

## General Description

The AOZ8811 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 ( $\pm 15\text{kV}$  air,  $\pm 15\text{kV}$  contact discharge).

The AOZ8811 comes in an RoHS compliant DFN package and is rated over a  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  ambient temperature range.

The ultra-small DFN 1.0 x 0.6 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

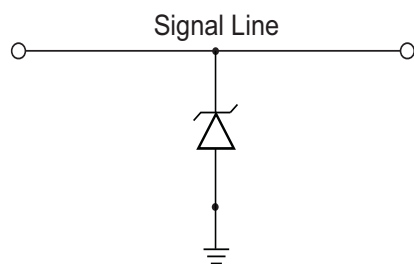
- ESD protection for high-speed data lines:
  - Exceeds: IEC 61000-4-2 (ESD)  $\pm 15\text{V}$  (air),  $\pm 15\text{kV}$  (contact)
  - Human Body Model (HBM)  $\pm 15\text{kV}$
- Small package saves board space
- Ultra-low capacitance: 0.65pF
- Low clamping voltage
- Low operating voltage: 5V
- Green 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
AOZ8811DI-05	-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/web/quality/rohs\\_compliant.jsp](http://www.aosmd.com/web/quality/rohs_compliant.jsp) for additional information.

## Absolute Maximum Ratings

*Exceeding the Absolute Maximum ratings may damage the device.*

Parameter	Rating
VP – VN	5V
Peak Pulse Current ( $I_{PP}$ ), $t_P = 8/20\mu s$	2A
Storage Temperature ( $T_S$ )	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact <sup>(1)</sup>	±15kV
ESD Rating per IEC61000-4-2, Air <sup>(1)</sup>	±15kV
ESD Rating per Human Body Model <sup>(2)</sup>	±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 +85°C

### Electrical Characteristics

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

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	
$I_T$	Test Current	
$I_F$	Forward Current	
$V_F$	Forward Voltage	
$P_{PK}$	Peak Power Dissipation	
$C_J$	Capacitance @ $V_R = 0$ and $f = 1\text{MHz}$	

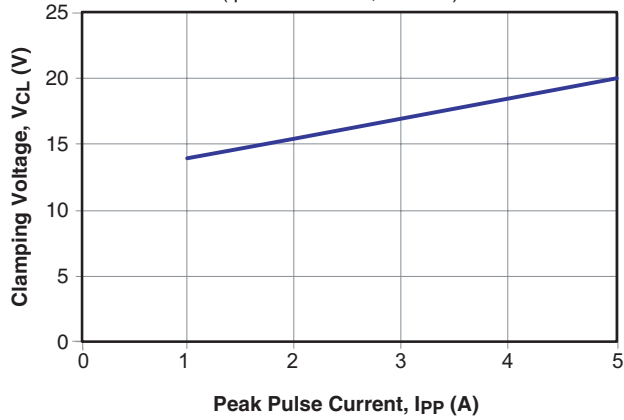
### Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.9\text{V Max.}$  @  $I_F = 10\text{mA}$  for all types

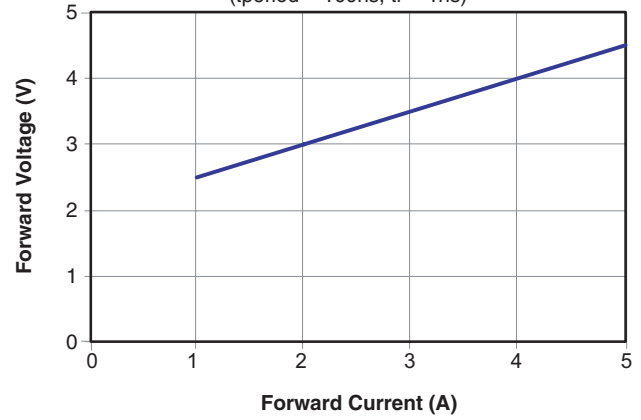
Device	Device Marking	$V_{RWM}$ (V) Max.	$V_{BR}$ (V) Max.	$I_R$ ( $\mu\text{A}$ ) Max.	$V_F$ (V) Typ.	$V_{CL}$ Max.			$C_J$ (pF) Typ.	$C_J$ (pF) Max.
						$I_{PP} = 1\text{A}$	$I_{PP} = 2\text{A}$	$I_{PP} = 5\text{A}$		
AOZ8811DI-05	CX	5.0	6.0	0.1	0.75	14.00	15.50	20.00	0.65	0.75

## Typical Performance Characteristics

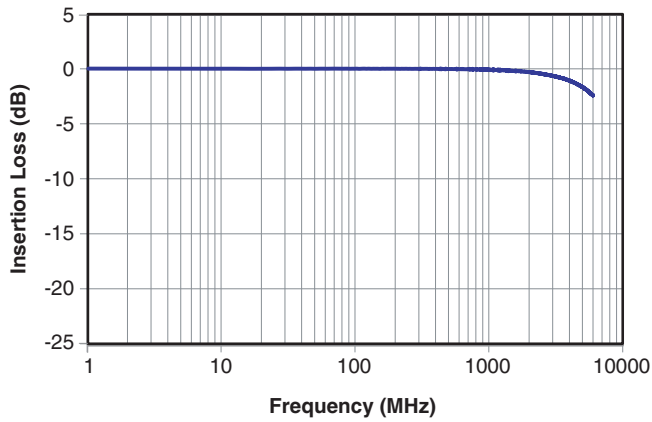
**Clamping Voltage vs. Peak Pulse Current**  
(tperiod = 100ns, tr = 1ns)



