

## General Description

The AOZ6115 is a high performance single-pole single-throw (SPST), low power, TTL-compatible bus switch.

The AOZ6115 can handle analog and digital signals. Signals with voltages up to  $V_{CC}$  (1.65V to 5.5V) can be transmitted in either direction.

When the Select pin is HIGH, A is connected to the output B pin. The path that is open will have a high-impedance state with respect to the output.

## Features

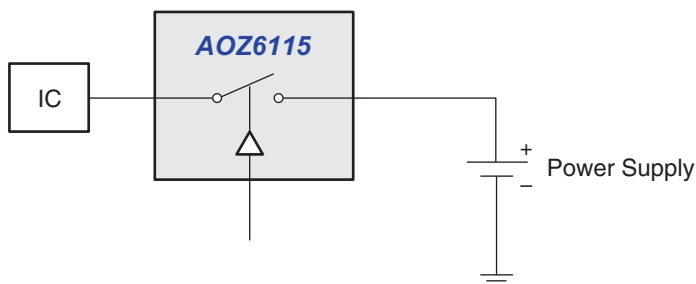
- SOT-23 5-Lead Package
- 1.65V to 5.5V  $V_{CC}$  operation
- Low  $C_{ON}$ : 18pF

## Applications

- Audio and Video Signal Routing
- Battery Operated Equipment
- Communications Circuit
- Relay Replacement
- Power Routing



## Typical Application



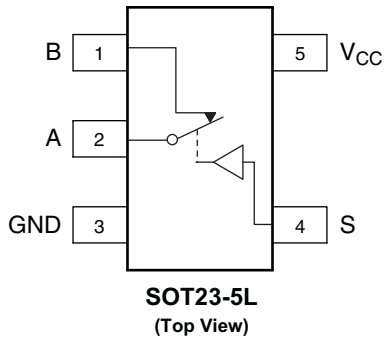
**Ordering Information**

Part Number	Ambient Temperature Range	Package	Environmental
AOZ6115CI	-40°C to +85°C	SOT-23 5-Lead	RoHS Compliant Green Product



AOS Green Products use reduced levels of Halogens, and are also RoHS compliant.  
Please visit [www.aosmd.com/web/quality/rohs\\_compliant.jsp](http://www.aosmd.com/web/quality/rohs_compliant.jsp) for additional information.

**Pin Configuration**



**Truth Table**

Logic S Input	Function
0	No Connection
1	A Connected to B

## Absolute Maximum Ratings

Exceeding the Absolute Maximum ratings may damage the device.

Symbol	Parameter	Rating
$V_{CC}$	Supply Voltage	-0.5V to + 6V
$V_S$	Switch Voltage <sup>(1)</sup>	-0.5V to $V_{CC} + 0.5V$
$V_{IN}$	Input Voltage <sup>(1)</sup>	-0.5V to $V_{CC}$
$I_{IK}$	Minimum Input Diode Current	-50mA
$I_{SW}$	Switch Current	130mA
$I_{SWPEAK}$	Peak Switch Current (Pulsed at 1ms, <10% Duty Cycle)	260mA
$T_{STG}$	Storage Temperature Range	-65°C to 150°C
$P_D$	SOT23-5 Power Dissipation at 85°C <sup>(2)</sup>	180mW
ESD	Human Body Model (JESD22A-114E)	8000V

### Notes:

1. Signals on A, or B or S exceeding V+ will be clamped by internal diodes. Limit forward diode current to maximum current ratings.
2. All leads welded or soldered to PC Board.

**Electrical Characteristics** (Continued)

Unless otherwise indicated, specifications indicate a temperature range of -40°C to +85°C

