



**THE DATASHEET OF  
AOZ8212ACI-05**



## General Description

The AOZ8212ACI-05 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 ( $\pm 15\text{kV}$  air,  $\pm 15\text{kV}$  contact discharge).

The AOZ8212ACI-05 comes in a SOT-23 package and is rated over a  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  ambient temperature range.

The small SOT-23 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

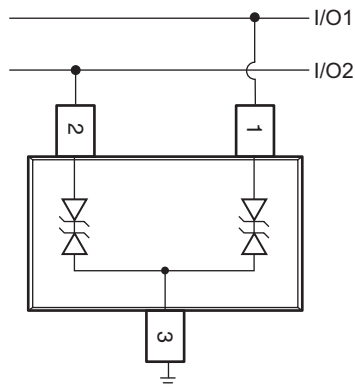
- ESD protection for high-speed data lines:
  - Exceeds: IEC 61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 15\text{kV}$  (contact)
  - Human Body Model (HBM)  $\pm 30\text{kV}$
  - IEC 61000-4-5 (Lightning) 6A (8/20 $\mu\text{s}$ )
- IEC 61000-4-4 (EFT)  $\pm 40\text{A}$
- Low clamping voltage
- Low operating voltages: 5.0V

## Applications

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

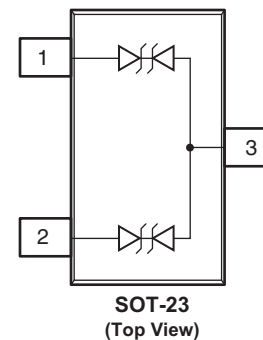


## Typical Application



Bidirection Protection of Two Lines

## Pin Configuration



## Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8212ACI-05	-40°C to +85°C	SOT-23	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
Peak Pulse Current ( $I_{PP}$ ), $t_p = 8/20\mu s$	6A
Peak Power Dissipation (TBD @ 25°C)	110W
Storage Temperature ( $T_S$ )	-65°C to +150°C
IEC 61000-4-4 (EFT)	±40A
ESD Rating per IEC61000-4-2, Contact <sup>(1)</sup>	±15kV
ESD Rating per IEC61000-4-2, Air <sup>(1)</sup>	±15kV
ESD Rating per Human Body Model <sup>(2)</sup>	±30kV

### 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

$T_A = 25^\circ C$  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	$C_J$	Max. Capacitance @ $V_R = 0$ and $f = 1MHz$
$V_{BR}$	Breakdown Voltage		

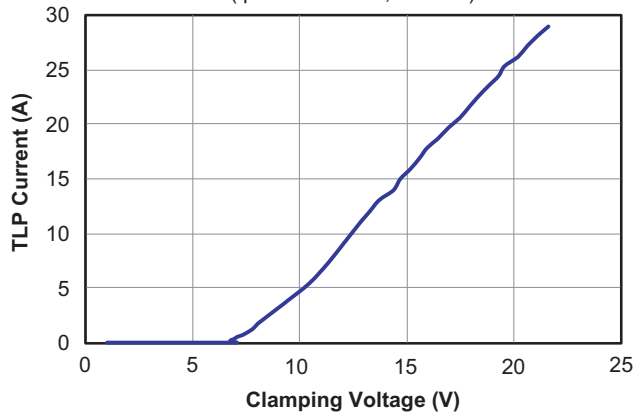
## Electrical Characteristics

$T_A = 25^\circ C$  unless otherwise noted.

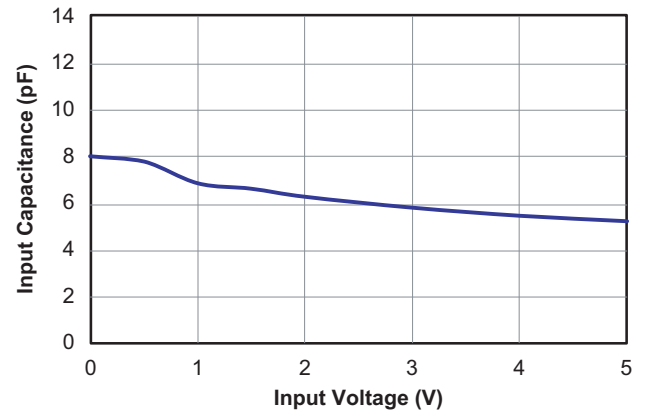
Device	Device Marking	$V_{RWM}$ (V) Max.	$V_{BR}$ (V) Min @ 1mA	$I_R$ ( $\mu A$ ) Max.	$V_{CL}$ Max.		$C_J$ (pF) Typ.	$C_J$ (pF) Max.
					$I_{PP} = 1A$	$I_{PP} = 10A$		
AOZ8212ACI-05	BX	5.0	5.5	0.1	10.0	16.0	11.0	14.0

