ALPHA & OMEGA SEMICONDUCTOR

AOZ8S530BLS-12

1-Channel Bidirectional High Surge TVS

General Description

The AOZ8S530BLS-12 is a single channel transient voltage suppressor designed to protect data lines or power rails from damaging ESD events.

This device incorporates a bidirectional TVS diode 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 AOZ8S530BLS-12 provides small dynamic resistance and low clamping voltage make it ideally suited for data lines protections in mobile and computing devices.

The AOZ8S530BLS-12 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

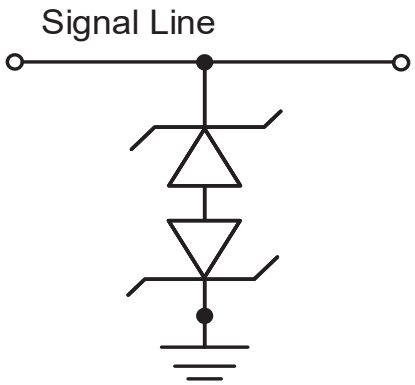
- IEC 61000-4-2 ESD Immunity
  - Air discharge: ±22kV
  - Contact discharge: ±20kV
- IEC61000-4-5 Surge (8/20µs): 11A
- Low clamping voltage
- Reverse working voltage: 12V
- Capacitance: 17pF

Applications

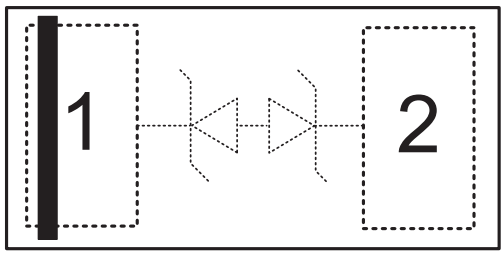
- DC power rails
- Low speed data lines
- VBUS
- Mobile phone
- Notebook computers

Green Product

Typical Application



Pin Configuration



WLCSP0.6X0.3-2
(Top View)

Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S530BLS-12	-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)	±20 kV
ESD Rating per IEC61000-4-2, Air(1)	±22 kV
ESD Rating per Human Body Mode (HBM)(2)	±8 kV
Surge Rating per IEC61000-4-5, 8/20µs	±11A

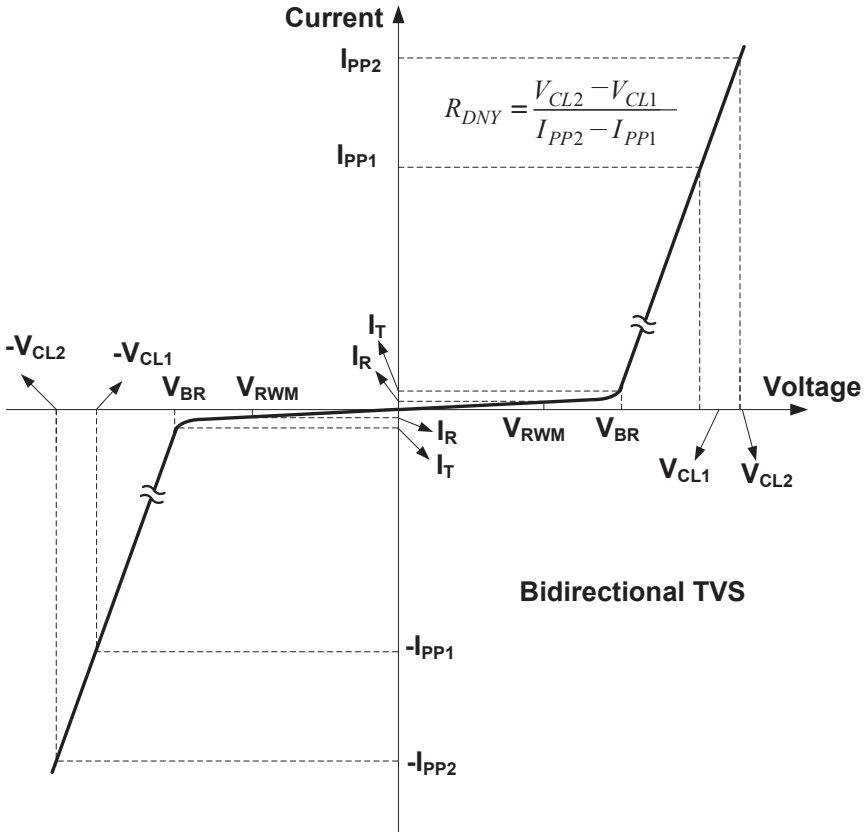
Notes:
1. IEC 61000-4-2 discharge with $C_{Discharge}$ = 150pF, $R_{Discharge}$ = 330Ω
2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge}$ = 100pF, $R_{Discharge}$ = 1.5kΩ

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.



