

General Description

The AOZ8621UNI is a series of 1-channel unidirectional high surge transient voltage suppressors designed to protect power rails such as battery and VBUS from damaging ESD or surge events. The VRWM range is from 5V to 22V.

This device consists a unidirectional TVS diode in a single package. During transient events, the diode directs the transient to either the positive side of the power supply line or to ground.

The AOZ8621UNI provides low clamping voltage making it ideally suited for power rail protection in mobile and computing devices.

The AOZ8621UNI comes in a RoHS compliant and Halogen Free 2mm×2mm×0.55mm package and is rated for -40°C to +125°C junction temperature range.

Features

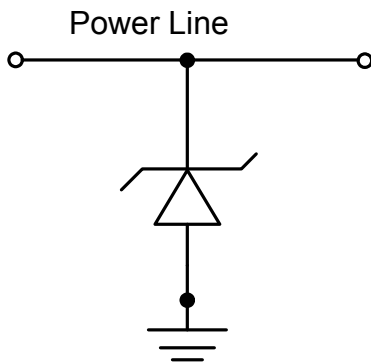
- ESD protection for high-speed data lines:
 - IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air and contact)
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
- IEC 61000-4-5 (Lightning, 8/20 μs) ± 380 to $\pm 100\text{A}$
- Low clamping voltage
- VRWM: 5, 7.5, 12, 15, 18, 20, 22V

Applications

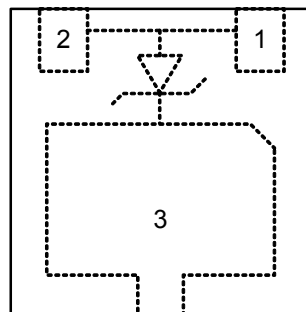
- Battery
- VBUS
- Mobile phone
- Notebook computers



Typical Application



Pin Configuration



DFN2.0x2.0_3L
(Top View)

Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8621UNI-05	-40°C to +125°C	DFN2×2-3L	Green Product
AOZ8621UNI-07			
AOZ8621UNI-12			
AOZ8621UNI-15			
AOZ8621UNI-18			
AOZ8621UNI-20			
AOZ8621UNI-22			



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

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
Working Voltage	5V to 22V
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
8/20µs Surge IEC61000-4-5 Peak Pulse Power	3800 W
8/20µs Surge IEC61000-4-5 Peak Pulse Current	± 380 to 100 A

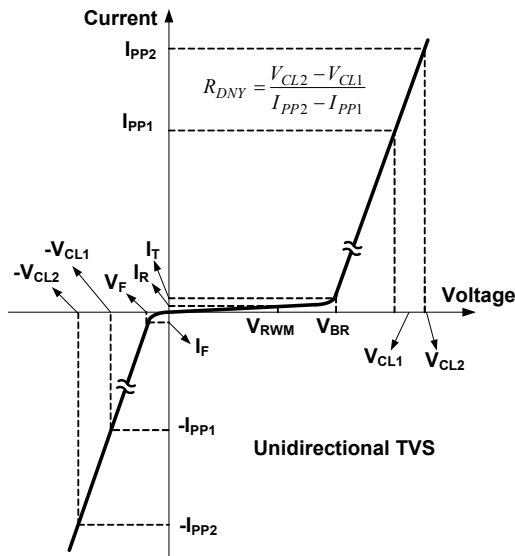
Notes:

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



$T_A = 25^\circ\text{C}$ unless otherwise specified.

