



## **General Description**

The AOZ8201 is a one-line transient voltage suppressor diode designed to protect voltage sensitive electronics from high transient conditions and ESD. This state-ofthe-art device utilizes AOS leading edge Trench Vertical Structure [TVS]<sup>2</sup><sup>™</sup> technology for superior clamping performance.

This device incorporates one TVS diode in an ultra-small SOD523 package. During transient conditions, the 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 (±15kV air, ±8kV contact discharge).

The AOZ8201 comes in an RoHS compliant SOD523 package and is rated over a -40°C to +85°C ambient temperature range.

The ultra-small 1.6 x 0.8 x 0.6mm SOD523 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

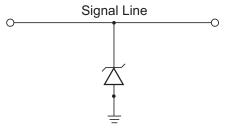
- ESD protection for high-speed data lines:
  - Exceeds: IEC 61000-4-2 (ESD) ±28kV (air), ±28kV (contact)
  - Human Body Model (HBM) ±30kV
- Trench Vertical Structure [TVS]<sup>2</sup> ™ based technology used to achieve excellent ESD clamping performance
- Small package saves board space
- Low insertion loss
- Low clamping voltage
- Low operating voltage
- 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
AOZ8201NI-05L	-40°C to +85°C	SOD523	RoHS Compliant
AOZ8201NI-12L			Green Product



All AOS products are offered in packages with Pb-free plating and compliant to RoHS standards.

Parts marked as Green Products (with "L" suffix) use reduced levels of Halogens, and are also RoHS compliant. Green Please visit 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 <sub>PP</sub> ), t <sub>P</sub> = 8/20µs	5A
Storage Temperature (T <sub>S</sub> )	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact <sup>(1)</sup>	±28kV
ESD Rating per IEC61000-4-2, Air <sup>(1)</sup>	±28kV
ESD Rating per Human Body Model <sup>(2)</sup>	±30kV

Notes:

1. IEC 61000-4-2 discharge with C\_{Discharge} = 150pF, R\_Discharge = 330 $\Omega$ .

2. Human Body Discharge per MIL-STD-883, Method 3015 C\_{Discharge} = 100pF, R\_{Discharge} = 1.5 k\Omega.

# Maximum Operating Ratings

Parameter	Rating
Junction Temperature (T <sub>J</sub> )	-40°C to +85°C

## **Electrical Characteristics**

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

Symbol	Parameter		Symbol	Parameter
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current		V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub> = 1mA
V <sub>CL</sub>	Clamping Voltage	Ī	Ι <sub>Τ</sub>	Test Current = 1mA
V <sub>RWM</sub>	Working Reverse Voltage	Ī	P <sub>pk</sub>	Peak Power Dissipation
I <sub>R</sub>	Maximum Reverse Leakage Current		CJ	Max. Capacitance @ $V_R = 0$ and f = 1MHz

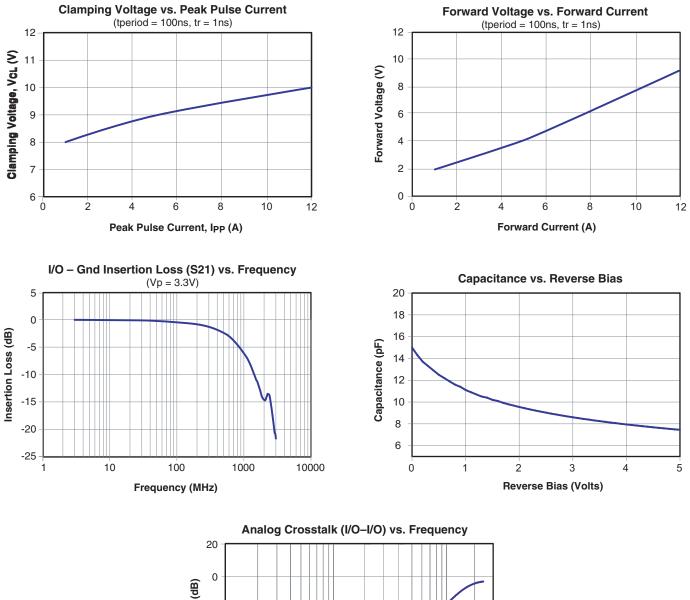
## **Electrical Characteristics**

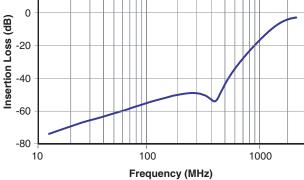
 $T_A = 25^{\circ}C$  unless otherwise noted,  $V_F = 0.9V$  Max. @  $I_F = 10mA$  for all types

