ALPHA & OMEGA SEMICONDUCTOR

AOZ8S213BLS-18

1CH 18V 0.15pF Bidirectional TVS

General Description

The AOZ8S213BLS-18 is a single channel transient voltage suppressor designed to protect high speed data lines such as USB2.0/3.x/4, and Thunderbolt from damaging ESD events

The AOZ8S213BLS-18 provides a typical capacitance of 0.15 pF and low insertion loss providing greater signal integrity making it ideally suited for high speed data transmission applications in mobile and computing devices.

The AOZ8S213BLS-18 comes in a RoHS compliant and Halogen Free 0.6 mm x 0.3 mm x 0.3 mm package and is rated for -40°C to +125°C junction temperature range

Features

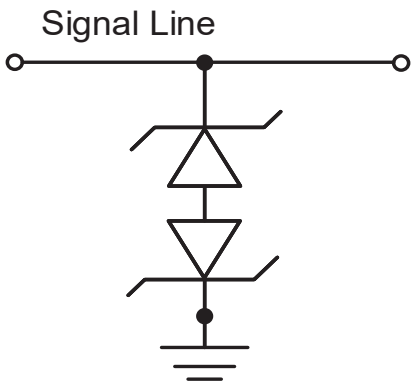
- IEC 61000-4-2 ESD Immunity
  - Air discharge: ±13 kV
  - Contact discharge: ±13 kV
- IEC61000-4-5 (Lightning, 8/20µs): 5A
- Low capacitance between any I/O pins: 0.15 pF
- Low clamping voltage
- Reverse Working Voltage: 18V

Applications

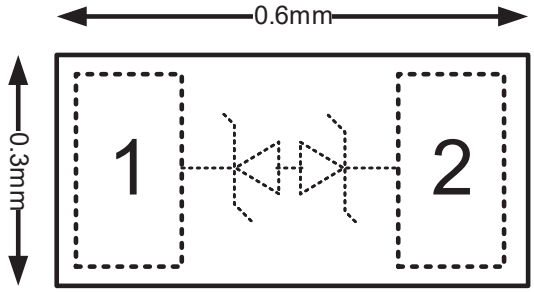
- USB2.0 & 3.2, USB4, Thunderbolt, PCI Express
- Mobile Phone
- Notebook computers
- Wearable device

GREEN Product

Typical Application



Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S213BLS-18	-40°C to +125°C	WLCSP0.6×0.3-2	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
Storage Temperature (T_S)	-65 °C to +150 °C
ESD Rating per IEC61000-4-2, Contact(1)	±13 kV
ESD Rating per IEC61000-4-2, Air(1)	±13 kV
ESD Rating per Human Body Mode (HBM) (2)	±8 kV
Surge Rating per IEC61000-4-5, 8/20µs	±5 A

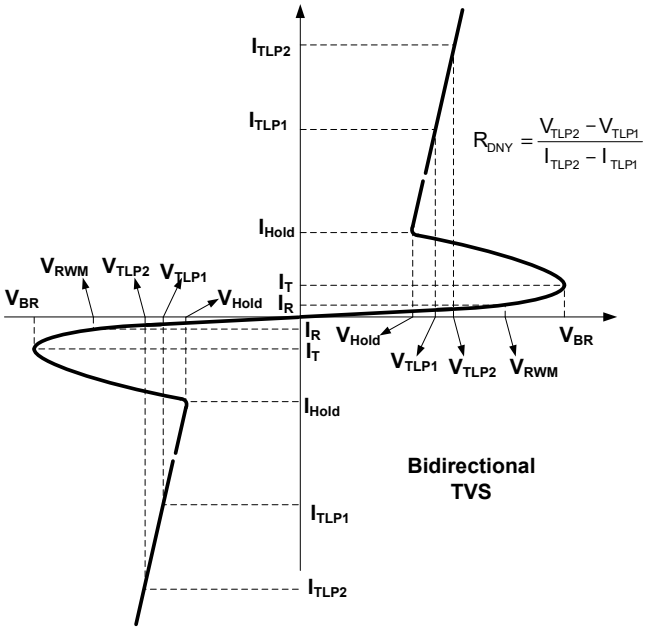
Notes:
1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 330Ω
2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge}$ = 100pF, $R_{Discharge}$ = 1.5kΩ

Maximum Operating Ratings

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

Electrical Characteristics

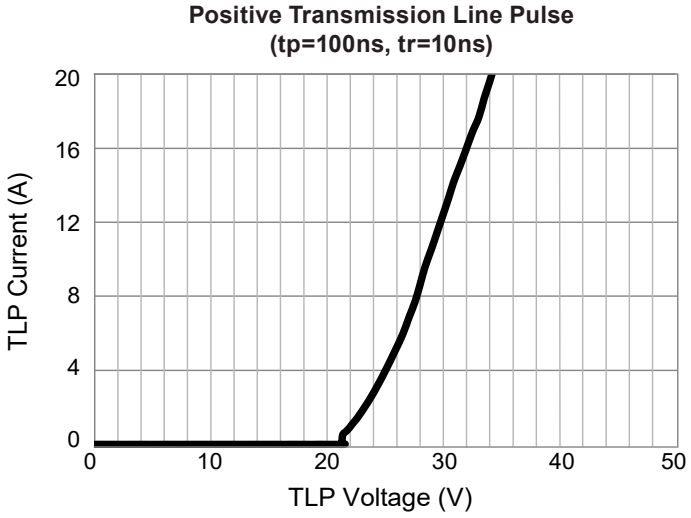
T_A = 25°C unless otherwise specified. Any Pin to Pin.

