

General Description

The AOZ8S516UDS-28 is a single channel high power transient voltage suppressor designed to protect power line from damaging surge and ESD events, with an operating voltage of 28V.

This device is with one unidirectional TVS diode in 1.6x1.0mm DFN package. It may apply to meet the IEC61000-4-5 surge immunity and IEC61000-4-2 ESD immunity requirements.

The AOZ8S516UDS comes in a RoHS compliant and Halogen Free 1.6mm x 1.0mm x 0.5mm package and is rated for -40°C to +125°C junction temperature range.

Features

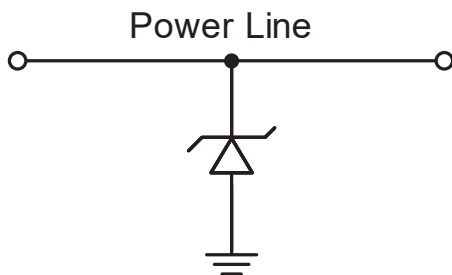
- Surge protection for power rail
- IEC 61000-4-5 8/20 μ s 25A
- IEC 61000-4-2 (ESD) \pm 30kV (air and contact)
- Human Body Model (HBM) \pm 8kV
- IEC 61000-4-4 (EFT) 80A (5/50nS)
- Peak pulse power
- Operating voltage: 28V
- Green Product

Applications

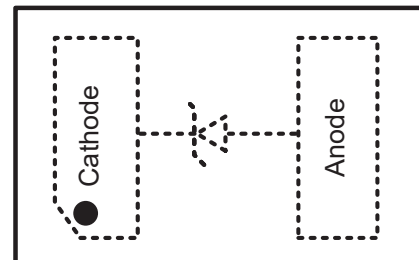
- PD3.0/PD3.1 VBUS
- Power lines
- Panel
- Mobile Phone
- Notebook computers



Typical Application



Pin Configuration



DFN1.6x1.0_2L

Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S516UDS-28	-40°C to +125°C	DFN1.6×1.0-2L	Green Product



AOS products are offered in packages with Pb-free plating and compliant to RoHS standards. Please visit www.aosmd.com/media/AOSGreenPolicy.pdf for additional information.

Absolute Maximum Ratings

Exceeding the Absolute Maximum Ratings may damage the device.

Parameter	Rating
VP-VN	28 V
Peak Pulse Current (I_{PP}), $t_P = 8/20 \mu s$	25 A
Peak Pulse Power (P_{PP}), $t_P = 8/20 \mu s$	1100 W
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⁾	±30 kV
ESD Rating per Human Body Model ⁽²⁾	±8 kV

Notes:

- IEC 61000-4-2 discharge with $C_{Discharge} = 150 \text{ pF}$, $R_{Discharge} = 330 \Omega$.
- Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge} = 100 \text{ pF}$, $R_{Discharge} = 1.5 \text{ k}\Omega$

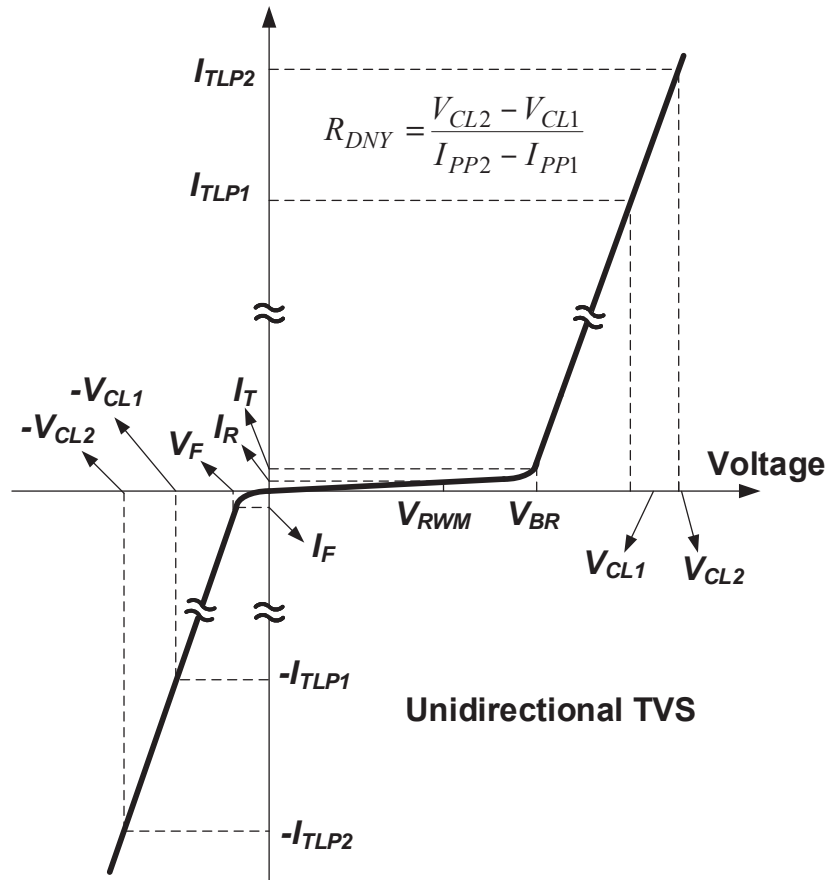
Maximum Operating Ratings

The device is not guaranteed to operate beyond the Maximum Operating Conditions.

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

Electrical Characteristics

T_A = 25°C, unless otherwise noted. Pin 2 as Ground.



