

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°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

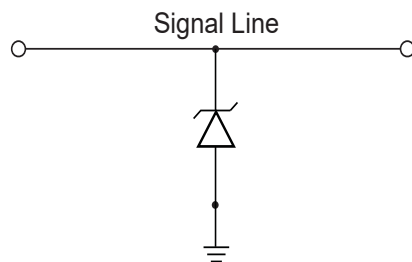
- ESD protection for high-speed data lines:
 - Exceeds: IEC 61000-4-2 (ESD) $\pm 15\text{V}$ (air), $\pm 15\text{kV}$ (contact)
 - Human Body Model (HBM) $\pm 15\text{kV}$
- Small package saves board space
- Ultra-low capacitance: 0.65pF
- Low clamping voltage
- Low operating voltage: 5V
- Green product

Applications

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

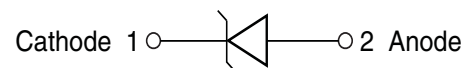


Typical Application



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/media/AOSGreenPolicy.pdf 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 ⁽¹⁾ | ±15kV |
| 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 | |
| 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 $f = 1\text{MHz}$ | |

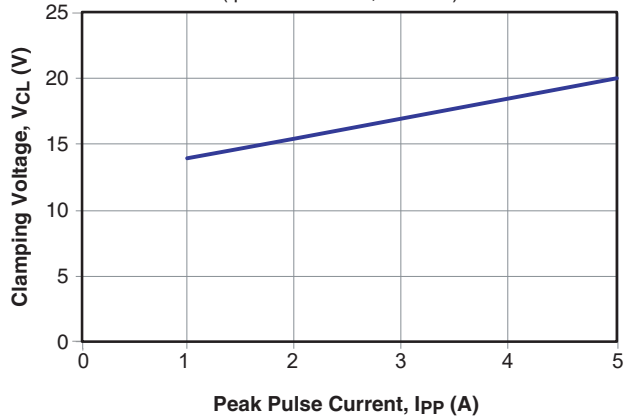
Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.95\text{V Max.}$ @ $I_F = 15\text{mA}$ for all types

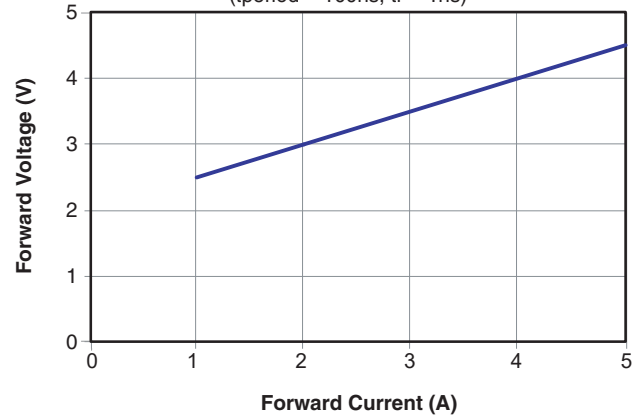
| Device | Device Marking | V_{RWM} (V) Max. | V_{BR} (V) Max. | I_R (μA) Max. | V_F (V) Typ. | V_{CL} Max. | | | C_J (pF) Typ. | C_J (pF) Max. |
|--------------|----------------|-----------------------|----------------------|---------------------------------|-------------------|----------------------|----------------------|----------------------|--------------------|--------------------|
| | | | | | | $I_{PP} = 1\text{A}$ | $I_{PP} = 2\text{A}$ | $I_{PP} = 5\text{A}$ | | |
| AOZ8811DI-05 | C | 5.0 | 6.0 | 1.0 | 0.75 | 14.00 | 15.50 | 20.00 | 0.65 | 0.75 |

Typical Performance Characteristics

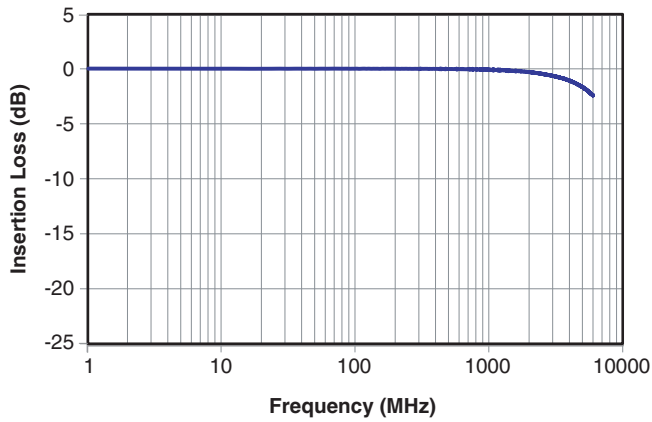
Clamping Voltage vs. Peak Pulse Current
(tperiod = 100ns, tr = 1ns)



