

## General Description

The AOZ8S325UDS-40 is a 1-channel unidirectional low capacitance transient voltage suppressor designed to protect data lines from damaging ESD or surge events.

The device incorporates one unidirectional TVS diode in single package. During transient conditions, the unidirectional diodes direct the transient to ground.

The AOZ8S325UDS-40 provides a typical capacitance of 0.7pF and low clamping voltage making it ideally suited for data transmission protection in mobile and computing devices.

The AOZ8S325UDS-40 comes in a RoHS compliant and Halogen Free 1.0mm x 0.6mm package and is rated for

-40 °C to +125°C junction temperature range

## Features

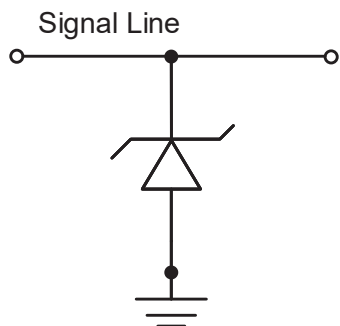
- IEC 61000-4-2, ESD immunity
  - Air discharge: ±8 kV
  - Contact discharge: ±8 kV
  - IEC61000-4-5, Surge immunity (8/20 μs): 1.5 A
  - IEC61000-4-4 (EFT, 5/50ns) 40A
- Unidirectional TVS
- Ultra Low capacitance: 0.8 pF
- Reverse Working voltage: 40 V

## Applications

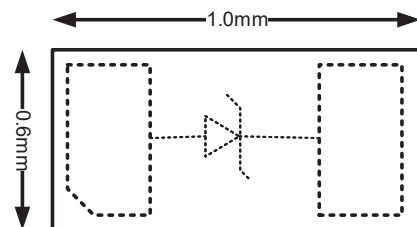
- Data lines
- Notebook computers
- Portable devices
- Digital cameras



## Typical Applications



## Pin Configuration



(Top View)

## Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S325UDS-40	-40°C to +125°C	DFN1.0x0.6-2L	Green Product



AOS products are offered in packages with Pb-free plating and compliant to RoHS standards. 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
Storage Temperature (T <sub>S</sub> )	-65°C to +150°C
ESD Rating per IEC61000-4-2, Contact <sup>(1)</sup>	±8 kV
ESD Rating per IEC61000-4-2, Air <sup>(1)</sup>	±8 kV
8/20µs Surge IEC61000-4-5 Peak Pulse Current	1.5 A
EFT Rating IEC61000-4-4 (5/50ns)	40 A
ESD Rating per Human Body Mode (HBM) <sup>(2)</sup>	±8 kV

### Notes:

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

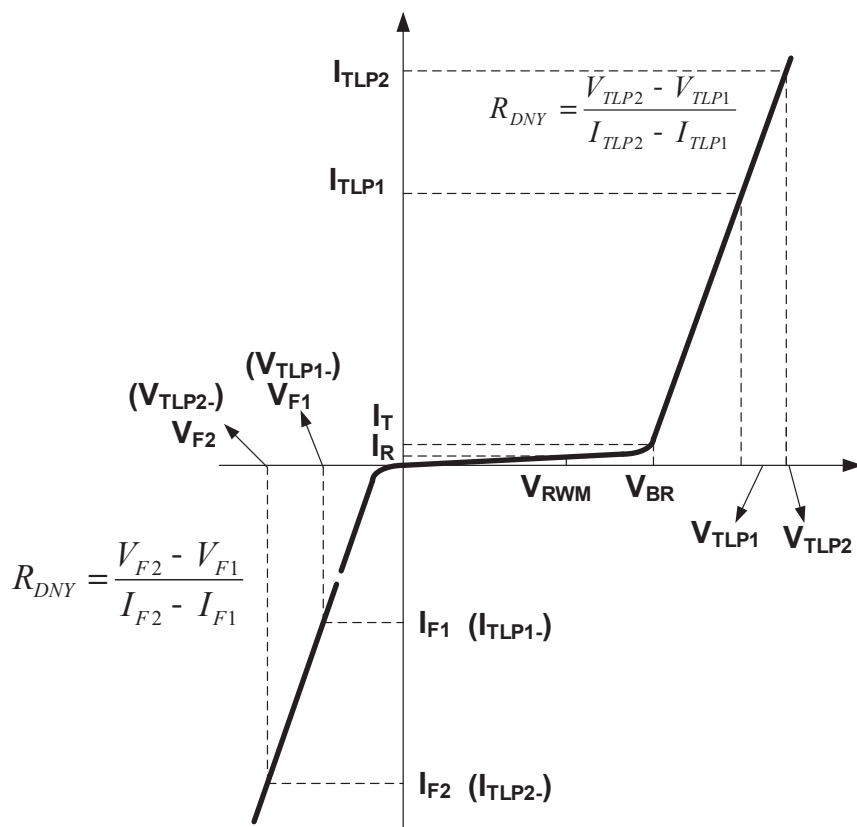
## Maximum Operating Ratings

The device is not guaranteed to operate beyond the Maximum Operating Conditions.

