

## General Description

The AOZ8821-03 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 ( $\pm 15\text{kV}$  air,  $\pm 15\text{kV}$  contact discharge).

The AOZ8821-03 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 0.4mm 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

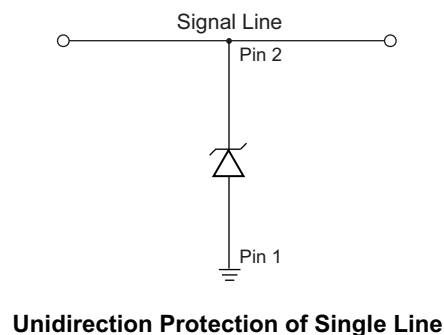
- ESD protection for high-speed data lines:
  - Exceeds: IEC 61000-4-2 (ESD)  $\pm 20\text{V}$  (air),  $\pm 20\text{kV}$  (contact)
  - Human Body Model (HBM)  $\pm 15\text{kV}$
- Small package saves board space
- Ultra-low capacitance: 0.5pF
- Low clamping voltage
- Low operating voltage: 3.6V
- Green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

## Applications

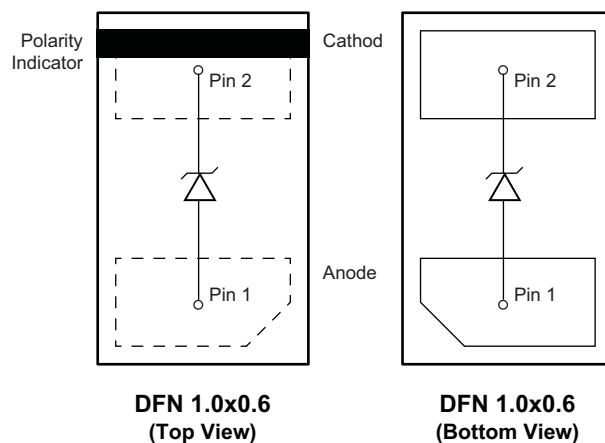
- Portable handheld devices
- Keypads, data lines, buttons
- Notebook computers
- Digital Cameras
- Portable GPS
- MP3 players



## Typical Application



## Pin Configuration



## Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8821DT-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](http://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 <sub>pp</sub> ), t <sub>p</sub> = 8/20μs	6A
Peak Pulse Power (P <sub>pp</sub> ), t <sub>p</sub> = 8/20μs	40W
Storage Temperature (T <sub>S</sub> )	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact <sup>(1)</sup>	±20kV
ESD Rating per IEC61000-4-2, Air <sup>(1)</sup>	±20kV
ESD Rating per Human Body Model <sup>(2)</sup>	±15kV

### Notes:

- IEC 61000-4-2 discharge with C<sub>Discharge</sub> = 150pF, R<sub>Discharge</sub> = 330Ω.
- Human Body Discharge per MIL-STD-883, Method 3015 C<sub>Discharge</sub> = 100pF, R<sub>Discharge</sub> = 1.5kΩ.

## Maximum Operating Ratings

Parameter	Rating
Junction Temperature (T <sub>J</sub> )	-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 (IEC61000-4-5 8/20 $\mu\text{s}$ pulse) <sup>(3)</sup>	
$V_{CL}$	Clamping Voltage @ $I_{PP}$ <sup>(3)</sup>	
$V_{RWM}$	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 $f = 1\text{MHz}$	

