AOZ8S333UDS-05

1-Channel Unidirectional Ultra-Low Capacitance TVS

General Description

The AOZ8S333UDS-05 is a 1-channel unidirectional high surge transient voltage suppressor designed to protect data lines such as USB2.0 from damaging ESD/surge events.

The AOZ8S333UDS-05 provides a typical capacitance of 0.5 pF and low clamping voltage making it ideally suited for data transmission protection in mobile and computing devices.

The AOZ8S333UDS-05 comes in a RoHS compliant and Halogen Free 1.0 mm × 0.6 mm package and is rated for -40°C to +125°C junction temperature range.

Features

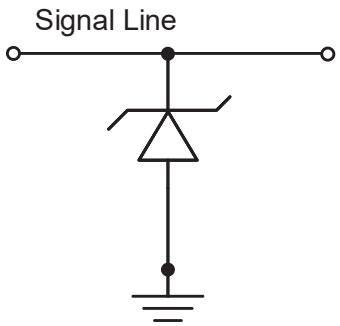
- IEC 61000 4-2, ESD immunity:
  - Air discharge: ±25 kV
  - Contact Discharge: ±22 kV
- IEC61000-4-5 (8/20μS): 6A
- Human Body Mode (HBM): ±8kV
- Low capacitance: 0.5 pF
- Low clamping voltage
- Reverse Working Voltage: 5V

Applications

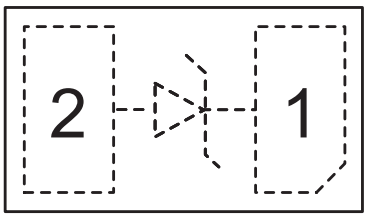
- USB2.0
- Mobile Phone
- Notebook computers
- Panel and Display

Green Product

Typical Application



Pin Configuration



DFN1.0x0.6-2L

Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S333UDS-05	-40°C to +125°C	DFN1.0x0.6-2L	Green Product

AOS Green Products use reduced levels of Halogens, and are also RoHS compliant.
Please visit https://aosmd.com/sites/default/files/media/AOSGreenPolicy.pdf for additional information.

Absolute Maximum Ratings

Exceeding the Absolute Maximum Ratings may damage the device.

Parameter	Rating
AOZ8S333UDS-05 Pin1 to Pin2	5 V
Peak Pulse Current (I_{PP}), t_P = 8/20µs	±6 A
Peak Pulse Power (P_{PP}), t_P = 8/20µs	18 W
Storage Temperature (T_S)	-65 °C to +150°C
ESD Rating per IEC61000-4-2, contact(1)	±22 kV
ESD Rating per IEC61000-4-2, air(1)	±25 kV
EFT Rating per IEC61000-4-4 (5/50ns)	40 A
ESD Rating per Human Body Mode (HBM)(2)	±8 kV

Notes:

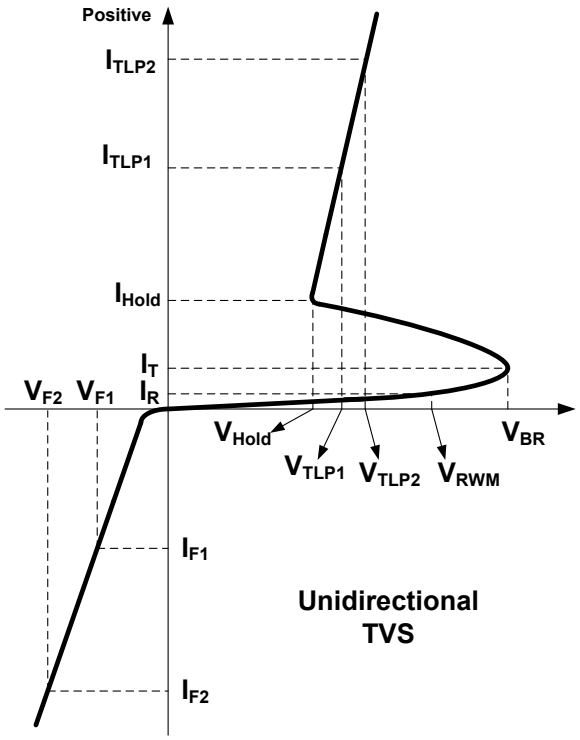
1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150 pF, $R_{Discharge}$ = 330 Ω.
2. Human Body Discharge per MIL-STD-883, Method 3015 CDischarge = 100 pF, RDischarge = 1.5 kΩ.

Maximum Operating Ratings

Parameter	Rating
Junction Temperature (T_J)	-40 °C to +125 °C

Electrical Characteristics

T_A = 25°C, unless otherwise noted. Any Pin to Pin.