	Device	V <sub>RWM</sub> (V)	V <sub>BR</sub> (V)	I <sub>R</sub> (μΑ)	V <sub>F</sub> (V)		V <sub>CL</sub> Max.	' <sub>CL</sub> Max.			
Device	Marking	Max.	Max.	Max.	Тур.	I <sub>PP</sub> = 1A	I <sub>PP</sub> = 5A	I <sub>PP</sub> = 12A	C <sub>J</sub> (pF) Max.		
AOZ8201NI-05L	С	5.0	6.0	0.1	0.75	8.00	9.00	10.00	16		
AOZ8201NI-12L	D	12.0	15.0	0.1	0.75	18.00	20.00	21.00	30		



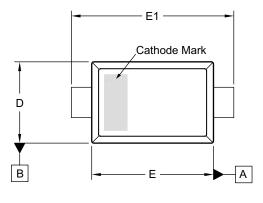
# **Typical Performance Characteristics**



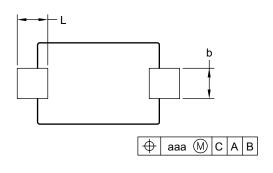




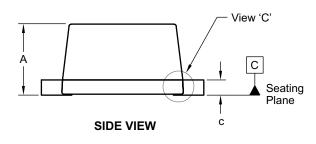
## Package Dimensions, SOD523

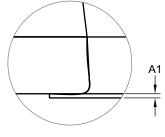


TOP VIEW



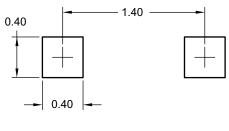
**BOTTOM VIEW** 





VIEW 'C'

#### **RECOMMENDED LAND PATTERN**



UNIT: mm

#### **Dimensions in millimeters**

Min.

0.50

0.00

0.25

0.07

1.10

1.50

0.25

**Dimensions in inches** 

Nom.	Max.	Symbols	Min.	Nom.	Max.
0.60	0.70	A	0.020	0.024	0.028
_	0.05	A1	0.00	_	0.002
0.30	0.35	b	0.010	0.012	0.014
—	0.20	с	0.003	—	0.008
0.80	0.90	D	0.028	0.031	0.035
1.20	1.30	E	0.043	0.047	0.051
1.60	1.70	E1	0.059	0.063	0.067
0.30	0.40	L	0.010	0.012	0.016
0.08		aaa		0.003	

#### Notes:

- 1. All Dimensions are in millimeters.
- 2. Dimensions are inclusive of plating.
- 3. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.
- 4. The cathode mark is optional.
- 5. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 3 mils each.

Symbols

А

A1 b

с

D E

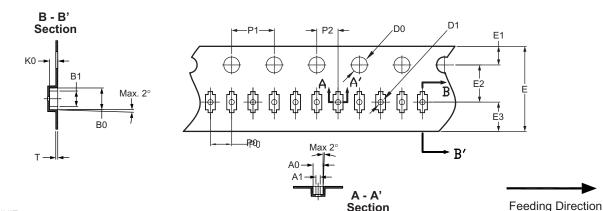
E1

L

aaa

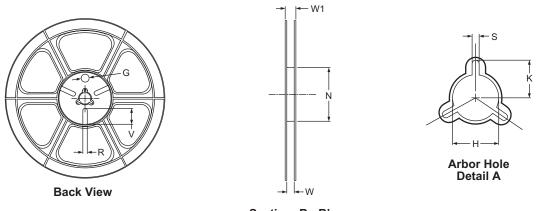
# **Tape and Reel Dimensions, SOD523**





UNIT: mm													, Dirootio			
I	Package	т	В0	B1	A0	A1	К0	D0	D1	Е	E1	E2	E3	P0	P1	P2
:	SOD523	0.18 ±0.1	1.95 ±0.1	1.4 ±0.1	0.9 ±0.1	0.39 ±0.1	0.73 ±0.1	ø1.5 ±0.1	ø0.50 ±0.05	8.0 ±0.2	1.75 ±0.1	3.5 ±0.05	2.75	2.0 ±0.1	4.0 ±0.1	2.0 ±0.05

Reel

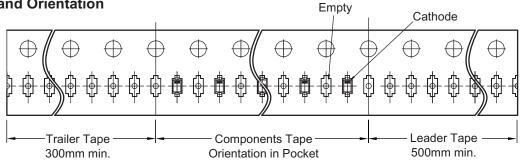


Section: B - B'

UNIT: mm

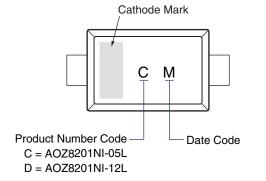
Tape Size	Reel Size	М	Ν	w	W1	Н	к	S	G	R	v
8mm	ø180	ø180.00 ±0.5	ø60.50	9.0 ±0.30	11.40 ±1.00	ø13.00 +0.50/-2.0	10.60	2.00 ±0.50	ø9.00	5.00	18.00

## Leader/Trailer and 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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