Symbol	Parameter	Test Conditions	Min.	Typ. <sup>(1)</sup>	Max.	Units	
<b>DC CHARACTERISTICS</b>							
V <sub>IH</sub>	Input Voltage High	V <sub>CC</sub> = 2.7V to 3.6V	2.0			V	
		V <sub>CC</sub> = 4.5V to 5.5V	2.4				
V <sub>IL</sub>	Input Voltage Low	V <sub>CC</sub> = 2.7V to 3.6V			0.6	V	
		V <sub>CC</sub> = 4.5V to 5.5V			0.8		
R <sub>ON</sub>	On Resistance	V <sub>CC</sub> = 2.7V, I <sub>OUT</sub> = 100mA, B = 1.5V		3.0	4.0	Ω	
		V <sub>CC</sub> = 4.5V, I <sub>OUT</sub> = 100mA, B = 3.5V		2.0	3.0		
R <sub>FLAT</sub>	On Resistance Flatness	V <sub>CC</sub> = 4.5V, I <sub>OUT</sub> = 100mA, B = 0V, 1V, 2V		0.8		Ω	
I <sub>IN</sub>	Input Leakage Current	V <sub>IN</sub> = 0V or V <sub>CC</sub>	-1.0		1.0	μA	
I <sub>B(off)</sub>	Off Stage Switch Leakage	V <sub>CC</sub> = 5.5V, A = 1V, 4.5V, B = 4.5V, 1V	-100	4	100	nA	
I <sub>A(on)</sub>	On State Switch Leakage	V <sub>CC</sub> = 5.5V, A = 1V, 4.5V, B = floating	-20	1	20	nA	
<b>POWER SUPPLY</b>							
V <sub>CC</sub>	Power Supply Range		1.65		5.5	V	
I <sub>CCQ</sub>	Quiescent Supply Current	V <sub>CC</sub> = 5.5V, V <sub>IN</sub> = 0V or V <sub>CC</sub> , I <sub>OUT</sub> = 0V		0.5	1	μA	
I <sub>CCT</sub>	Increase in I <sub>CC</sub> per Input	V <sub>CC</sub> = 3.6V, V <sub>IN</sub> = 2.0V		3.3	10	μA	
		V <sub>CC</sub> = 5.5V, V <sub>IN</sub> = 2.4V		20	30		
<b>AC CHARACTERISTICS</b>							
t <sub>ON</sub>	Turn-On Time	B = 1.5V, R <sub>L</sub> = 50Ω, C <sub>L</sub> = 35pF	V <sub>CC</sub> = 2.7V to 3.6V		20	65	ns
			V <sub>CC</sub> = 4.5V to 5.5V		10	40	
t <sub>OFF</sub>	Turn-Off Time	B = 1.5V, R <sub>L</sub> = 50Ω, C <sub>L</sub> = 35pF	V <sub>CC</sub> = 2.7V to 3.6V		20	30	ns
			V <sub>CC</sub> = 4.5V to 5.5V		10	20	
Q	Charge Injection	C <sub>L</sub> = 1.0nF, V <sub>GE</sub> = 0V, R <sub>GEN</sub> = 0Ω	V <sub>CC</sub> = 2.7V to 3.6V		1		pC
			V <sub>CC</sub> = 4.5V to 5.5V		2		
<b>ANALOG SWITCH CHARACTERISTICS</b>							
OIRR	Off Isolation	R <sub>L</sub> = 50Ω, f = 1MHz		-70		dB	
BW	-3dB Bandwidth	R <sub>L</sub> = 50Ω		300		MHz	
THD	Total Harmonic Distortion	V <sub>CC</sub> = 5V, R <sub>L</sub> = 600Ω, C <sub>L</sub> = 50pF, f = 20Hz to 20kHz		0.005		%	
<b>CAPACITANCE</b>							
C <sub>IN</sub>	Control Pin Capacitance	V <sub>CC</sub> = 0V, f = 1MHz		2		pF	
C <sub>OFF</sub>	B Port Off Capacitance	V <sub>CC</sub> = 4.5V, f = 1MHz		7.5		pF	
C <sub>ON</sub>	A Port Capacitance When Switch Enable	V <sub>CC</sub> = 4.5V, f = 1MHz		18		pF	