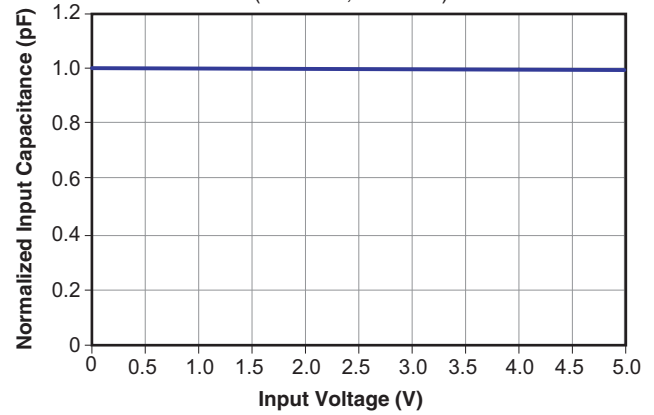
**Forward Voltage vs. Forward Current**  
(tperiod = 100ns, tr = 1ns)



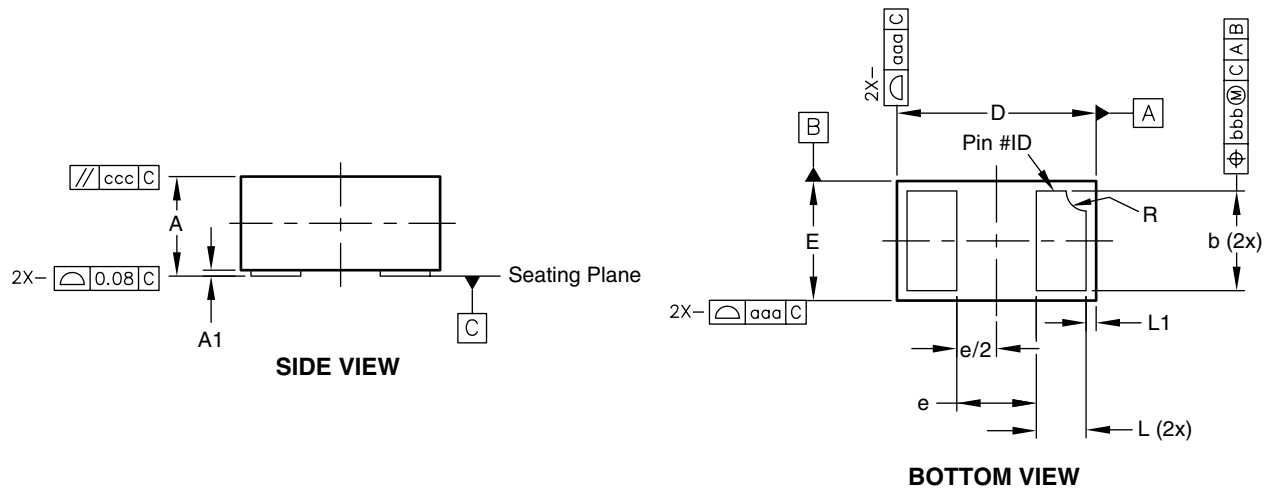
**I/O – Gnd Insertion Loss (S21) vs. Frequency**



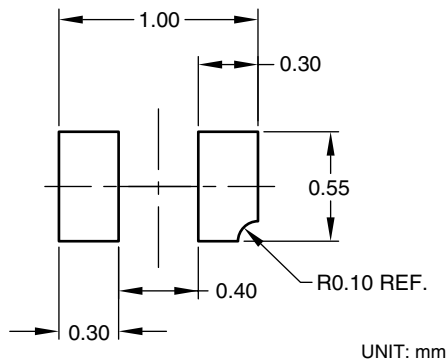
**Typical Variation of C<sub>IN</sub> vs. V<sub>R</sub>**  
(f = 1MHz, T = 25°C)



Package Dimensions, DFN 1.0 x 0.6



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	0.95	1.00	1.075
E	0.55	0.60	0.675
e	—	0.40	—
L	0.20	0.25	0.30
L1	0.050.03 REF.		
R	0.05	0.10	0.15
aaa	0.15		
bbb	0.05		
ccc	0.05		

