Characteristics

T_A = 25°C unless otherwise specified. V_F = 0.9V Max. @ I_F = 10mA for all types

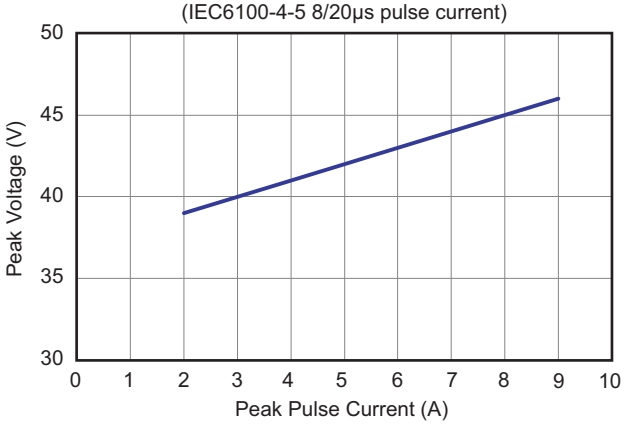
Symbol	Parameter	Diagram
I_{PP}	Maximum Reverse Peak Pulse Current	
V_{CL}	Clamping Voltage @ I_{PP}	
V_{RWM}	Working Peak Reverse Voltage	
I_R	Maximum Reverse Leakage Current	
V_{BR}	Breakdown Voltage	
I_F	Forward Current	
V_F	Forward Voltage	
P_{PK}	Peak Power Dissipation	
C_J	Max. Capacitance @ V_R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

Device	Device Marking	V_{RWM} (V) Max.	V_{BR} (V) @ I_F = 10mA Min.	I_R (µA) Max.	V_F (V) Typ.	V_{CL} at I_{PP} 8/20µs[3][4]		P_{PK} (W)[3][4]	C_J (pF) Typ.
						I_{PP} (A)	V_{CL} (V)		
AOZ8311DI-26	A	26.0	28.6	1.0	0.75	9.0	46	410	90

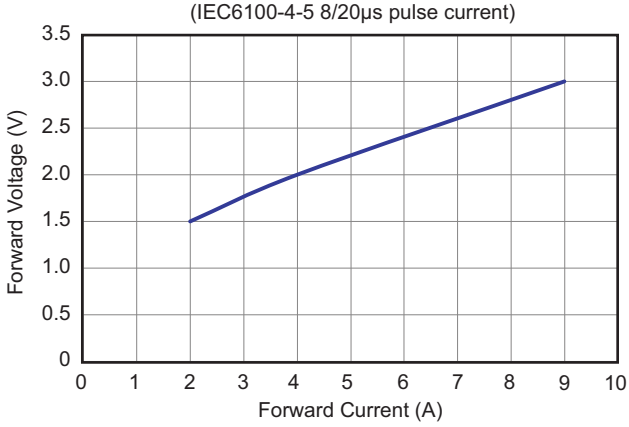
Note:
4. IEC 61000-4-5 pulse current.

Typical Performance Characteristics

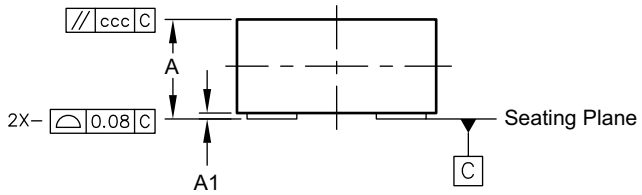
Clamping Voltage vs. Peak Pulse Current
(IEC6100-4-5 8/20µs pulse current)



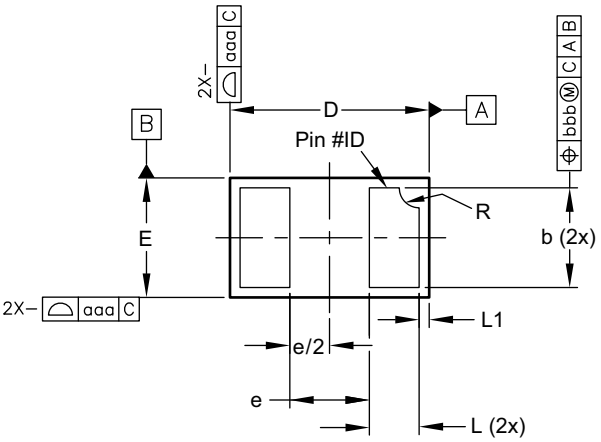
Forward Voltage vs. Forward Current
(IEC6100-4-5 8/20µs pulse current)



Package Dimensions, DFN1.6x0.8

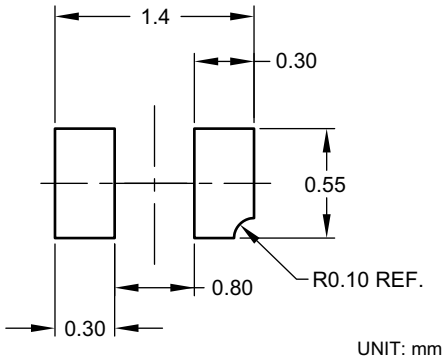


SIDE VIEW



BOTTOM VIEW

RECOMMENDED LAND PATTERN



UNIT: mm

Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	0.47	0.52	0.55
A1	0.00	0.03	0.05
b	0.45	0.50	0.55
D	1.55	1.60	1.65
E	0.75	0.80	0.85
e	—	0.80	—
L	0.20	0.25	0.30
L1	0.15 REF.		
R	0.05	0.10	0.15
aaa	0.15		
bbb	0.05		
ccc	0.05		

Dimensions in inches

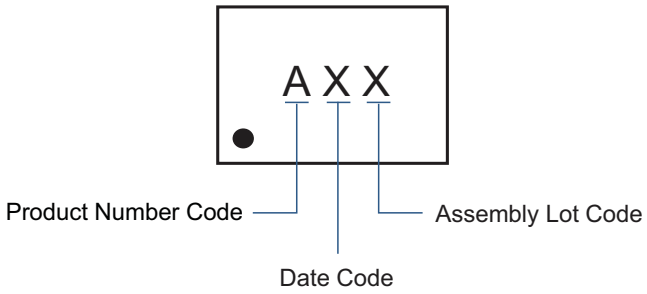
Symbols	Min.	Nom.	Max.
A	0.019	0.020	0.022
A1	0.000	0.001	0.002
b	0.018	0.020	0.022
D	0.061	0.063	0.065
E	0.029	0.031	0.033
e	—	0.031	—
L	0.008	0.010	0.012
L1	0.006 REF.		
R	0.002	0.004	0.006
aaa	0.006		
bbb	0.002		
ccc	0.002		

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.

Part Marking

AOZ8311DI-26
(DFN 2L)



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