### Electrical Characteristics

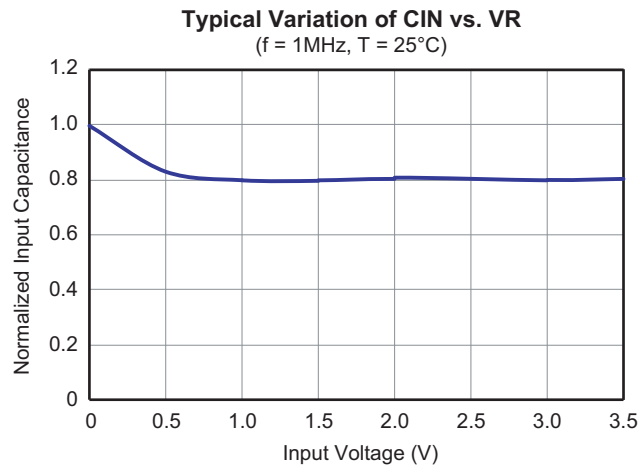
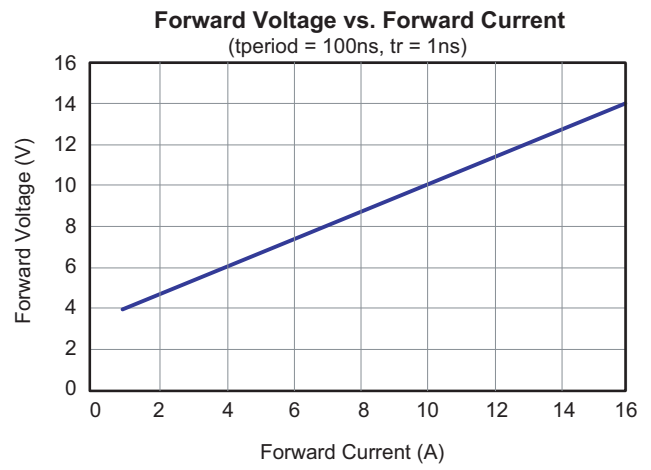
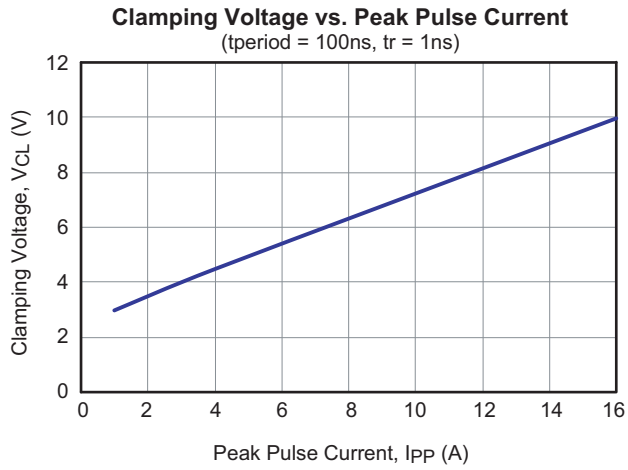
$T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 1\text{V Max.}$  @  $I_F = 10\text{mA}$  for all types

Device	Device Marking	$V_{RWM}$ (V) Max.	$V_{BR}$ (V)		$I_R$ ( $\mu\text{A}$ ) Max.	$V_F$ (V) Typ.	$V_{CL}$ Max.			$C_J$ (pF)	
			Min.	Max.			$I_{PP} = 1\text{A}$	$I_{PP} = 4\text{A}$	$I_{PP} = 6\text{A}$	Typ.	Max.
AOZ8821DT-03	7	3.6	4.0	10.0	0.1	0.75	2.5	5.0	7.0	0.5	0.8

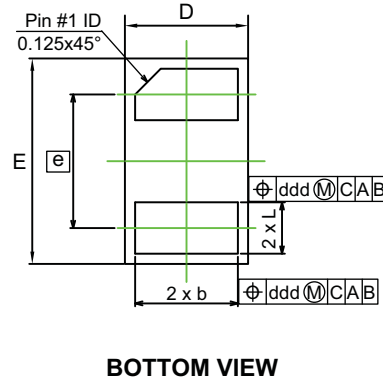
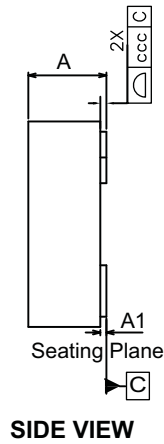
**Note:**

