ALPHA & OMEGA SEMICONDUCTOR

AOZ8S530BLS-07

1-Channel Bidirectional High Surge TVS

General Description

The AOZ8S530BLS-07 is a single channel, bidirectional TVS diode designed to protect low speed data lines or power rails from damaging ESD/EOS events.

The AOZ8S530BLS-07 provides low dynamic resistance, and up to 18A surge current (8/20us) with housing in small package (0201) for specified applications.

The AOZ8S530BLS-07 comes in a RoHS compliant and Halogen Free WLCSP 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

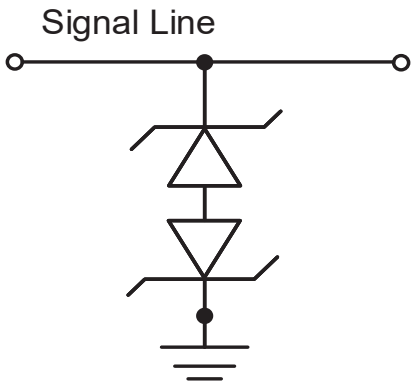
- IEC 61000-4-2 Immunity
  - Air discharge: ±30kV
  - Contact discharge: ±30kV
- IEC61000-4-5 (8/20μs): 18A
- Low clamping voltage
- Reverse working voltage: 7V
- Capacitance: 21pF

Applications

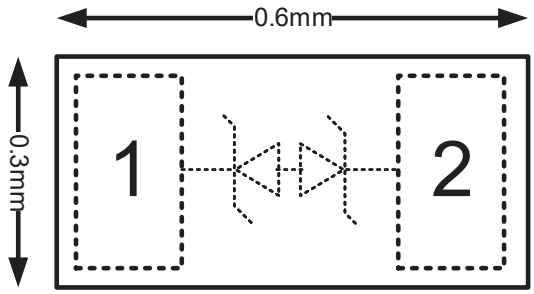
- DC power rails
- Low speed data lines
- Mobile phone
- Wearable devices
- Display panels

Green Product

Typical Application



Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S530BLS-07	-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)	±30 kV
ESD Rating per IEC61000-4-2, Air(1)	± 30kV
ESD Rating per Human Body Mode (HMB) (2)	±8 kV
Surge Rating per IEC61000-4-5, 8/20µs	±18 A

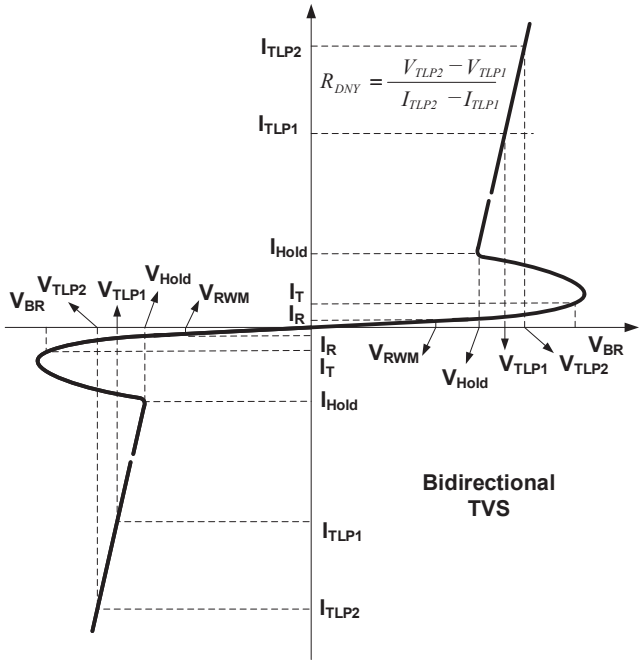
Notes:
1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 330Ω
2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge}$ = 100pF, $R_{Discharge}$ = 1.5kΩ

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.



