1. Description

The AOZ8S322UD2-05(ES) is Transient Voltage Suppressor that designed to protect components which are connected to data and transmission lines against electrostatic discharge (ESD), electrical fast transient (EFT), and lighting. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 air discharge method.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 60W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 3.3V-5.0V
- Low leakage current
- RoHS compliant
- Protecting 2 Uni-directional lines
- Ultra Low Junction capacitance: 0.51pF Typ. (IO-GND)

3. Applications

- USB & HDMI Interfaces
- Portable electronics
- Servers, notebooks, and desktop PCs
- Set-top box
- Communication systems
- PoE

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
AOZ8S322UD2-05(ES)	DFN1006-3L	AB	Halogen free	Tape & Reel	10,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

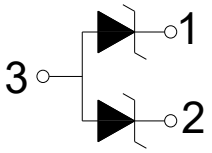
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO	Note 1 	
2	IO	Connect to IO		
3	GND	Connect to GND		

Table-2 Pin configuration

Note1:

This diagram is only an electrical schematic, and the actual pin size is based on POD.

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P_{pk}	-	60	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		12	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±30	kV
Junction temperature	T_J	-	150	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

Table-3 Absolute Maximum rating

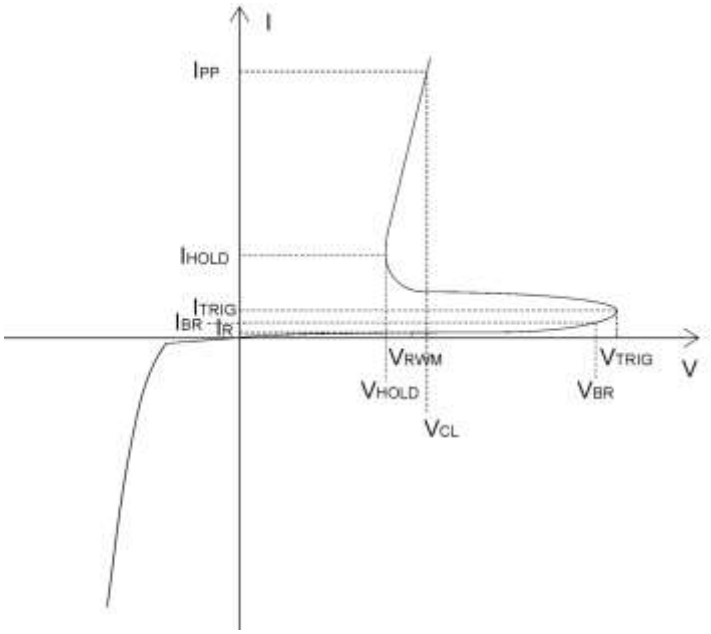
6.2. Electrical Characteristics

At TA = 25℃ unless otherwise noted

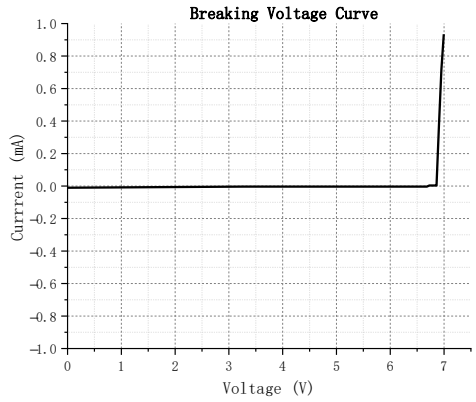
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}			3.3	5.0	V
Reverse Breakdown Voltage	V_{BR}	IT=1mA	5.5	7.1		V
Reverse Leakage Current	I_R	V_{RWM}=3.3V		1.0	100	nA
Clamping Voltage	V_{CL}	I_{PP}=1A; tp=8/20us		1.5	2.5	V
Clamping Voltage	V_{CL}	I_{PP}=12A; tp=8/20us		3.6	5.0	V
Dynamic Resistance	R_{dyn}	I_R = 10A; Tamb = 25℃		0.15		Ω
Junction Capacitance	C_J	VR=1.65V; f=1MHz；IO-GND		0.51	0.60	pF
		VR=1.65V; f=1MHz；IO-IO		0.25	0.35	