## Typical Performance Characteristics

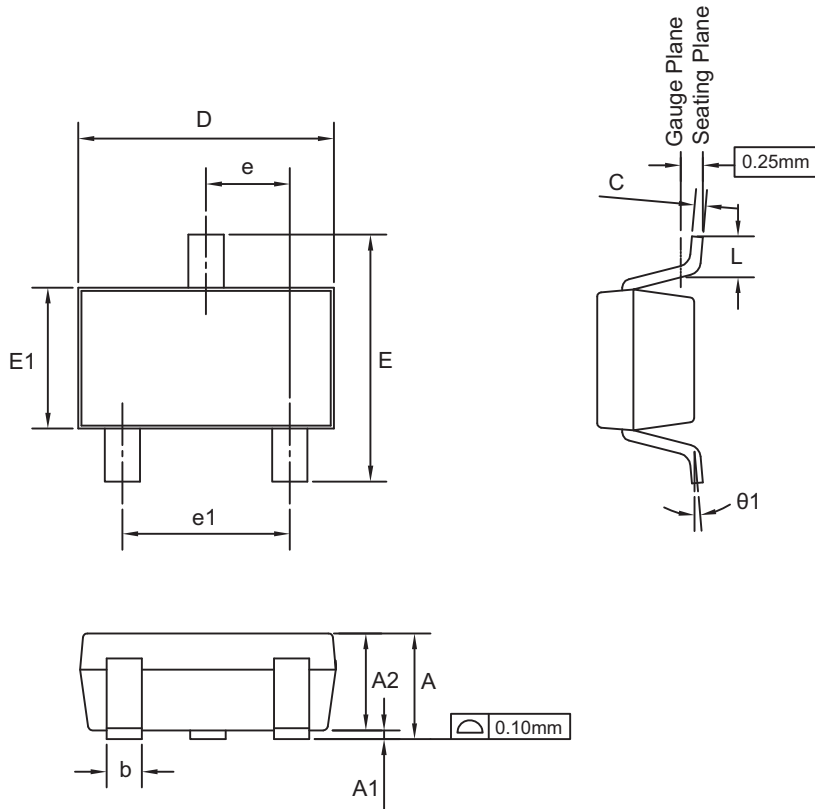
**TLP Current vs. Clamping Voltage**  
(tperiod = 100ns, tr = 1ns)



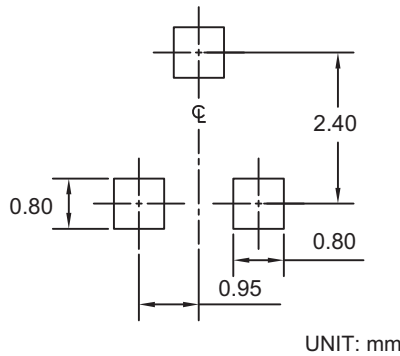
**Typical Variation of CIN vs. VR**



Package Dimensions, SOT-23 3L



RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	0.85	—	1.25
A1	0.00	—	0.13
A2	0.70	1.00	1.15
b	0.30	0.40	0.50
c	0.08	0.13	0.20
D	2.80	2.90	3.10
E	2.60	2.80	3.00
E1	1.40	1.60	1.80
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	—	0.60
θ1	0°	5°	8°

Dimensions in inches

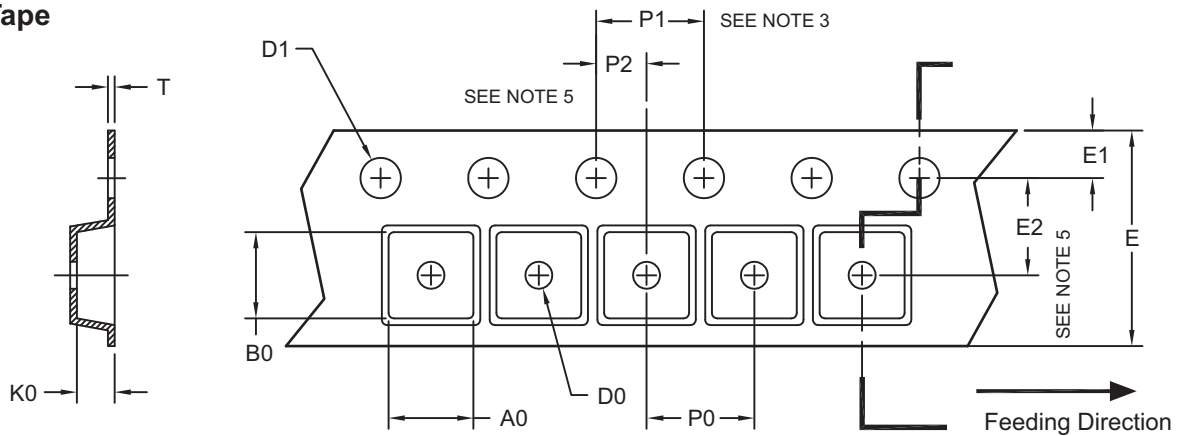
Symbols	Min.	Nom.	Max.
A	0.033	—	0.049
A1	0.000	—	0.005
A2	0.028	0.039	0.045
b	0.012	0.016	0.020
c	0.003	0.005	0.008
D	0.110	0.114	0.122
E	0.102	0.110	0.118
E1	0.055	0.063	0.071
e	0.037 BSC		
e1	0.075 BSC		
L	0.012	—	0.024
θ1	0°	5°	8°

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  $\pm 0.100\text{mm}$  (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.

