

## General Description

The AOZ8S326US4-05 is a 4-channel unidirectional high surge transient voltage suppressor designed to protect data lines such as Ethernet and USB2.0 from damaging ESD or surge events.

This device incorporates a series of bidirectional TVS diodes in a single package. During transient conditions, the bidirectional diodes direct the transient to either the positive side of the power supply line or to ground.

The AOZ8S326US4-05 provides a typical capacitance of 0.6pF and low clamping voltage making it ideally suited for data transmission protection in mobile and computing devices.

The AOZ8S326US4-05 comes in a RoHS compliant and Halogen Free SOT23-6L package and is rated for -40°C to +125°C junction temperature range.

## Features

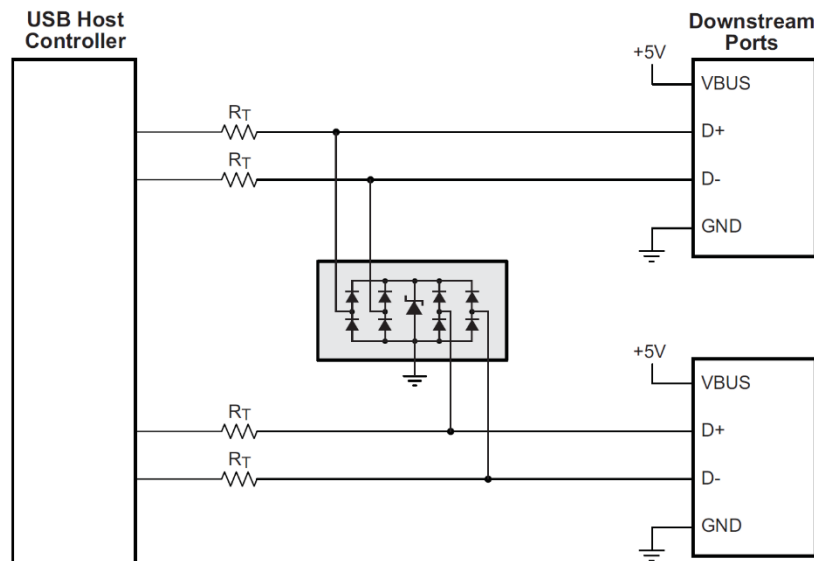
- ESD protection for high-speed data lines:
  - IEC 61000-4-2, ESD immunity:
    - Air discharge:  $\pm 30$  kV
    - Contact discharge:  $\pm 30$  kV
  - IEC61000-4-5 (Lightning, 8/20 $\mu$ s):  $\pm 9$ A
  - IEC61000-4-4 (EFT, 5/50 ns): 40A
  - Human Body Model (HBM)  $\pm 8$  kV
- Array of surge rated diodes with internal TVS diodes
- Protected four I/O lines
- Low capacitance between I/O to GND: 0.7 pF
- Low clamping voltage
- Low operation Voltage: 5.0V

## Applications

- Ethernet
- Monitor and flat panel displays
- USB2.0, MDDI, HDMI
- Setup box
- CPE
- Notebook computers



## Typical Applications



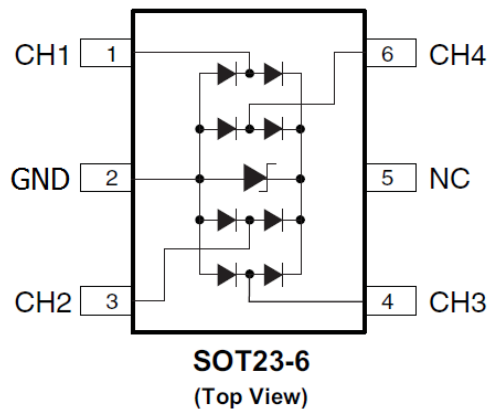
## Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S326US4-05	-40°C to +125°C	SOT23-6L	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.

## Pin Configuration



## Absolute Maximum Ratings

Exceeding the Absolute Maximum Ratings may damage the device.