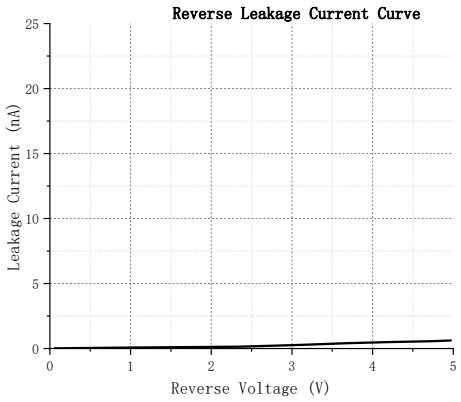
Table-4 Electrical Characteristics

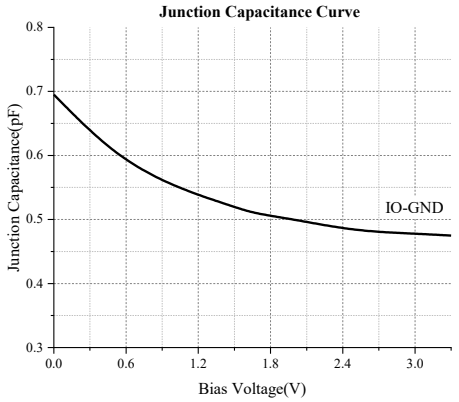
Symbol	Parameters
V_{RWM}	Reverse stand-off voltage
I_R	Reverse leakage current
V_{BR}	Reverse breakdown voltage
I_{BR}	Reverse breakdown current
V_{CL}	Clamping voltage
V_{TRIG}	Reverse trigger voltage
I_{TRIG}	Reverse trigger current
V_{HOLD}	Reverse holding voltage
I_{HOLD}	Reverse holding current
I_{PP}	Peak pulse current

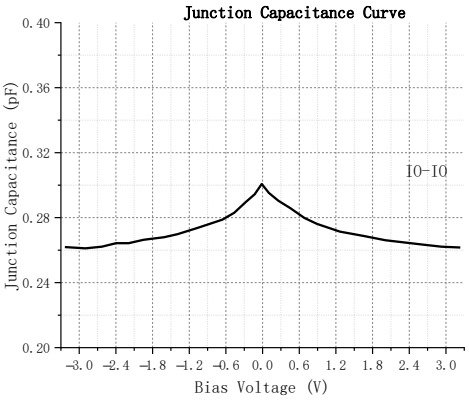


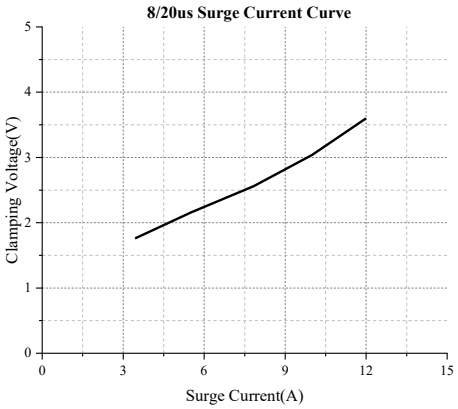
7. Typical Characteristic

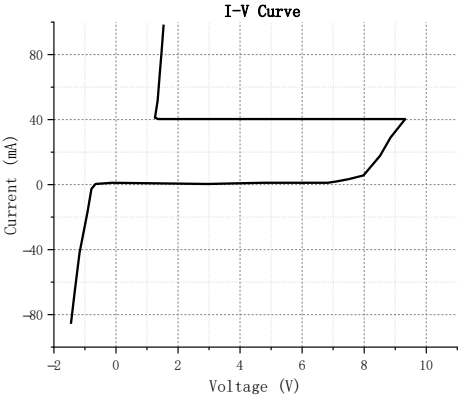




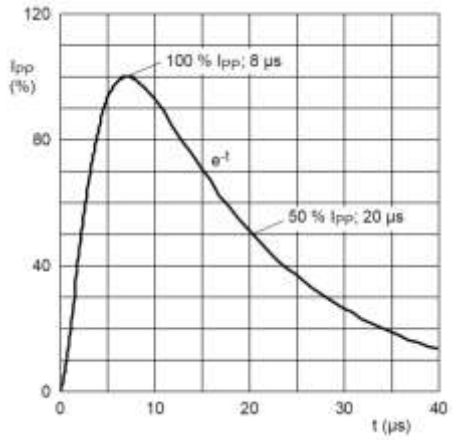
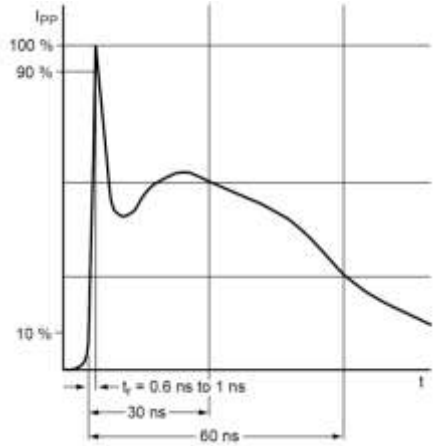