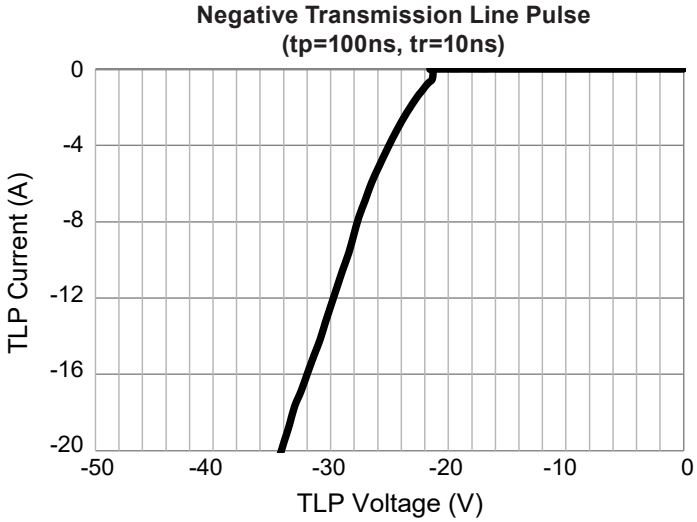


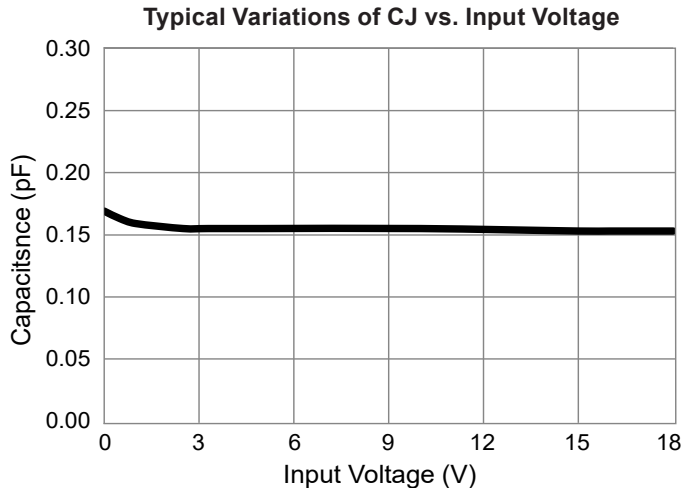
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				18	V
V_{BR}	Reverse Breakdown Voltage	I_T = 100µA	20	23	26	
I_R	Reverse Leakage Current	Max. V_{RWM}		1	100	nA
V_{CL}	Clamping Voltage(3) (4) (100ns Transmission Line Pulse	I_{TLP} = 1A		22		V
		I_{TLP} = 16A		32		
R_{DNY}	Dynamic Resistance (3) (4)	I_{TLP} = 1 to 16A		0.65		Ω
V_{CL}	Clamping Voltage(3) (IEC61000-4-5 Surge 8/20µs)	I_{PP}= 1A		24		V
		I_{PP}= 5A		32		
C_J	Junction Capacitance	$V_{I/O}$ = 0V, f = 1MHz		0.15	0.22	pF

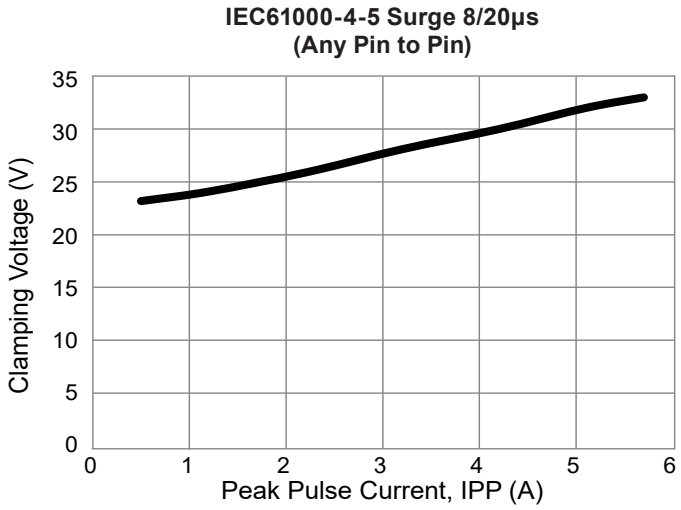
Notes:
3. These specifications are guaranteed by design and characterization.
4. Measurements performed using a 100 nS Transmission Line Pulse (TLP) system.

Typical Characteristics









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As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.

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.