Parameter	Rating
Storage Temperature (T <sub>s</sub> )	-65 °C to +150 °C
ESD Rating per Human Body Mode (HMB) <sup>(1)</sup>	±8 kV
ESD Rating per IEC61000-4-2, contact <sup>(2)</sup>	±30 kV
ESD Rating per IEC61000-4-2, air <sup>(2)</sup>	±30 kV
Surge Rating per IEC61000-4-5, 8/20 μs	±9A

**Notes:**

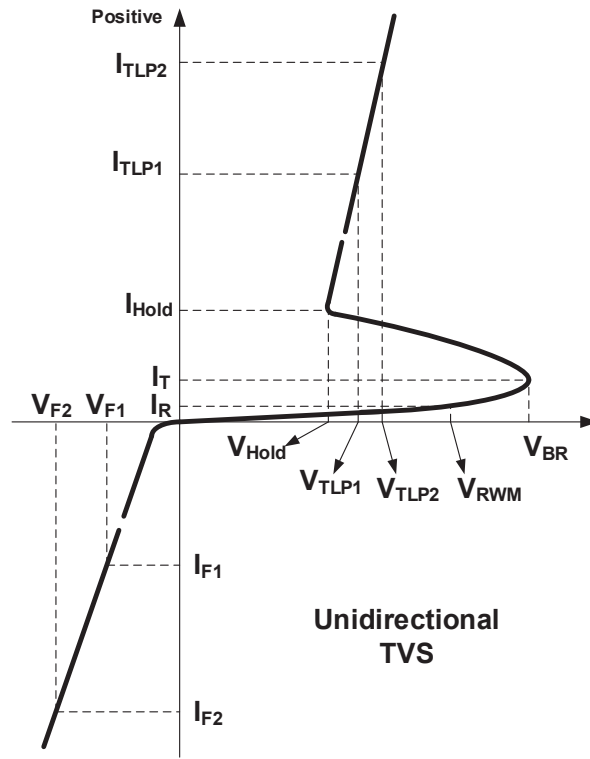
- Human Body Discharge per MIL-STD-883, Method 3015 C<sub>Discharge</sub> = 100 pF, R<sub>Discharge</sub> = 1.5 kΩ
- IEC 61000-4-2 discharge with C<sub>Discharge</sub> = 150 pF, R<sub>Discharge</sub> = 330 Ω.

## Maximum Operating Ratings

Parameter	Rating
Junction Temperature (T <sub>j</sub> )	-40 °C to +125 °C

## Electrical Characteristics

Any I/O Pin to GND. TA = 25 °C unless otherwise specified.



Symbol	Parameter	Conditions	Min	Typ	Max	Units
$V_{RWM}$	Reverse Working Voltage	Between I/O and GND			5.5	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1\text{ mA}$ , between I/O and GND	6	7.4	9	
$I_R$	Reverse Leakage Current	$V_T = \text{Max. } V_{RWM}$ , between I/O and GND			100	nA
$V_{CL}$	Clamping Voltage <sup>(3) (4)</sup> (100 ns Transmission Line Pulse)	$I_{TLP} = 1\text{ A}$ $I_{TLP} = -1\text{ A}$		1.2 -1.2	1.5 -1.5	V
		$I_{TLP} = 16\text{ A}$ $I_{TLP} = -16\text{ A}$		3.3 -3	4 -4	
		$I_{TLP} = 30\text{ A}$ $I_{TLP} = -30\text{ A}$		5 -4.8	6 -5.8	
	Clamping Voltage <sup>(3)</sup> IEC61000-4-5 Surge 8/20us	$I_{PP} = 1\text{ A}$ $I_{PP} = -1\text{ A}$		1.6 -1.6	2.1 -2.1	V
$I_{PP} = 9\text{ A}$ $I_{PP} = -9\text{ A}$			3.3 -3.3	4 -4		
$C_J$	Junction Capacitance	$I_{TLP} = 16\text{ A to } 30\text{ A}$ $I_{TLP} = -16\text{ A to } -30\text{ A}$		0.12 0.12		$\Omega$
$C_J$	Junction Capacitance	$V_{I/O} = 1.5\text{ V}$ , $f = 1\text{ MHz}$		0.7	0.9	pF
		$V_{I/O} = 0\text{ V}$ , $f = 1\text{ MHz}$ , Any I/O to I/O		0.5		

**Notes:**

- 3. These specifications are guaranteed by design and characterization.
- 4. Measurements performed using a 100ns Transmission Line Pulse (TLP) system.

