

General Description

The AOZ8211 is a one-line 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 SOD923 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 AOZ8211 comes in an RoHS compliant SOD923 package and is rated over a -40°C to +85°C ambient temperature range.

The ultra-small 1.0 x 0.6 x 0.4mm SOD923 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

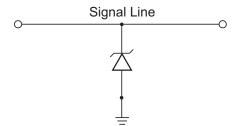
- ESD protection for high-speed data lines:
 - Exceeds: IEC 61000-4-2 (ESD) ±28kV (air), ±28kV (contact)
 - Human Body Model (HBM) ±30kV
- Small package saves board space
- Low insertion loss
- Low clamping voltage
- Low operating voltage: 5V and 12V

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			
AOZ8211NI-05L	-40°C to +85°C	SOD923	RoHS Compliant			
AOZ8211NI-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				
Peak Pulse Current (I_{PP}), $t_P = 8/20 \mu s$	5A				
Storage Temperature (T _S)	-65°C to +150°C				
ESD Rating per IEC61000-4-2, Contact ⁽¹⁾	±28kV				
ESD Rating per IEC61000-4-2, Air ⁽¹⁾	±28kV				
ESD Rating per Human Body Model ⁽²⁾	±30kV				

Notes:

- 1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 330 Ω .
- 2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge}$ = 100pF, $R_{Discharge}$ = 1.5k Ω .

Maximum Operating Ratings

Parameter	Rating
Junction Temperature (T _J)	-40°C to +85°C

Electrical Characteristics

 $T_A = 25$ °C unless otherwise specified.

Symbol	Parameter		Symbol	Parameter
I _{PP}	Maximum Reverse Peak Pulse Current		I _T	Test Current
V _{CL}	Clamping Voltage @ I _{PP}		I _F	Forward Current
V _{RWM}	Working Peak Reverse Voltage		V _F	Forward Voltage @ I _F
I _R	I _R Maximum Reverse Leakage Current @ V _{RWM}		P _{pk}	Peak Power Dissipation
V _{BR}	Breakdown Voltage @ I _T		CJ	Max. Capacitance @ V _R = 0 and f = 1MHz

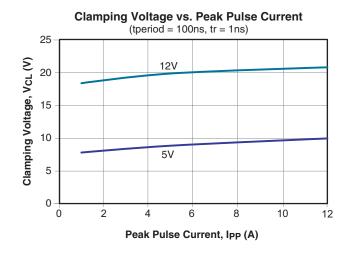
Electrical Characteristics

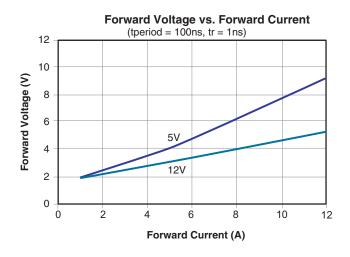
 $T_A = 25$ °C unless otherwise noted, $V_F = 0.9V$ Max. @ $I_F = 10$ mA for all types

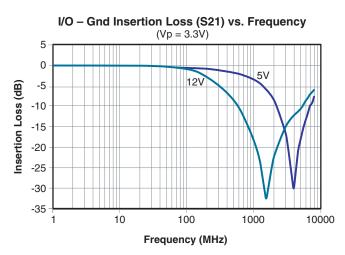
	Device	V _{RWM} (V)	V _{BR} (V)	I _R (μΑ)	V _F (V)		V _{CL} Max.	•	C _J (pF)
Device	Marking		Max.	Typ.	I _{PP} = 1A	I _{PP} = 5A	I _{PP} = 12A	Typ.	
AOZ8211NI-05L	С	5.0	6.0	0.1	0.75	8.00	9.00	10.00	16
AOZ8211NI-12L	D	12.0	15.0	0.1	0.75	18.00	20.00	21.00	30