**Note:**

1. Typical values:

## AC Loading and Waveforms

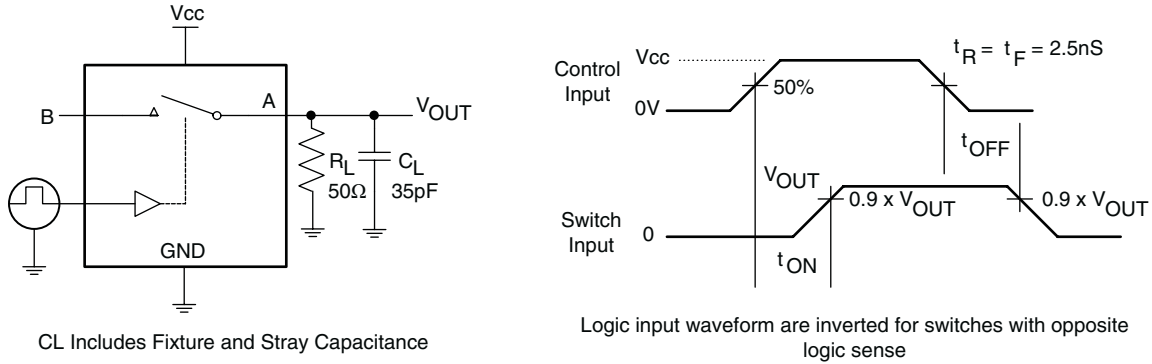


Figure 1. Turn-On/Turn-Off Timing

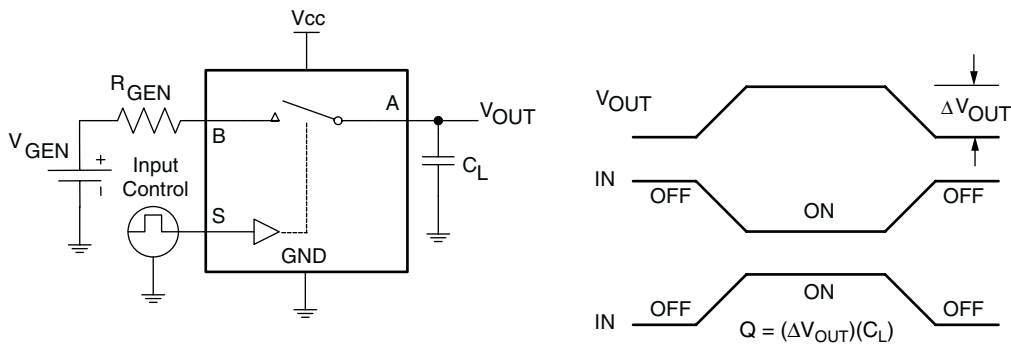


Figure 2. Charge Injection

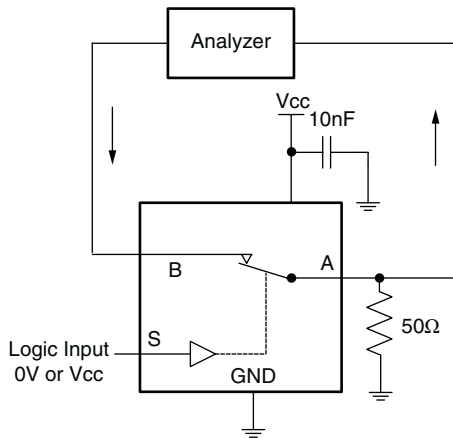


Figure 3. Bandwidth

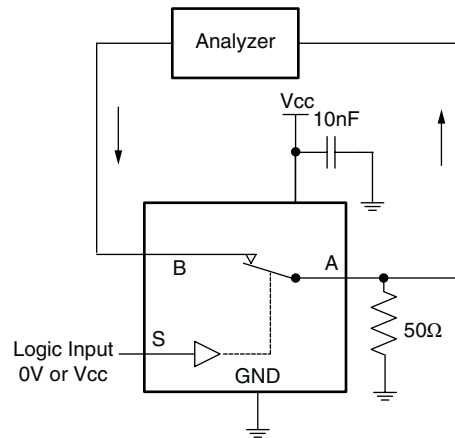


Figure 4. Harmonic Distortion

## AC Loading and Waveforms (Continued)

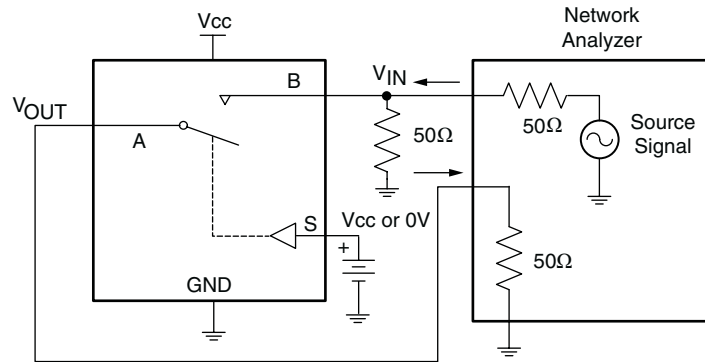


Figure 5. Off Isolation

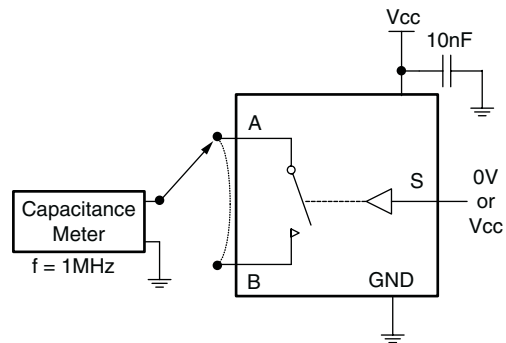
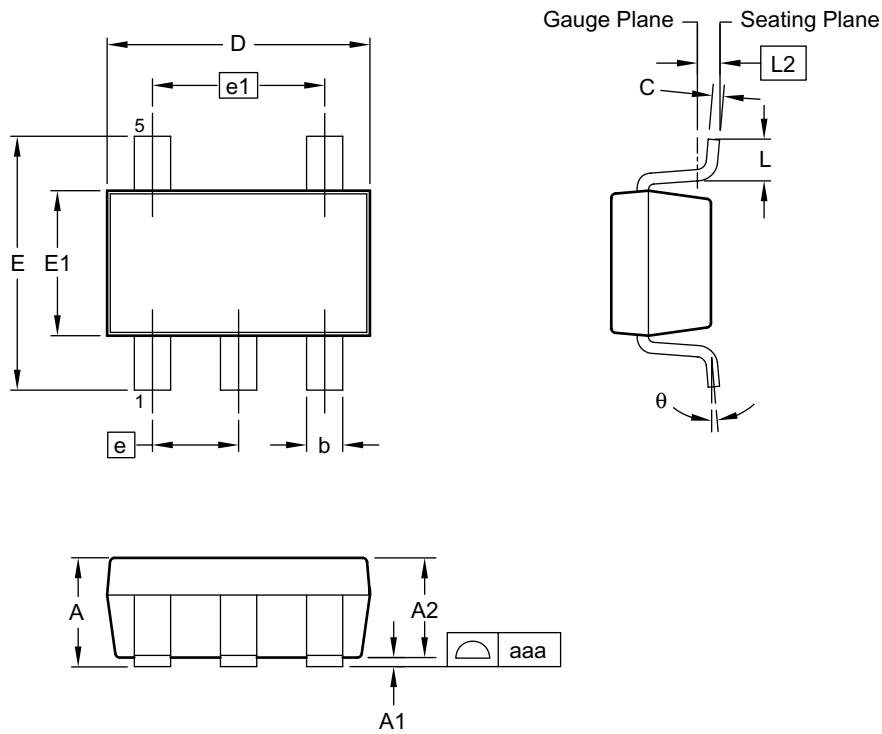
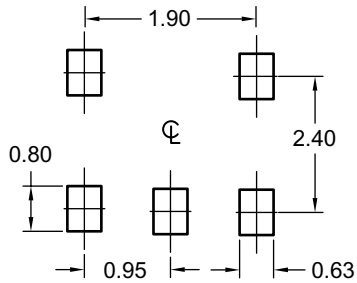


Figure 6. ON/Off Capacitance Measurement