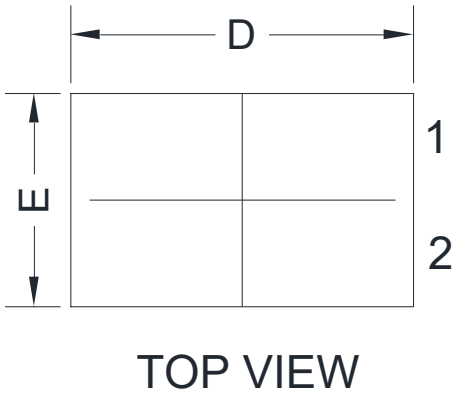


Measurement Wave According to IEC Standard

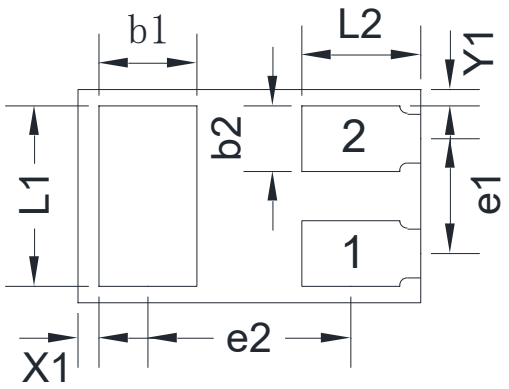
	
8/20 µs pulse waveform according to IEC 61000-4-5	ESD pulse waveform according to IEC 61000-4-2

8. Dimension (DFN1006-3L)

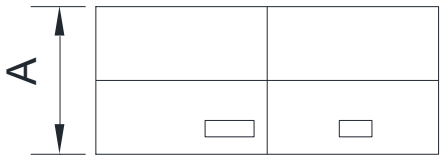
POD A(H)