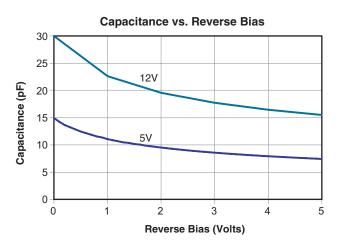


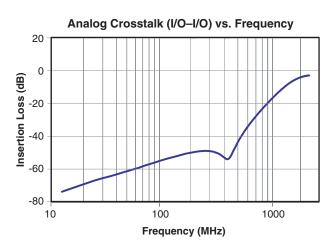
Typical Performance Characteristics





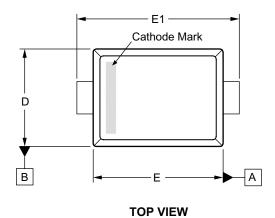


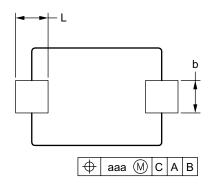




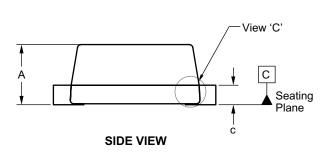


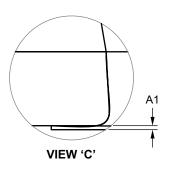
Package Dimensions, SOD923



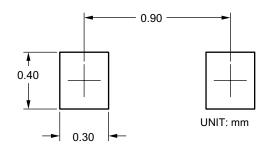


BOTTOM VIEW





RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.		
Α	_	_	0.41		
A1	0.00	_	0.05		
b	0.15	0.20	0.25		
С	0.07	0.12	0.14		
D	0.55	0.60	0.65		
Е	0.75	0.80	0.85		
E1	0.95	1.00	1.05		
L	0.15	0.20	0.25		
aaa		0.08			

Dimensions in inches

Symbols	Min.	Nom.	Max.		
Α	_	_	0.016		
A1	0.00	_	0.002		
b	0.006	0.008	0.010		
С	0.003	0.005	0.006		
D	0.022	0.024	0.026		
Е	0.030	0.031	0.033		
E1	0.037	0.039	0.041		
L	0.006	0.008	0.010		
aaa		0.003			

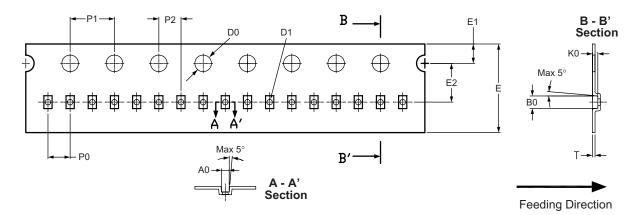
Notes:

- 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.



Tape and Reel Dimensions, SOD923

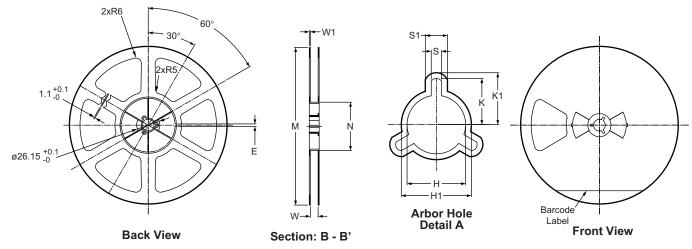
Tape



UNIT: mm

Package	A0	В0	K0	D0	D1	E	E1	E2	P0	P1	P2	Т
SOD923								3.5 ±0.05			2.0 ±0.05	0.229 ±0.02

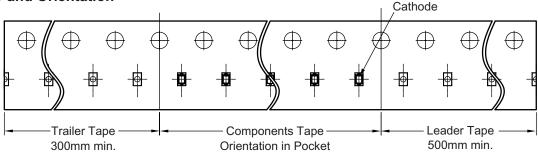
Reel



UNIT: mm

Tape Size	Reel Size	М	N	w	W1	н	H1	K	K1	S	S1	Е
8mm	ø180	ø177.7 ±0.5	ø54.4 ±0.5	8.8 ±0.5	1.15 +0.2 / -0.0	ø13.2 ±0.3	ø15.8	10.4	11.7	2.3 ±0.1	4.9 ±0.1	2.8 ±0.1

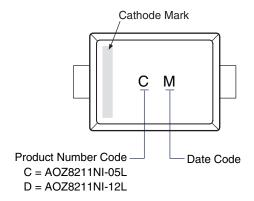
Leader/Trailer and Orientation



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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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As used herein:

- 1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
- 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.