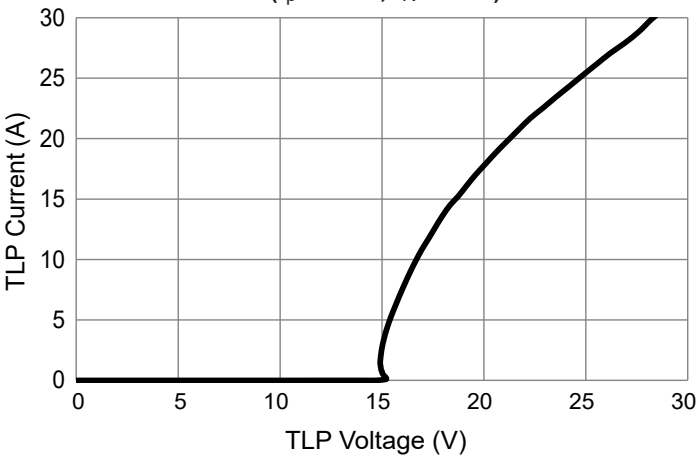
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				12	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	13.2	14.5	16	
I_R	Reverse Leakage Current	V_T = Max. V_{RWM}		1	100	nA
V_{CL}	Clamping Voltage(3) (4) (100ns Transmission Line Pulse	I_{TLP} = 1A		15		V
		I_{TLP} = 16A		19.2		
		I_{TLP} = 30A		28.5		
	Clamping Voltage(3) (IEC61000-4-5 Surge 8/20µs)	I_{PP} = 2A		15.5		
		I_{PP} = 11A		19		
R_{DNY}	Dynamic Resistance (3) (4)	I_{TLP}= 1A to 16A		0.28		Ω
C_J	Junction Capacitance(3)	$V_{I/O}$ = 0V, f = 1MHz		17		pF

Notes:

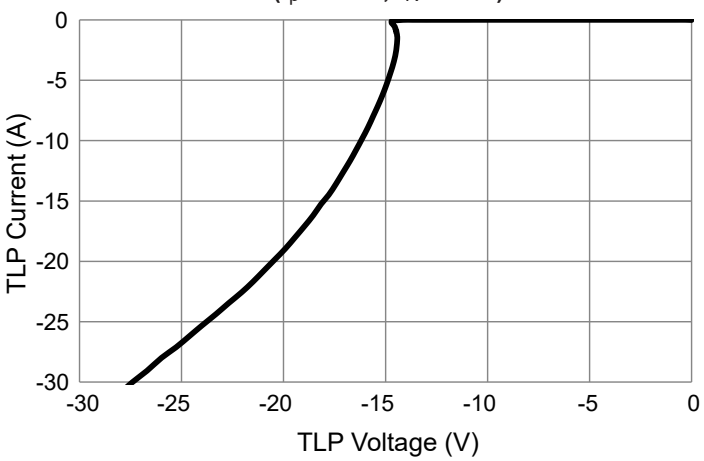
3. These specifications are guaranteed by design and characterization.
4. Measurements performed using a 100 nS Transmission Line Pulse (TLP) system.

Typical Characteristics

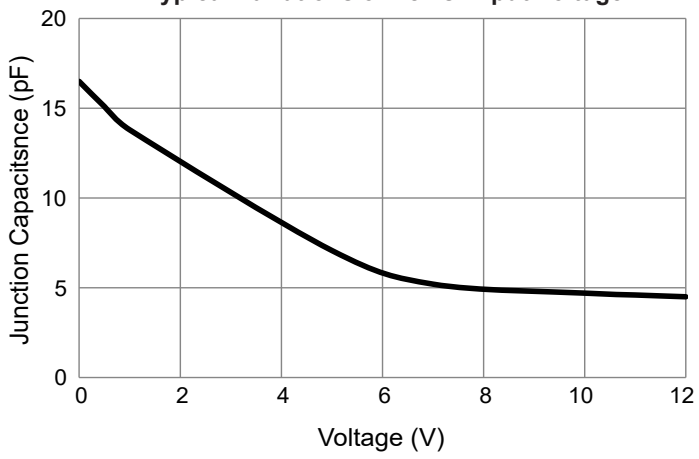
Positive Transmission Line Pulse
(t_p=100ns, t_R=0.2ns)



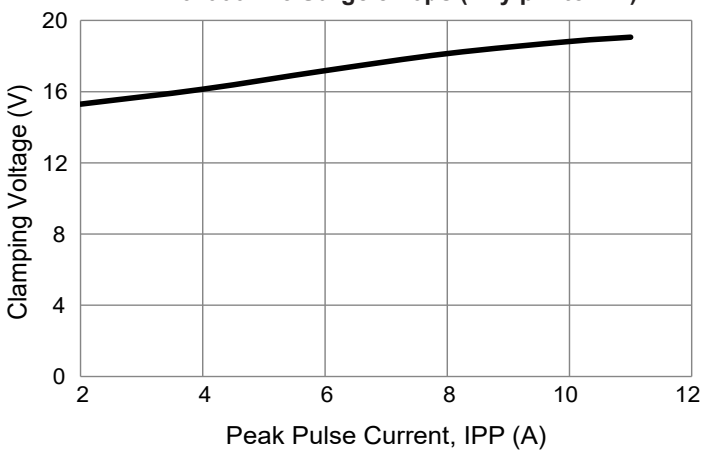
Negative Transmission Line Pulse
(t_p=100ns, t_R=0.2ns)



Typical Variations of CJ vs. Input Voltage



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



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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.