

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 (8/20 μ s). It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (\pm 15kV air, \pm 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.

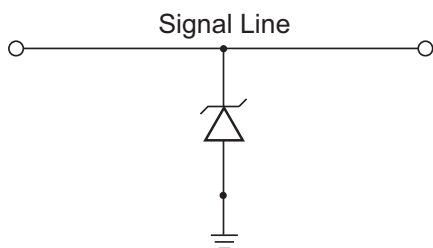
Features

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

Applications

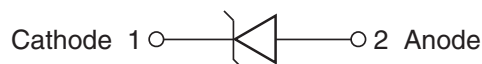
- Portable devices
- Communication systems
- Medical equipment
- Industrial equipment

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}) $t_p = 8/20\mu s$	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:

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

Maximum Operating Ratings

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

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise specified. $V_F = 0.9\text{V Max.}$ @ $I_F = 10\text{mA}$ 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 $f = 1\text{MHz}$	

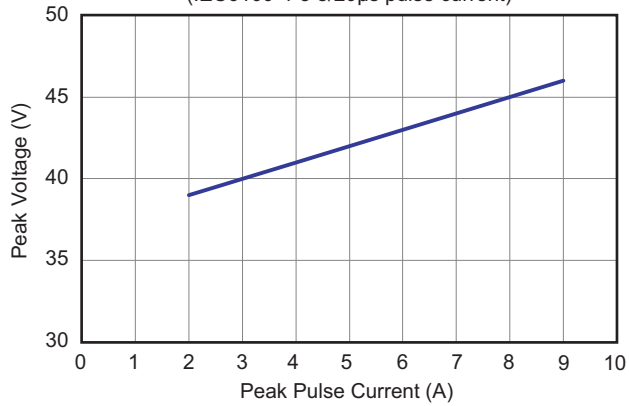
Device	Device Marking	V_{RWM} (V) Max.	V_{BR} (V) @ $I_F = 10\text{mA}$ Min.	I_R (μA) Max.	V_F (V) Typ.	V_{CL} at $I_{PP} 8/20\mu\text{s}^{(3)(4)}$		P_{PK} (W) ⁽³⁾⁽⁴⁾	C_J (pF) Typ.
						I_{PP} (A)	V_{CL} (V)		
AOZ8311DI-26	A	26.0	28.6	1.0	0.75	9.0	46	410	90

Note:

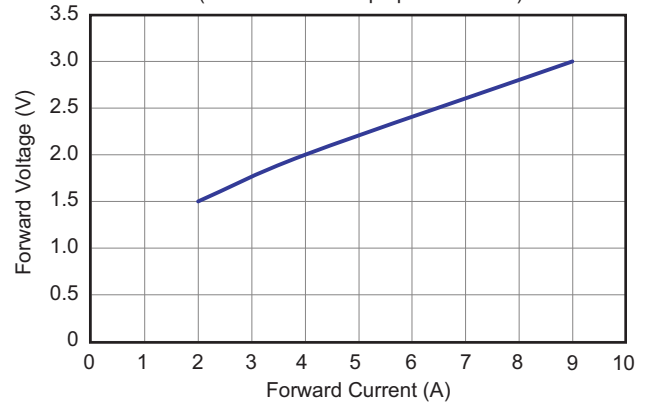
4. IEC 61000-4-5 pulse current.

Typical Performance Characteristics

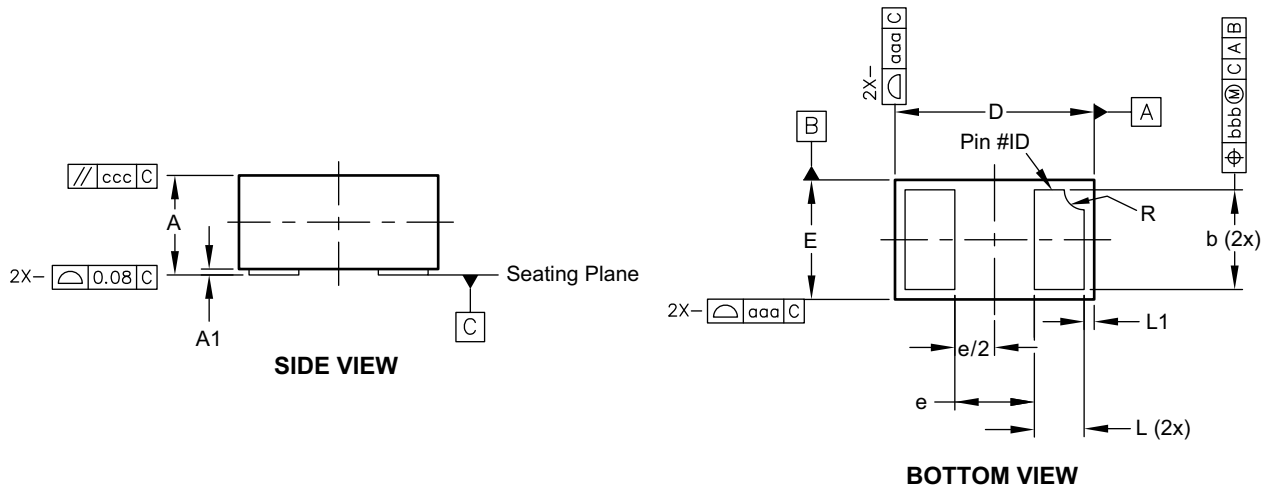
Clamping Voltage vs. Peak Pulse Current
(IEC6100-4-5 8/20 μ s pulse current)



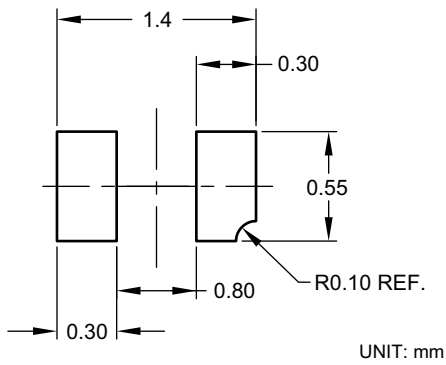
Forward Voltage vs. Forward Current
(IEC6100-4-5 8/20 μ s pulse current)



Package Dimensions, DFN1.6x0.8



RECOMMENDED LAND PATTERN



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		

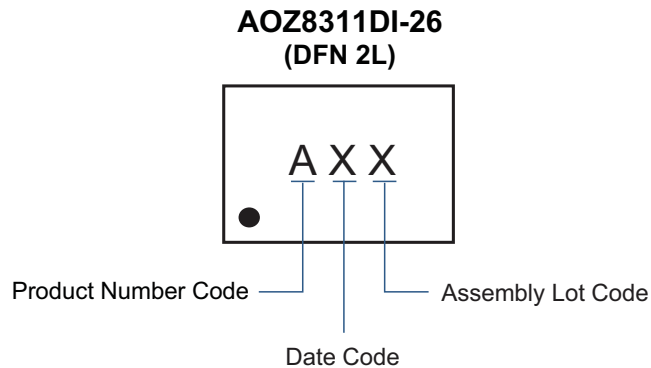
Dimensions in inches

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



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