### Tape and Reel Dimensions, SOT-23 3L

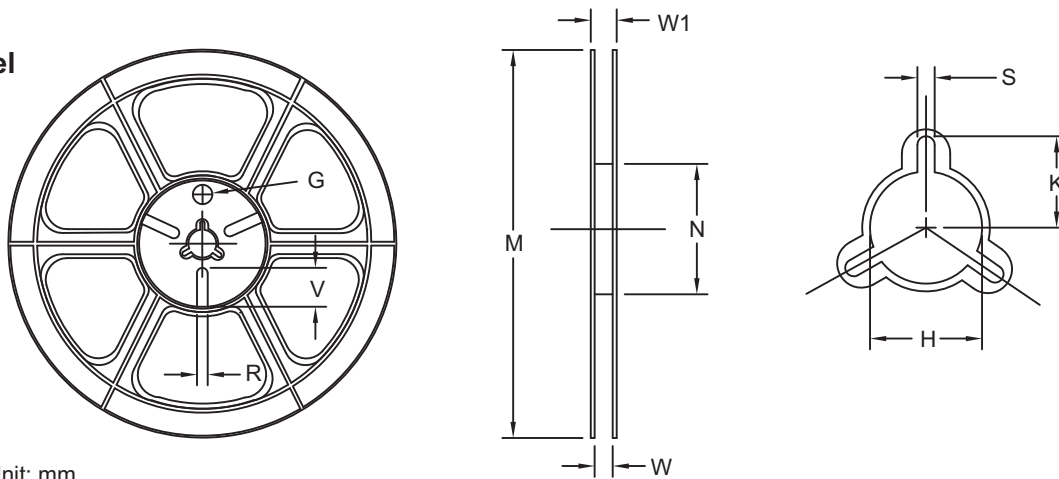
#### Tape



Unit: mm

Package	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOT23 (8mm)	3.15 ±0.10	3.20 ±0.10	1.40 ±0.10	1.50 MIN.	1.50 ±0.10	8.00 ±0.30	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	0.15 ~ 0.30

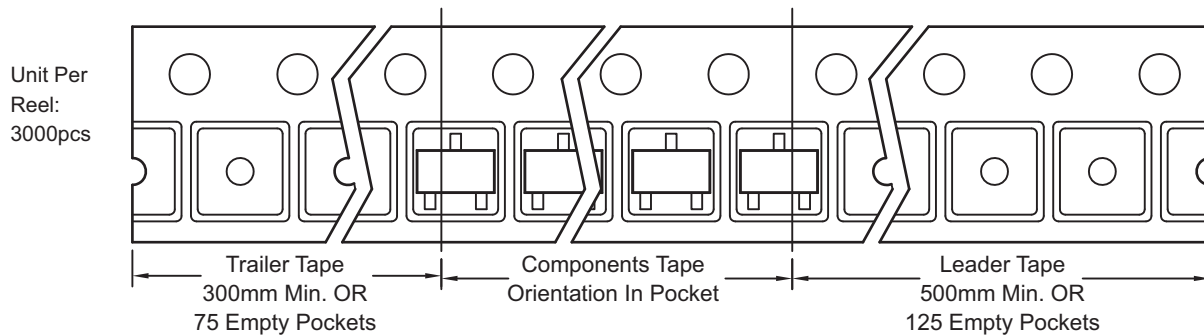
#### Reel



Unit: mm

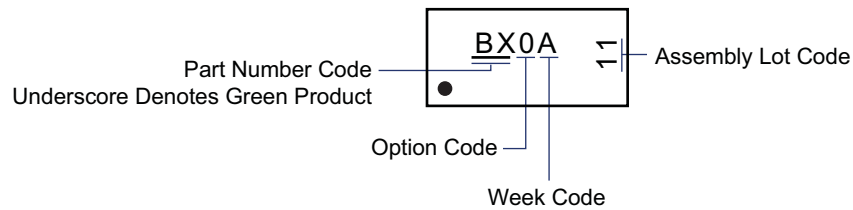
Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
8mm	ø180	ø180.00 ±0.50	ø60.50	9.00 ±0.30	11.00 ±1.00	13.00 +0.50 / -0.20	10.60	2.00 ±0.50	ø9.00	5.00	18.00

#### Leader/Trailer and Orientation



Unit Per  
Reel:  
3000pcs

## Package Marking



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