

AOZ8212BCI

Two-line Bi-directional TVS Diode

General Description

The AOZ8212BCI is a two-line bi-directional transient voltage suppressor diode designed to protect voltage sensitive electronics from high transient conditions and ESD.

This device incorporates two TVS diodes in a small SOT-23 package. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (\pm 15 kV air, \pm 8 kV contact discharge).

The small SOT-23 package makes the AOZ8212BCI ideal for applications where PCB space is a premium. The small size and high ESD protection is ideal for protecting voltage sensitive electronics from high transient conditions and ESD.

Features

- ESD protection for high-speed data lines: AOZ8212BCI-12
 - Exceeds: IEC 61000-4-2 (ESD) ± 30 kV (air),
 ± 30 kV (contact)
 - Human Body Model (HBM) ± 30 kV
 - IEC 61000-4-5 (Lightning) 5 A (8/20 μs)

AOZ8212BCI-24

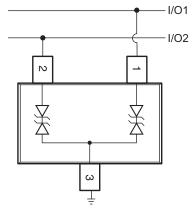
- Exceeds: IEC 61000-4-2 (ESD) ± 18 kV (air),± 15 kV (contact)
- Human Body Model (HBM) ± 15 kV
- IEC 61000-4-5 (Lightning) 2.5 A (8/20 μs)
- Small package saves board space
- IEC 61000-4-4 (EFT) ± 40 A
- Low insertion loss
- Low clamping voltage
- Low operating voltages: 12 V, 24 V

Applications

- Portable handheld devices
- Keypads, data lines, buttons
- Notebook computers
- Digital cameras
- Portable GPS

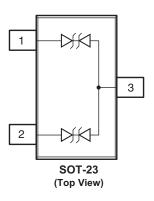


Typical Application



Bidirection Protection of Two Lines

Pin Configuration





Ordering Information

Part Number	Package	Environmental
AOZ8212BCI-12	SOT-23	Green Product
AOZ8212BCI-24	301-23	Green Floudet



AOS Green Products use reduced levels of Halogens, and are also RoHS compliant. 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	AOZ8212BCI-12	AOZ8212BCI-24		
Peak Pulse Current, t _P = 8/20 μs	5 A	2.5 A		
Peak Pulse Power, t _P = 8/20 μs	100 W	100 W		
Storage Temperature (T _S)	-65°C to +150°C	-65°C to +150°C		
ESD Rating per IEC61000-4-2, Contact ⁽¹⁾	± 30 kV	± 15 kV		
ESD Rating per IEC61000-4-2, Air ⁽¹⁾	± 30 kV	± 18 kV		
ESD Rating per Human Body Model ⁽²⁾	± 30 kV	± 15 kV		

Notes:

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

Maximum Operating Ratings

Parameter	Rating
Junction Temperature (T _J)	-40°C to +150°C

Electrical Characteristics

 $T_A = 25$ °C unless otherwise specified.

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

Electrical Characteristics

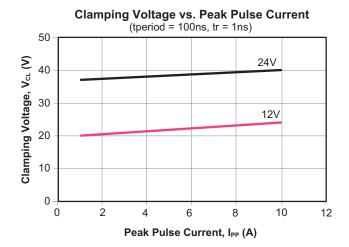
 $T_A = 25$ °C unless otherwise noted.

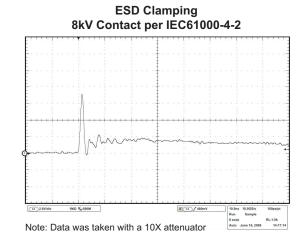
	Device	V _{RWM} (V)	V _{BR} (V)	I _R (μA)	V _{CL} I	V _{CL} Max.		C _J (pF)
Device	Marking	Max.	Min @ 5mA	Max.	I _{PP} = 1 A	I _{PP} = 10 A	C _J (pF) Typ.	Max.
AOZ8212BCI-12	CCC	12.0	13.0	1.0	20.0	24.0	10.0	12.5
AOZ8212BCI-24	CCT	24.0	29.0	1.0	37.0	40.0	11.0	15.0

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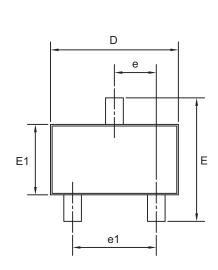
Typical Performance Characteristics