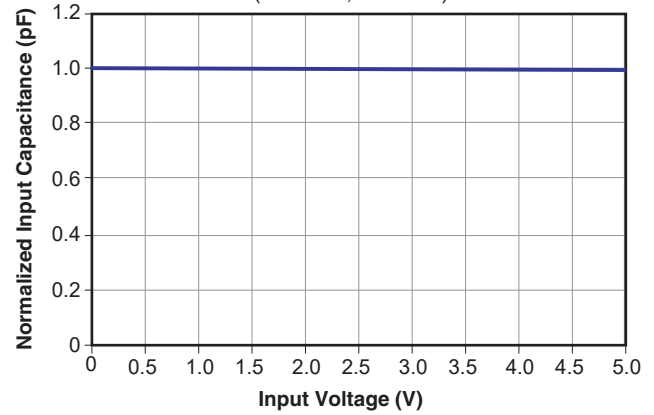
Forward Voltage vs. Forward Current
(tperiod = 100ns, tr = 1ns)



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

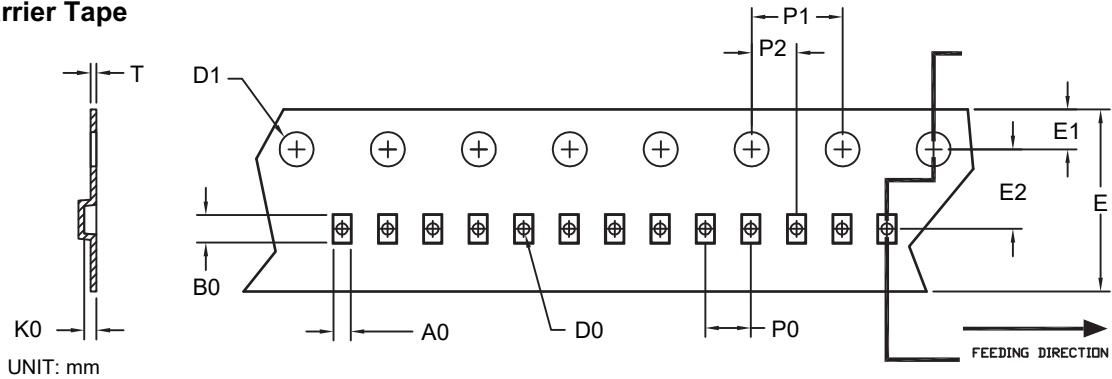


Typical Variation of C_{IN} vs. V_R
(f = 1MHz, T = 25°C)



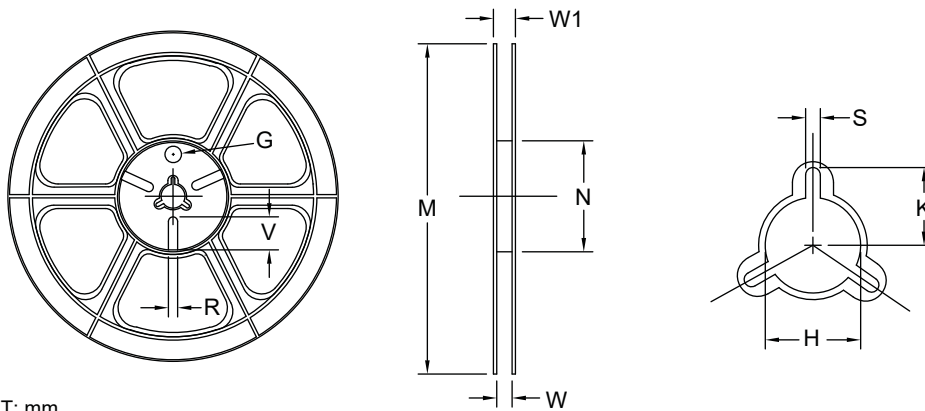
Tape and Reel Dimensions, DFN 1.0 x 0.6

Carrier Tape



| 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 |

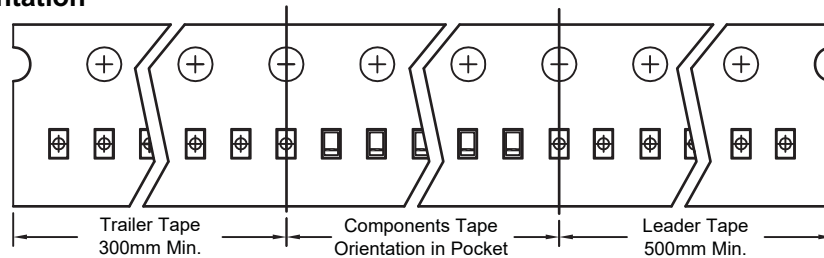
Reel



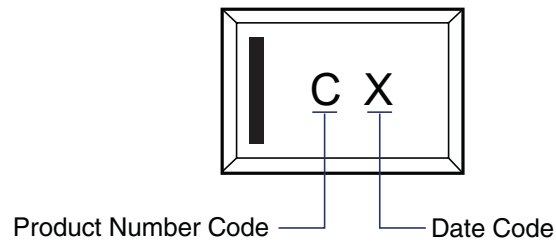
| Tape Size | Reel Size | M | N | W | W1 | H | K | S | G | R | V |
|-----------|-----------|--------------|-----------|----------------|--------------|---------------|--------------|-------------|-----|-----|-----|
| 8mm | ø178 | ø178 ±0.5 | ø55 ±1 | 8.4 +1.5/-0 | Max. 14.4 | ø13.0 ±0.5 | Max. 10.1 |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

Leader / Trailer & Orientation

TVS
Unit Per Reel:
10000pcs



Part Marking



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