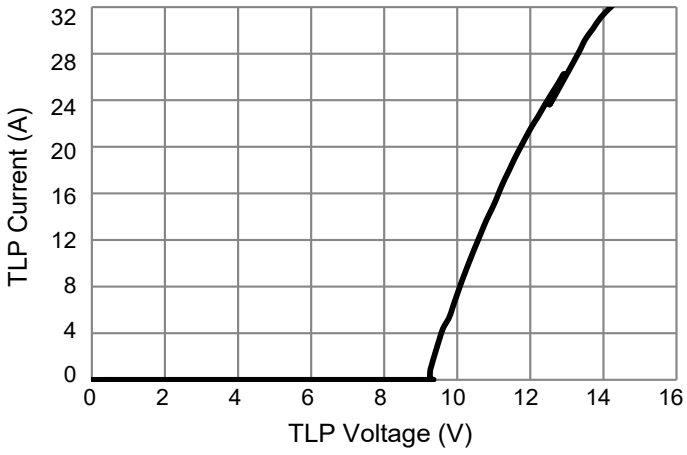
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				7	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	8	9	10	
I_R	Reverse Leakage Current	V_T = Max. V_{RWM}		1	100	nA
V_{CL}	Clamping Voltage(3) (4) (100ns Transmission Line Pulse	I_{TLP} = 1A		9		V
		I_{TLP} = 16A		11		
		I_{TLP} = 30A		13.5		
	Clamping Voltage(3) (IEC61000-4-5 Surge 8/20µs)	I_{PP} = 2A		10.5		
		I_{PP} = 10A		12.2		
		I_{PP} = 18A		14.3		
R_{DNY}	Dynamic Resistance (3) (4)	I_{TLP}= 1A to 30A		0.155		Ω
C_J	Junction Capacitance(3)	$V_{I/O}$ = 0V, f = 1MHz		21		pF

Notes:

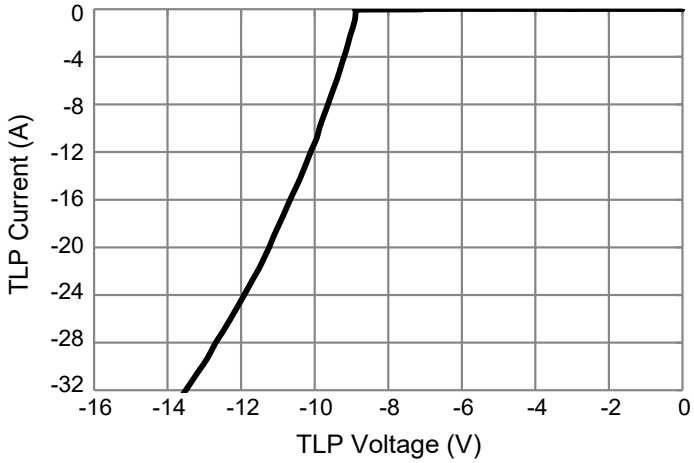
3. These specifications are guaranteed by design and characterization.
4. Measurements performed using a 100 nS Transmission Line Pulse (TLP) system.

Typical Characteristics

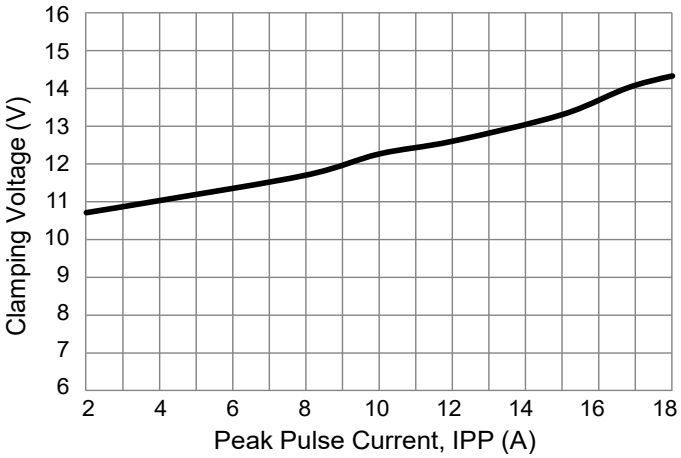
Positive Transmission Line Pulse (tp=100ns, tr=0.2ns)



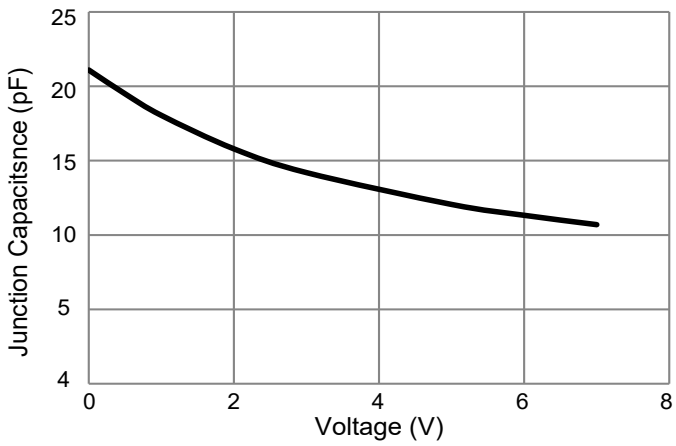
Negative Transmission Line Pulse (tp=100ns, tr=0.2ns)



IEC61000-4-5 Surge 8/20µs (Any pin to Pin)



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.