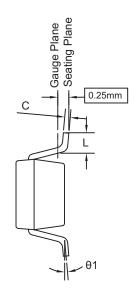


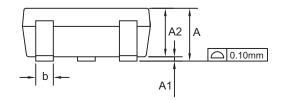




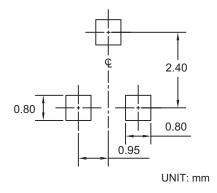
Package Dimensions, SOT-23, 3L







RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.				
Α	0.85	_	1.25				
A1	0.00	_	0.13				
A2	0.70	1.00	1.15				
b	0.30	0.40	0.50				
С	0.08	0.13	0.20				
D	2.80	2.90	3.10				
E	2.60	2.80	3.00				
E1	1.40	1.80					
е	(0.95 BSC					
e1	1.90 BSC						
L	0.30		0.60				
θ1	0°	5°	8°				

Dimensions in inches

Symbols	Min.	Nom.	Max.				
Α	0.033		0.049				
A1	0.000	_	0.005				
A2	0.028	0.039	0.045				
b	0.012	0.016	0.020				
С	0.003	0.005	0.008				
D	0.110 0.114		0.122				
Е	0.102	0.110	0.118				
E1	0.055	0.063	0.071				
е	0	.037 BS	С				
e1	0.075 BSC						
L	0.012	_	0.024				
θ1	0°	5°	8°				

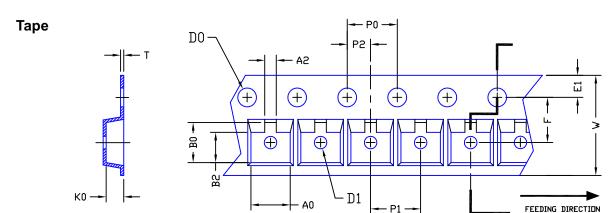
Notes:

- 1. Package body sizes exclude mold flash or gate burrs. Mold flash at the non-lead sides should be less than 5mils each.
- 2. Tolerance ±0.100mm (4mils) unless otherwise specified.
- 3. Dimension L is measured in gauge plane.
- 4. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.
- 5. All dimensions are in millimeters.

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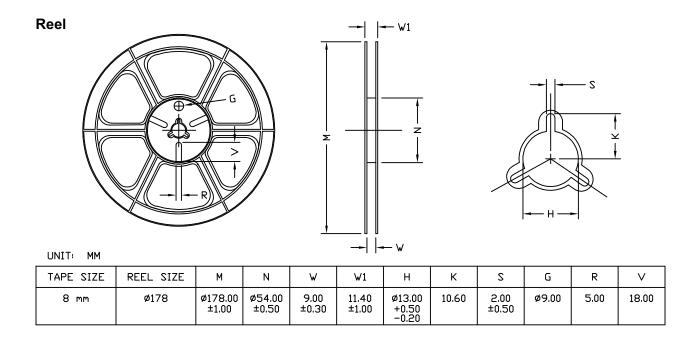


Tape and Reel Dimensions, SOT-23, 3L

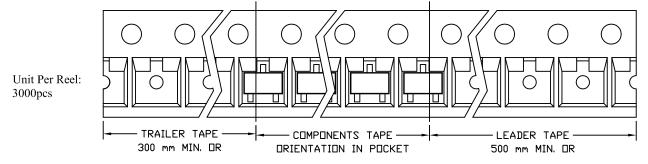


UNIT: MM

	PACKAGE	A0	В0	К0	D0	D1	٧	E1	F	P0	P1	P2	Т	A2	B2
Ī	SDT23-3L (8 mm)	3.05-3.40	3.00-3.38	1.20- 1.47	1.55 ±0.05	1.00 ±0.25	8.00 ±0.30	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	0.18 -0.25	0.84-1.24	2.29-2.69



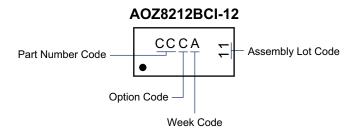
Leader/Trailer and Orientation

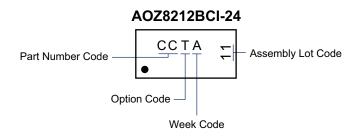


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Part Marking





This datasheet 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.

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