TOP VIEW



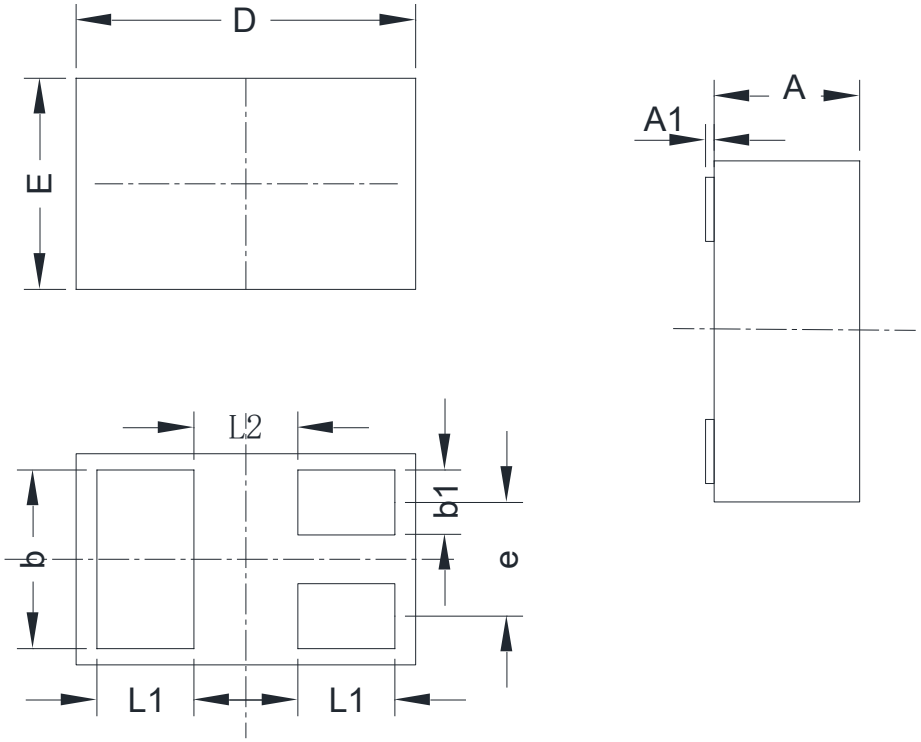
BOTTOM VIEW



SIDE VIEW

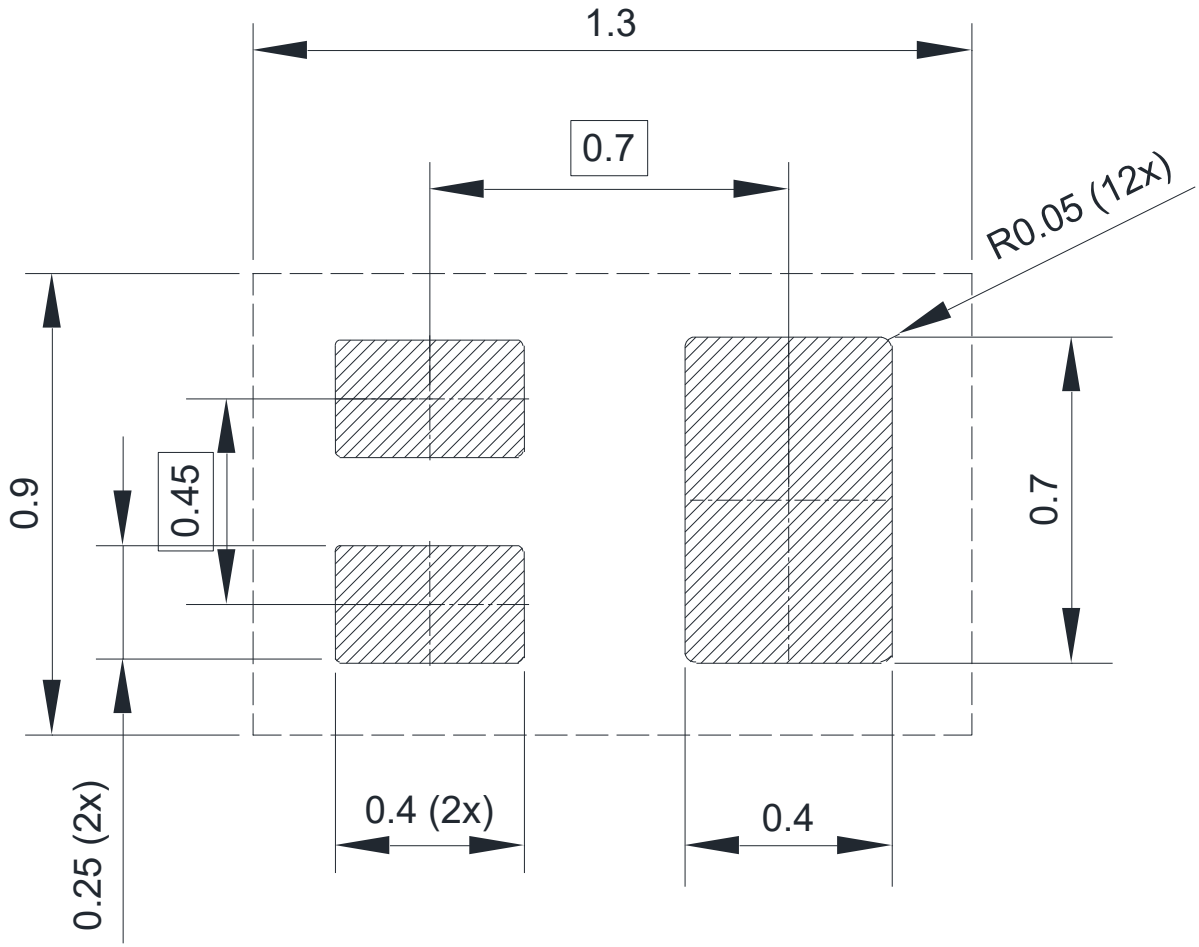
Symbol	Millimeters		
	Min	Nom	Max
A	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b1	0.20	0.25	0.30
b2	0.10	0.15	0.20
L1	0.45	0.50	0.55
L2	0.25	0.30	0.35
X1	0.025		0.065
Y1	0.025		0.065
e1	0.350 BSC		
e2	0.675 BSC		

POD B(C)



Symbol	Millimeters		
	Min	Nom	Max
A	0.47	0.50	0.53
A1	0.00	0.03	0.05
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
D	0.95	1.01	1.075
E	0.55	0.61	0.675
e		0.35	
L1	0.20	0.25	0.30
L2		0.40	

9. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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