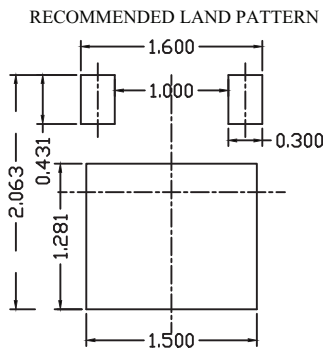
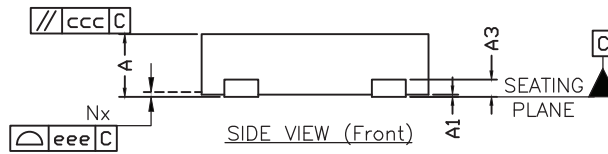
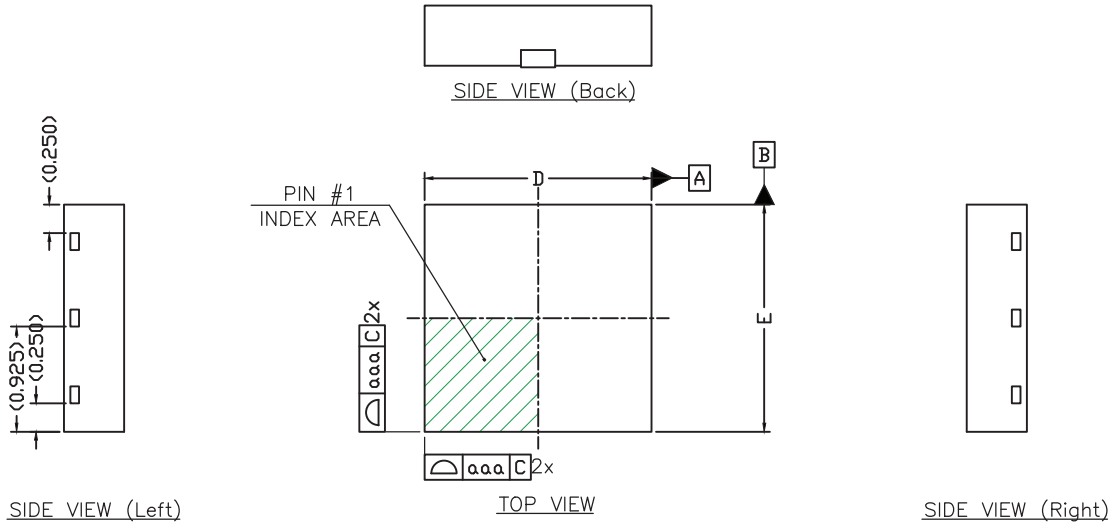
Symbol	Parameter
V_{RWM}	Maximum Reverse Working Voltage
V_{BR}	Breakdown Voltage
I_R	Leakage Current
I_{PP}	Peak Pulse Current
V_{CL}	Clamping Voltage
R_{DNY}	Dynamic Resistance
I_T	Test Current
V_F	Forward Voltage

Part Number	V_{RWM} (V)		V_{BR} at 1mA (V)		I_R at Max. V_{RWM} (nA)		Rated I_{PP} (A) ⁽³⁾	V_{CL} at 1A (V) ⁽³⁾⁽⁴⁾	V_{CL} at I_{PP_RATED} (V) ⁽³⁾⁽⁴⁾	R_{DNY} 1A to I_{PP_RATED} (Ω) ⁽³⁾⁽⁴⁾	C_J at 1MHz (pF) ⁽⁴⁾
	Max	Min	Typ	Max	Typ	Max					
AOZ8621UNI-05	5	6	7	8	10	800	380	8	12	0.01	3000
AOZ8621UNI-07	7.5	8	9	10	10	800	320	11	16	0.02	2100
AOZ8621UNI-12	12	13.2	14.5	16.5	10	800	190	17.5	23.5	0.03	1100
AOZ8621UNI-15	15	16.5	18	19.5	10	800	140	21	28	0.04	880
AOZ8621UNI-18	18	19	21	23	15	800	120	25	33	0.06	750
AOZ8621UNI-20	20	21.5	23.5	25.5	23	800	110	28	38	0.08	660
AOZ8621UNI-22	22	23.5	25.5	27.5	20	800	100	29	39	0.08	630