Package Dimensions, SOT23-5L



RECOMMENDED LAND PATTERN



UNIT: mm

Dimensions in millimeters

Dimensions in inches

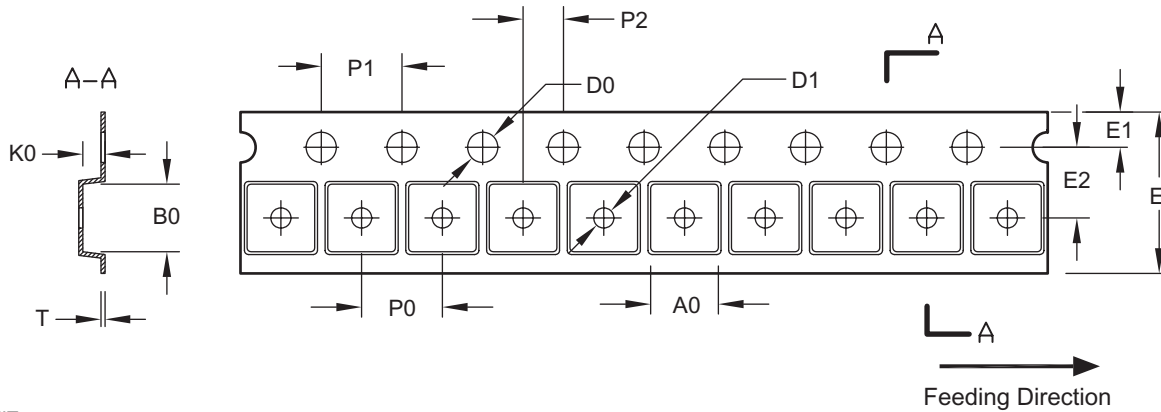
Symbols	Min.	Nom.	Max.	Symbols	Min.	Nom.	Max.
A	—	—	1.00	A	—	—	0.039
A1	0.00	—	0.10	A1	0.00	—	0.004
A2	0.70	0.88	0.95	A2	0.028	0.035	0.037
b	0.35	0.40	0.50	b	0.014	0.016	0.020
C	0.10	0.13	0.20	C	0.004	0.005	0.008
D	2.80	2.90	3.00	D	0.110	0.114	0.118
E	2.60	2.80	3.00	E	0.102	0.110	0.118
E1	1.50	1.60	1.70	E1	0.059	0.063	0.067
e	0.95 BSC			e	0.037 BSC		
e1	1.90 BSC			e1	0.075 BSC		
L	0.30	0.40	0.60	L	0.012	0.016	0.024
L2	0.25 BSC			L2	0.010 BSC		
aaa	0.10			aaa	0.004		
θ	0°	—	8°	θ	0°	—	8°