Dimensions in inches

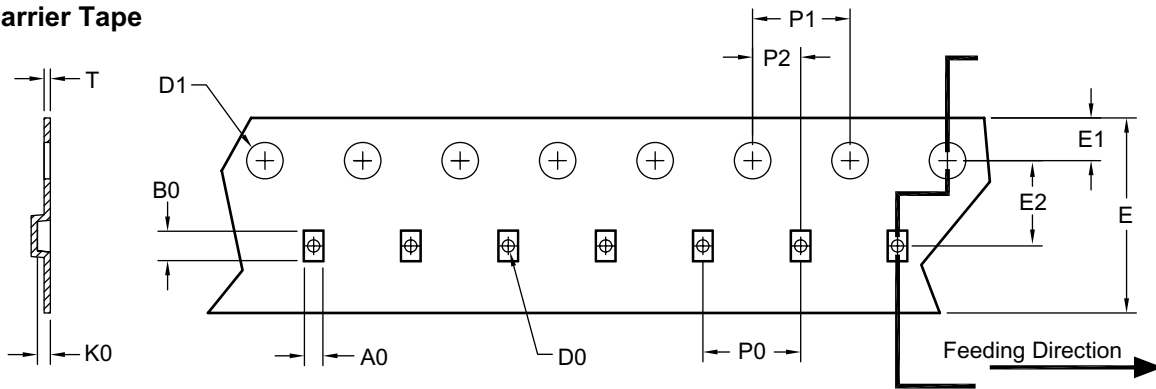
Symbols	Min.	Nom.	Max.
A	0.019	0.020	0.022
A1	0.000	0.001	0.002
b	0.018	0.020	0.022
D	0.037	0.039	0.042
E	0.022	0.024	0.027
e	—	0.016	—
L	0.008	0.010	0.012
L1	0.0020.001 REF.		
R	0.002	0.004	0.006
aaa	0.006		
bbb	0.002		
ccc	0.002		

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.

### Tape and Reel Dimensions, DFN 1.0 x 0.6

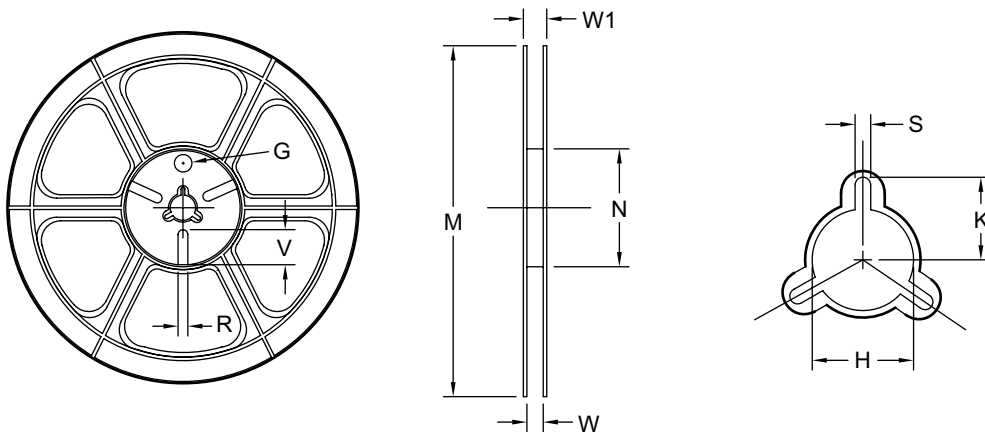
#### Carrier Tape



UNIT: mm

Package	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOD882	0.76 ±0.05	1.21 ±0.05	0.53 ±0.05	0.50 ±0.05	1.50 ±0.05	8.00 +0.30/-0.10	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	0.254 ±0.02

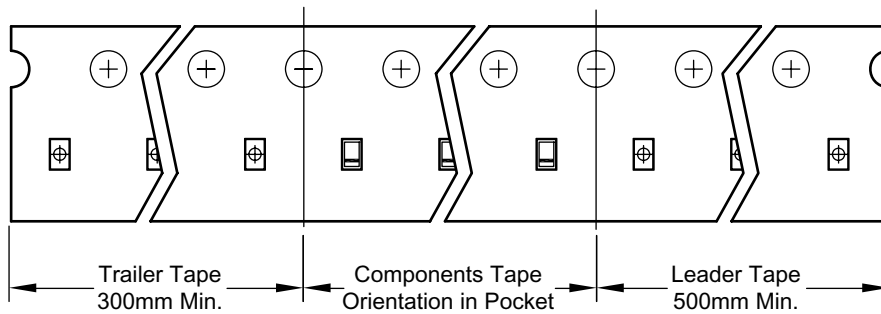
#### Reel



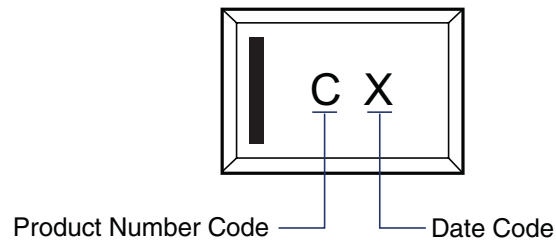
UNIT: mm

Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
8mm	ø178	ø178 ±0.50	ø55 ±1	8.4 +1.5/-0	14.4 Max.	ø13.0 ±0.5	10.1 Max.	2.0 ±0.5	N/A	N/A	N/A

#### Leader / Trailer & Orientation



## Part Marking



**This data sheet contains preliminary data; supplementary data may be published at a later date. Alpha & Omega Semiconductor reserves the right to make changes at any time without notice.**

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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.