3. These specifications are guaranteed by design and characterization.

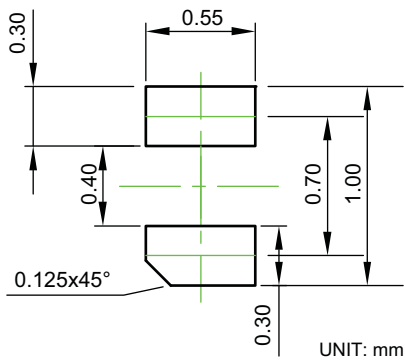
## Typical Performance Characteristics



Package Dimensions, DFN 1.0 x 0.6



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

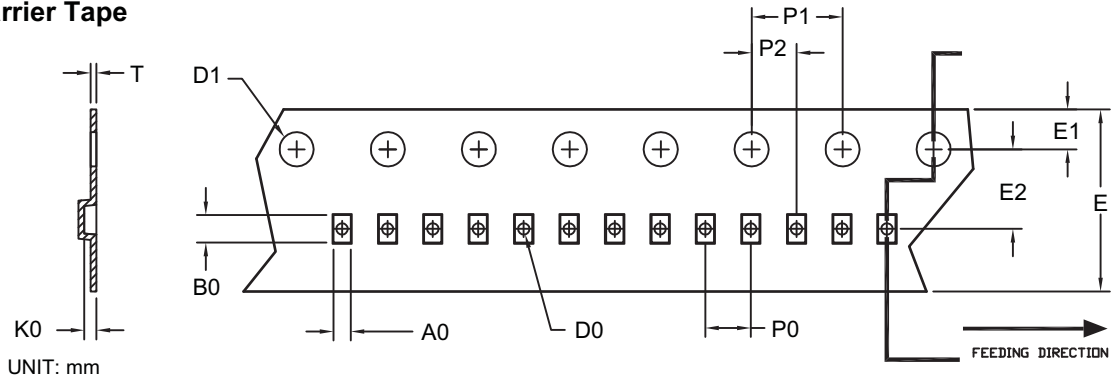
Symbols	Min.	Nom.	Max.
A	0.012	0.015	0.016
A1	0.000	0.001	0.002
b	0.018	0.020	0.022
D	0.022	0.024	0.026
E	0.037	0.039	0.041
e	0.026 BSC		
L	0.008	0.010	0.012
ccc	0.001		
ddd	0.004		

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

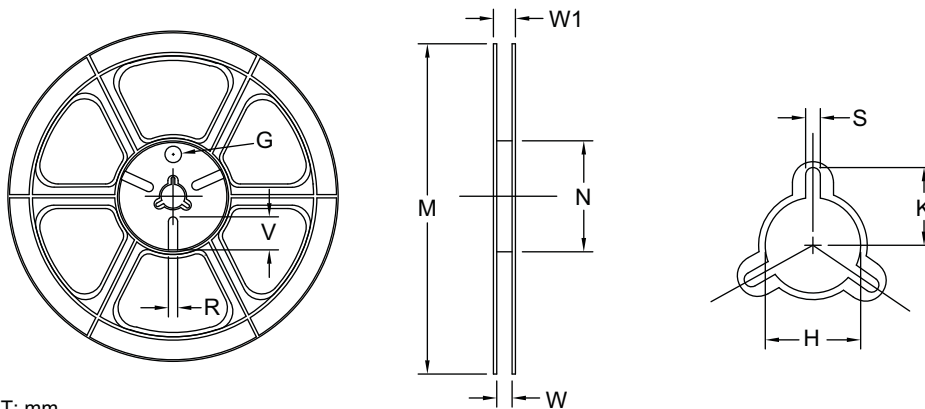
#### Carrier Tape



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

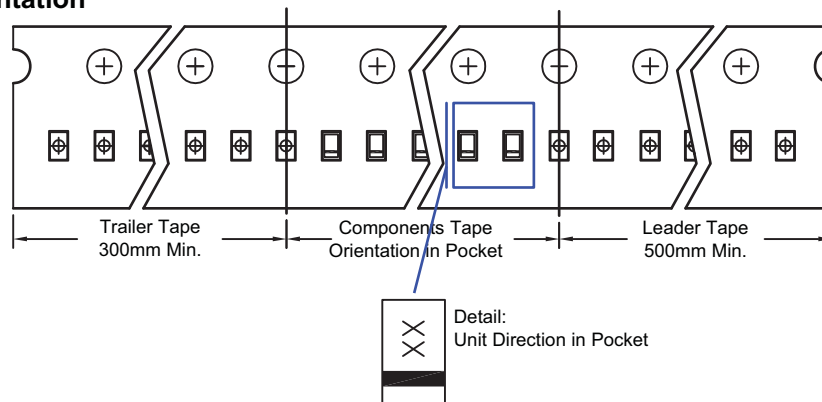


UNIT: mm

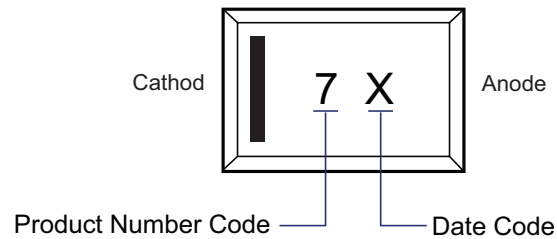
Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
8mm	ø178	ø178 ±0.5	ø55 ±1	8.4 +1.5/-0	Max. 14.4	ø13.0 ±0.5	Max. 10.1	2.0 ±0.5	N/A	N/A	N/A

#### Leader / Trailer & Orientation

TVS  
Unit Per Reel:  
10000pcs



## Part Marking



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