Notes:

1. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
2. Dimension "L" is measured in gauge plane.
3. Tolerance ±0.10mm (4 mil) unless otherwise specified
4. Refer to JEDEC MO-193C AB.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

## Tape and Reel Dimensions, SOT23-5L

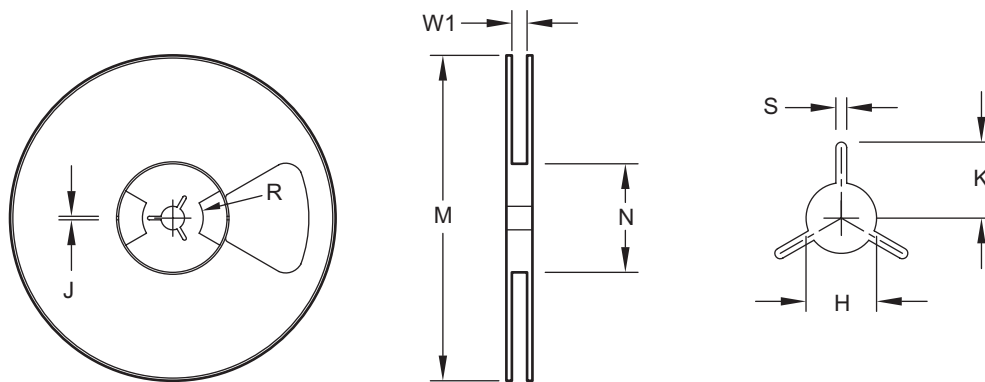
### Tape



UNIT: mm

Package	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOT-23 5 & 6L LP	3.15 ±0.10	3.20 ±0.10	1.40 ±0.10	1.50 ±0.05	1.00 +0.10/-0.00	8.00 ±0.30	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	0.23 ±0.03

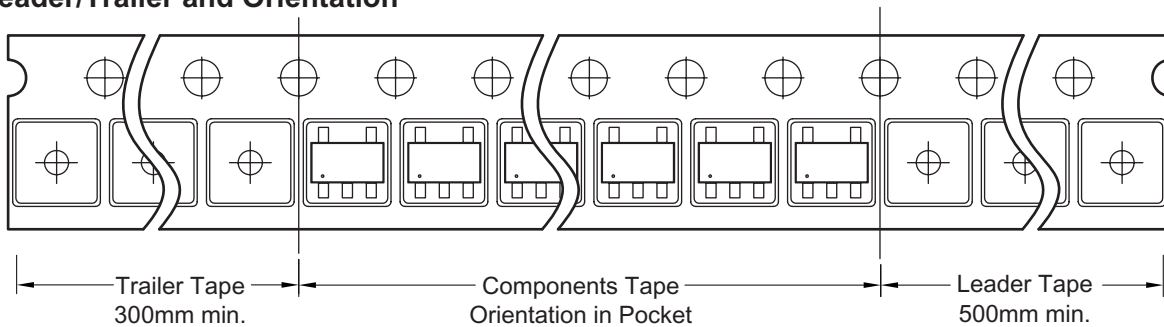
### Reel



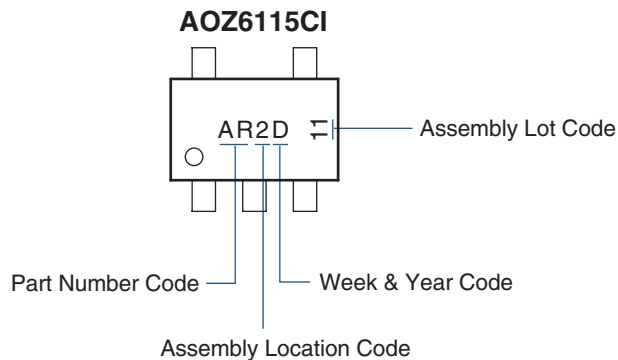
UNIT: mm

Tape Size	Reel Size	M	N	W1	H	S	K	R	J
8mm	ø177.8	ø177.8 Max.	55.0 Min.	8.4 +1.50 / -0.0	13.0 +0.5 / -0.2	1.5 Min.	10.1 Min.	12.7	4.0 ±0.1

### Leader/Trailer and Orientation



## 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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