## Typical Performance Characteristics

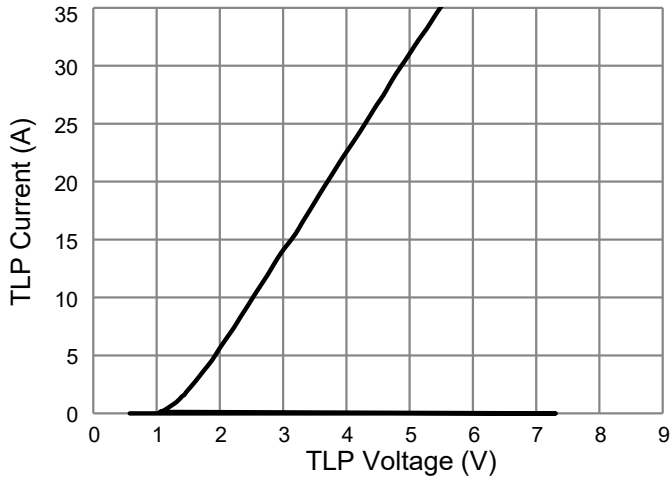


Figure 1. Positive Transmission Line Pulse (tp=100ns, tr=0.2ns)

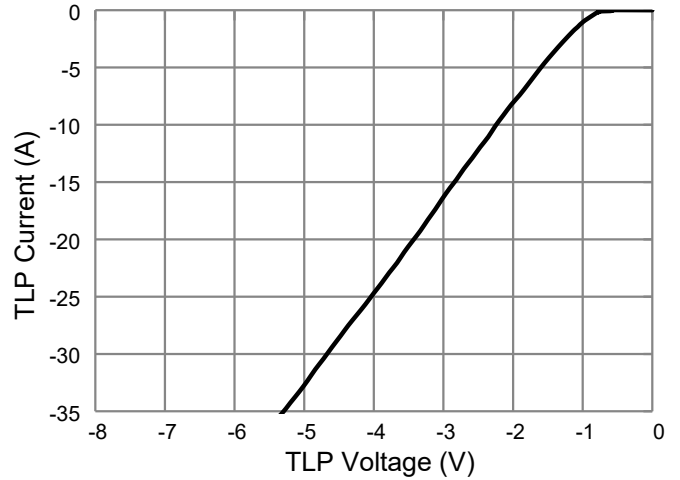


Figure 2. Negative Transmission Line Pulse (tp=100ns, tr=0.2ns)

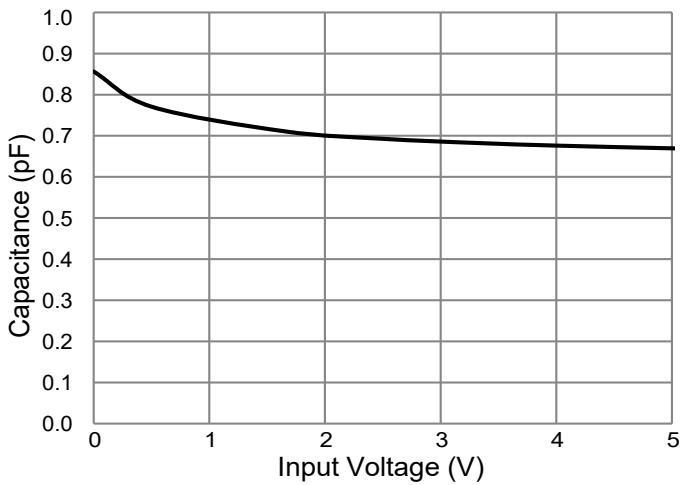


Figure 3. Typical Variations of CJ vs. Input Voltage

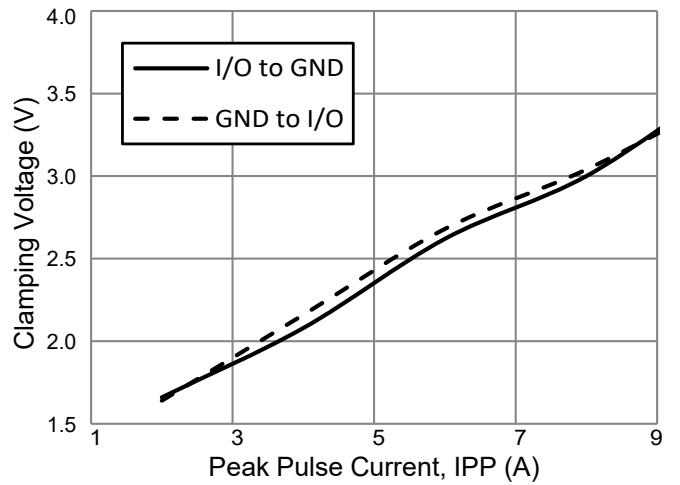


Figure 4. IEC61000-4-5 Surge 8/20us

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