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

## Electrical Characteristics

T<sub>A</sub> = 25°C, unless otherwise specified. Pin 1 as Ground.



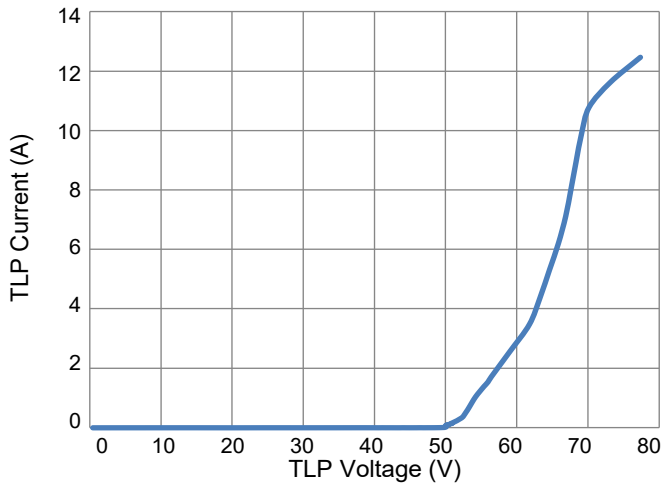
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage	Pin 1 as Ground			40	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA	43	49	56	
I <sub>R</sub>	Reverse Leakage Current	Max. V <sub>RWM</sub>		1	100	nA
V <sub>F</sub>	Forward Bias Voltage	I <sub>T</sub> = 15mA		0.9		V
V <sub>CL</sub>	Clamping Voltage <sup>(3)(4)</sup> (100 ns Transmission Line Pulse)	I <sub>TLP</sub> = 1 A		51		
		I <sub>TLP</sub> = 10 A		70		
V <sub>CL</sub>	Clamping Voltage <sup>(3)</sup> (IEC61000-4-5, 8/20 μs)	I <sub>PP</sub> = 1.5 A		61		
C <sub>J</sub>	Junction Capacitance	V <sub>I/O</sub> = 0V, f = 1MHz		0.8	1.2	pF

**Notes:**

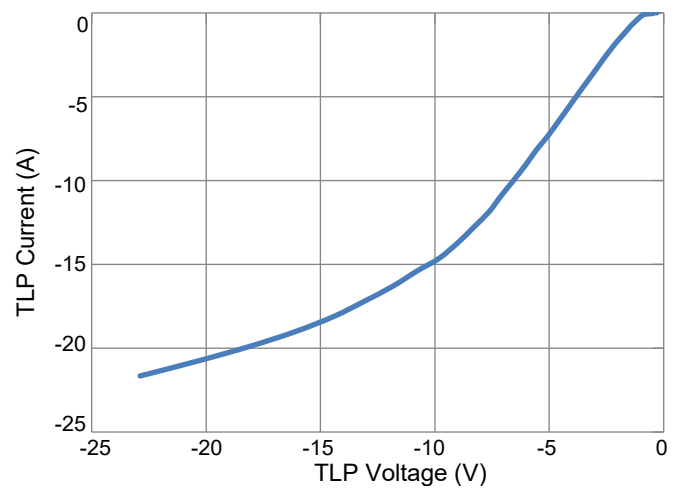
- 3. These specifications are guaranteed by design and characterization.
- 4. Measurements performed using a 100ns Transmission Line Pulse (TLP) system.

## Typical Performance Characteristics

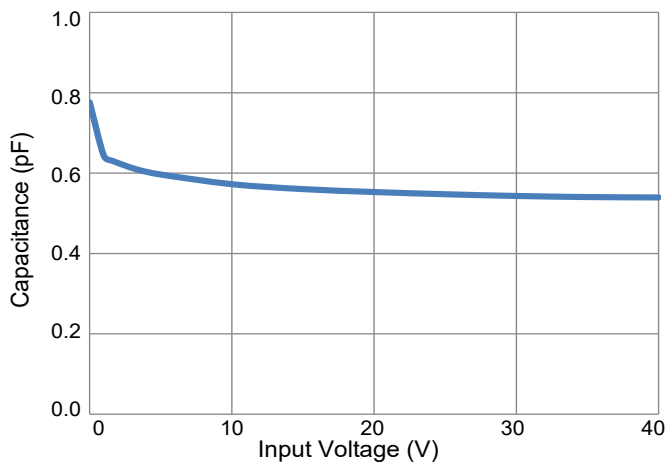
**Positive Transmission Line Pulse**  
( $t_p=100\text{ns}$ ,  $t_r=0.2\text{ns}$ )



**Negative Transmission Line Pulse**  
( $t_p=100\text{ns}$ ,  $t_r=0.2\text{ns}$ )



**Typical Variations of CJ vs. Input Voltage**



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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.