

AOZ8S306BD4-05 4-Channel Ultra-Low Capacitance TVS Diode Array

General Description

The AOZ8S306BD4-05 is a transient voltage suppressor array designed to protect high speed data lines such as HDMI 2.1, USB 3.0/3.1, LVDS, and V-by-one from damaging ESD events.

This device incorporates a numbers of surge rated, low capacitance steering diodes and a TVS in a single package. During transient conditions, the steering diodes direct the transient to either the positive side of the power supply line or to ground.

The AOZ8S306BD4-05 provides a typical line-to-line capacitance of 0.15 pF and low insertion loss providing greater signal integrity making it ideally suited for HDMI or USB applications, such as Digital TVs, DVD players, computing, set-top boxes and MDDI applications in mobile computing devices.

The AOZ8S306BD4-05 comes in a RoHS compliant and Halogen Free 2.0 mm x 1.0 mm x 0.55 mm DFN-10 package and is rated for -40°C to +125°C junction temperature range.

Features

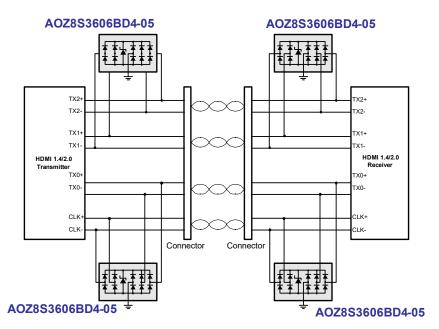
- IEC 61000-4-2 (ESD):
 - Air discharge: ±11 kV
 - Contact discharge: ±11 kV
- IEC 61000-4-5 (Lightning, 8/20 μs): 4 A
- Human Body Model (HBM): ±8 kV
- Protects four I/O lines
- Low capacitance between I/O to GND: 0.25 pF
- Low clamping voltage
- Low operating voltage: 5 V

Applications

- HDMI 2.1, USB 3.2, Thunderbolt, V-by-One
- Monitors and flat panel displays
- Set-top box
- Video graphics cards
- Notebook computers



Typical Applications





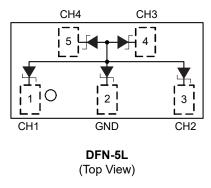
Ordering Information

Part Number Ambient Temperature Range		Package	Environmental	
AOZ8S306BD4-05	-40°C to +125°C	DFN2.0x1.0-5L	Green Product	



AOS Green Products use reduced levels of Halogens, and are also RoHS compliant.

Pin Configuration



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 IEC 61000-4-2, contact ⁽¹⁾	±11 kV		
ESD Rating per IEC 61000-4-2, air ⁽¹⁾	±11 kV		
ESD Rating per Human Body Model ⁽²⁾	±8 kV		

Notes:

- 1. IEC 61000-4-2 discharge with C_Discharge = 150pF, R_Discharge = 330 Ω .
- 2. Human Body Discharge per MIL-STD-883, Method 3015 C $_{\rm Discharge}$ = 100 pF, R $_{\rm Discharge}$ = 1.5 k Ω .

Maximum Operating Ratings

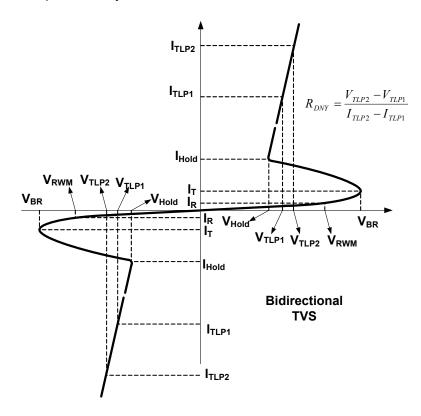
Parameter	Rating
Junction Temperature (T _J)	-40 °C to +125 °C

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Electrical Characteristics

 T_A = 25°C unless otherwise specified. Any I/O Pin-to-Ground.



Symbol	Parameter	Conditions	Min.	Тур.	Max	Units
V _{RWM}	Reverse Working Voltage				5	V
V _{BR}	Reverse Breakdown Voltage	I _T = 100 μA	6	9	12	V
I _R	Reverse Leakage Current	Max. V _{RWM}		1	50	nA
V _{CL}	Clamping Voltage ⁽³⁾⁽⁴⁾ (100 ns Transmission Line Pulse)	I _{TLP} = 1 A I _{TLP} = -1 A		2.5 -2.5		V V
		I _{TLP} = 16 A I _{TLP} = -16 A		12.5 -12.5		V V
СЛ	Junction Capacitance	V _{PIN 2} = 0 V, V _{I/O} = 0 V, f = 1 MHz		0.25	0.3	pF
		V _{PIN 2} = 0 V, V _{I/O} = 0 V, f = 1 MHz, I/O Pin-to-I/O Pin ⁽³⁾		0.25		pF

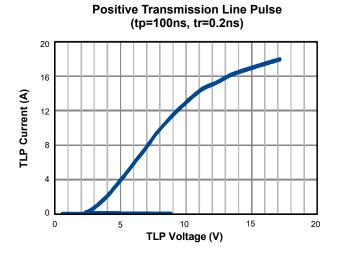
Notes:

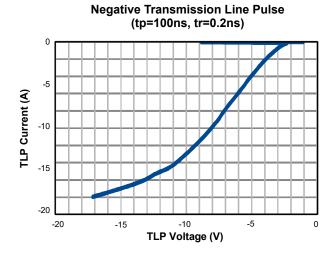
- 3. These specifications are guaranteed by design and characterization.
- 4. Measurements performed using a 100ns Transmission Line Pulse (TLP) system.

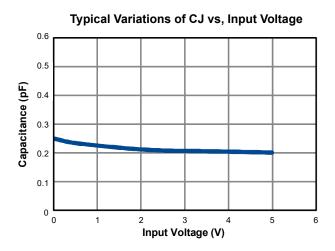
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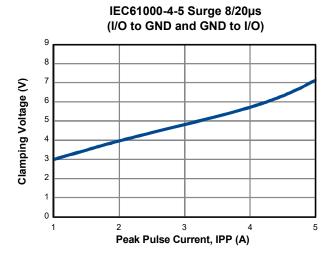


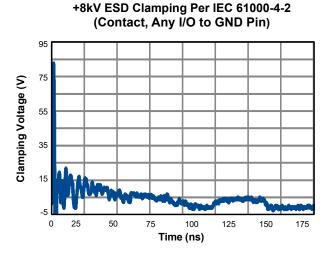
Typical Characteristics

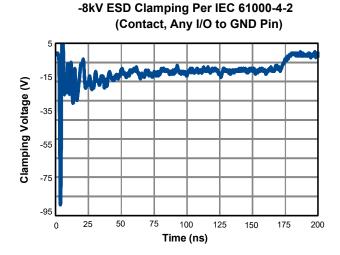














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- 2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.