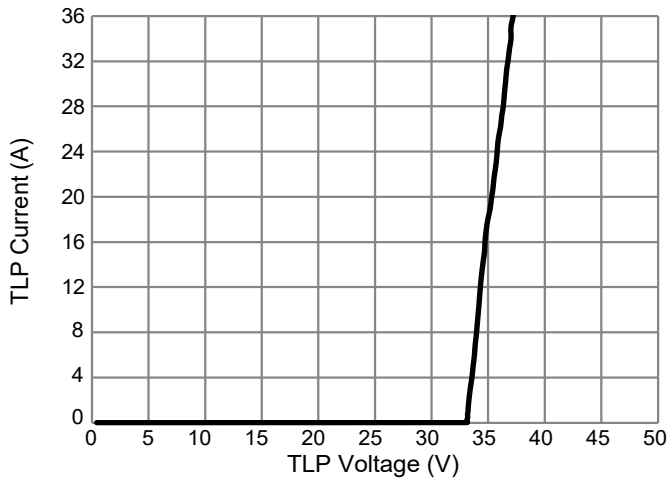
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage	I/O Pin-to-Ground			28	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1 mA, I/O Pin-to-Ground	31	33	36	V
I _R	Reverse Leakage Current	Max. V _{RWM} , I/O Pin-to-Ground		5	100	nA
V _{CL}	Clamping Voltage ⁽³⁾⁽⁴⁾ (100 ns Transmission Line Pulse, I/O Pin to GNG)	I _{TLP} = 1 A I _{TLP} = -1 A		33 -1		V
		I _{TLP} = 30 A I _{TLP} = -30 A		36.5 -1.8		
R _{DNY}	Dynamic Resistance ^{(3) (4)}	I _{TLP} = 1 A to 3 A I _{TLP} = -1 A to -30 A		0.12 0.03		Ω
V _{CL}	Clamping Voltage ⁽³⁾ (IEC61000-4-5, Surge 8/20 μs)	I _{PP} = 5 A I _{PP} = -5 A		37 -2	39 -3	V
		I _{PP} = 25 A I _{PP} = -25 A		48 -3.5	50 -5.5	
C _J	Junction Capacitance ⁽³⁾	V _{I/O} = 0 V, f = 1MHz		150		pF

Notes:

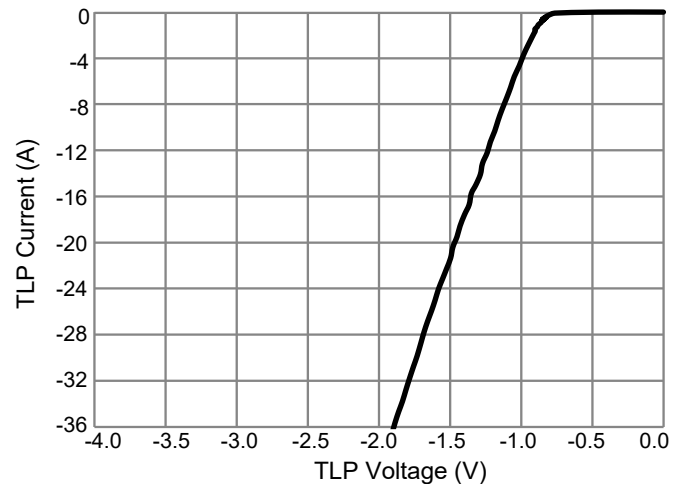
- 3. These specifications are guaranteed by design and characterization.
- 4. Measurements performed using a 100ns Transmission Line Pulse (TLP) system.

Typical Performance Characteristics

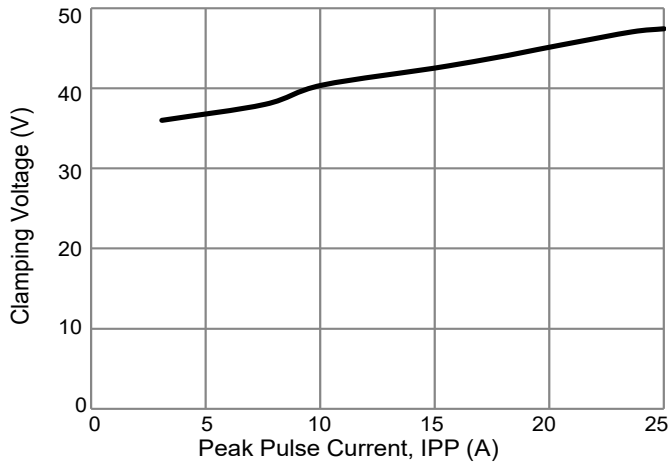
Positive Transmission Line Pulse
($t_p=100\text{ns}$, $t_r=0.2\text{ns}$)



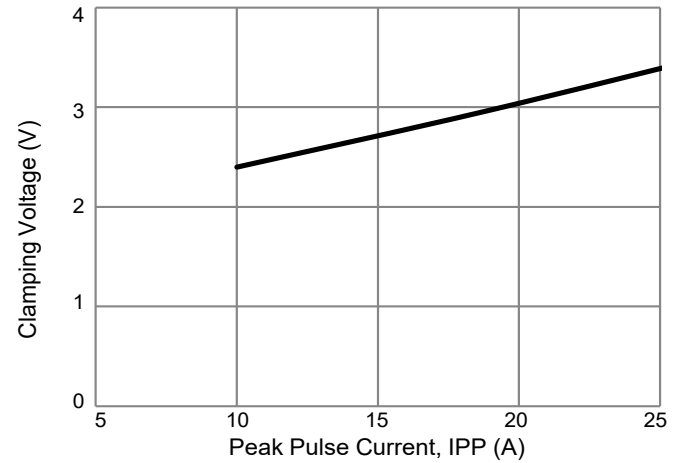
Negative Transmission Line Pulse
($t_p=100\text{ns}$, $t_r=0.2\text{ns}$)



Positive Curve IEC61000-4-5 Surge 8/20 μs



Negative Curve IEC61000-4-5 Surge 8/20 μs



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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.