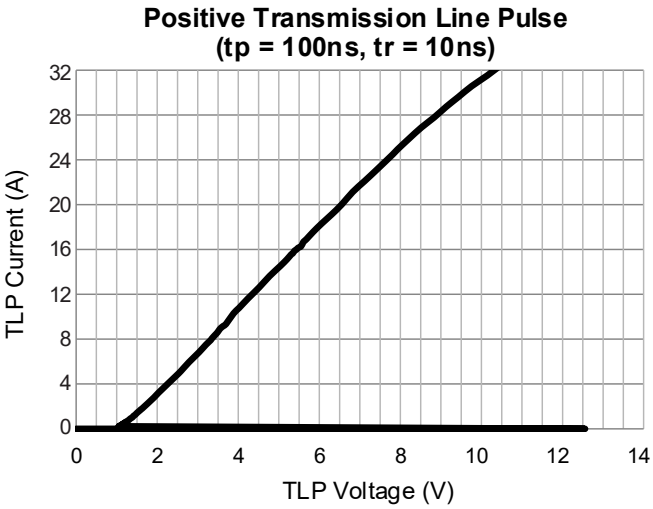


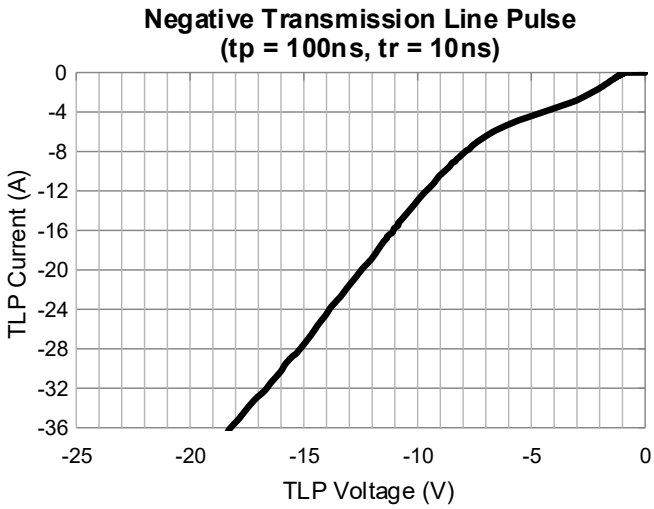
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5	V
V_{BR}	Reverse Breakdown Voltage	I_T = 100µA	11	12	13	
I_R	Reverse Leakage Current	V_T= Max. V_{RWM}			100	nA
V_{CL}	Clamping Voltage[3] (100ns Transmission Line Pulse)	I_{TLP} = 1A I_{TLP} = -1A		1.5 -1.5		V
		I_{TLP} = 16A I_{TLP} = -16A		5.5 -11		
		I_{TLP} = 30A I_{TLP} = -30A		10 -16		
	Clamping Voltage[4] (IEC61000-4-5 Surge, 8/20 µs)	I_{PP} = 1 A I_{PP} = -1 A		1.5 -2		
		I_{PP} = 7.5 A I_{PP} = -7.5 A		3 -6.5		
C_J	Junction Capacitance	$V_{I/O}$ = 0 V, f = 1MHz		0.5	0.9	pF

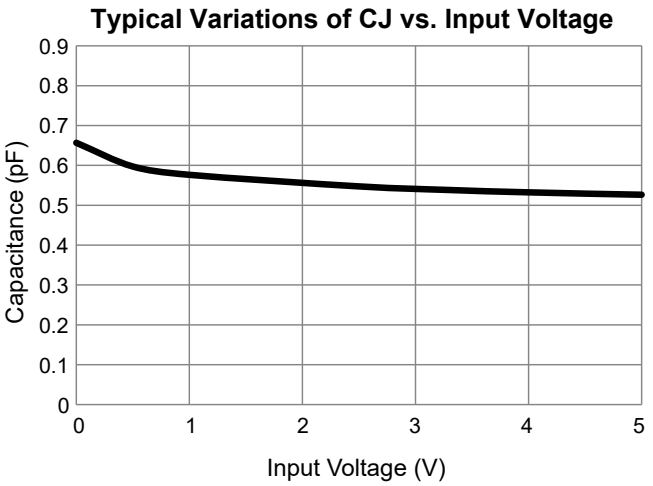
Notes:

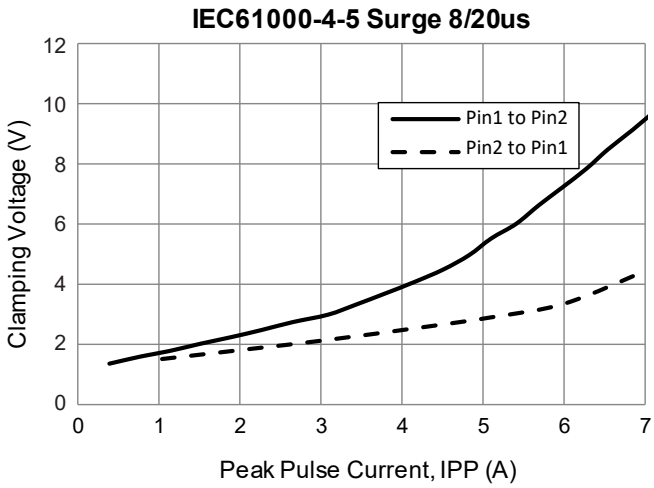
3. Measurements performed using a 100ns Transmission Line Pulse (TLP) system.
4. These specifications are guaranteed by design and characterization.

Typical Characteristics









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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.