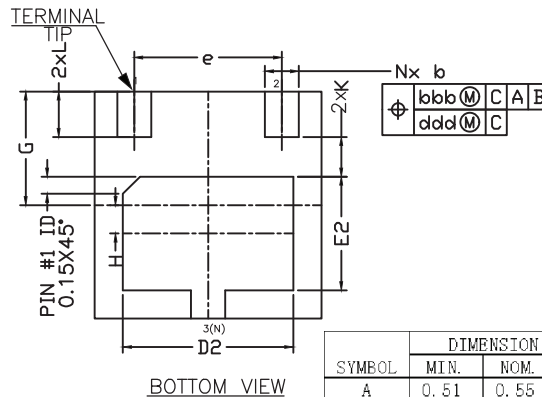
Notes:

- 3. These specifications are guaranteed by design and characterization.
- 4. Per IEC61000-4-5 Surge 1.2/50 μ s (8/20 μ s).

Package Dimensions, DFN2x2-3L, EP1_S



UNIT: mm



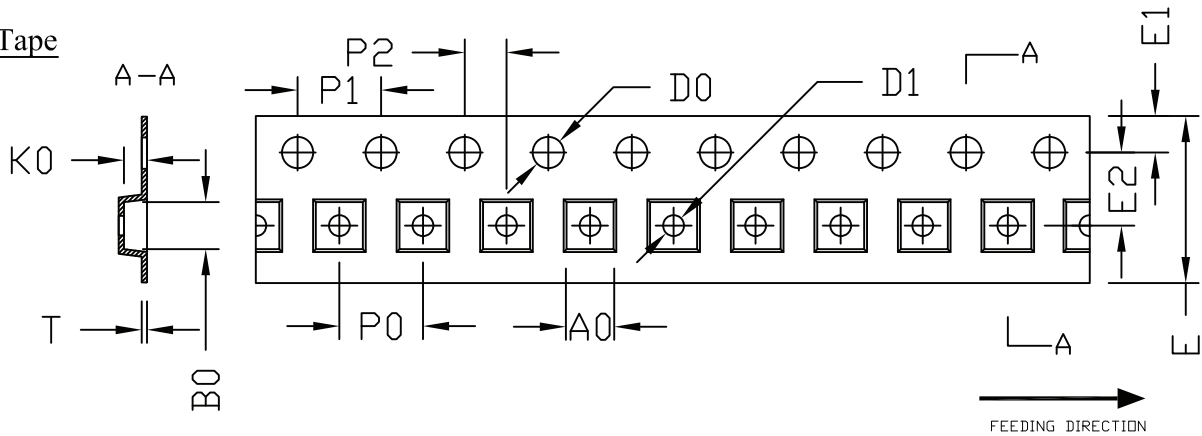
SYMBOL	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.51	0.55	0.60	0.020	0.022	0.024
A1	0.00	0.02	0.05	0.000	0.001	0.002
A3	---	0.15Ref	---	---	0.006Ref	---
b	0.25	0.30	0.35	0.010	0.012	0.014
D	1.90	2.00	2.10	0.075	0.079	0.083
E	1.90	2.00	2.10	0.075	0.079	0.083
e	1.30 BSC			0.051 BSC		
D2	1.40	1.50	1.60	0.055	0.059	0.063
E2	0.90	1.00	1.10	0.035	0.039	0.043
K	0.20	---	---	0.008	---	---
L	0.35	0.40	0.45	0.014	0.016	0.018
G	0.95	1.00	1.05	0.037	0.039	0.041
H	0.20	0.25	0.30	0.008	0.010	0.012
aaa	0.05			0.002		
bbb	0.10			0.004		
ccc	0.10			0.004		
ddd	0.05			0.002		
eee	0.08			0.003		

NOTE:

1. Dimensioning and tolerancing conform to ASME Y14.5-2009.
2. All dimensions are in millimeters.
3. N is the total number of terminals. Here N is equal to 3.
4. The location of the marked terminal #1 identifier is within the hatched area.
5. Dimension b applies to the metallized terminal. If the terminal has a radius on the other end of it, dimension b should not be measured in that radius area.
6. Coplanarity applies to the terminals and all other bottom surface metallization.

Tape and Reel Dimension, DFN2x2-3L, EP1_S

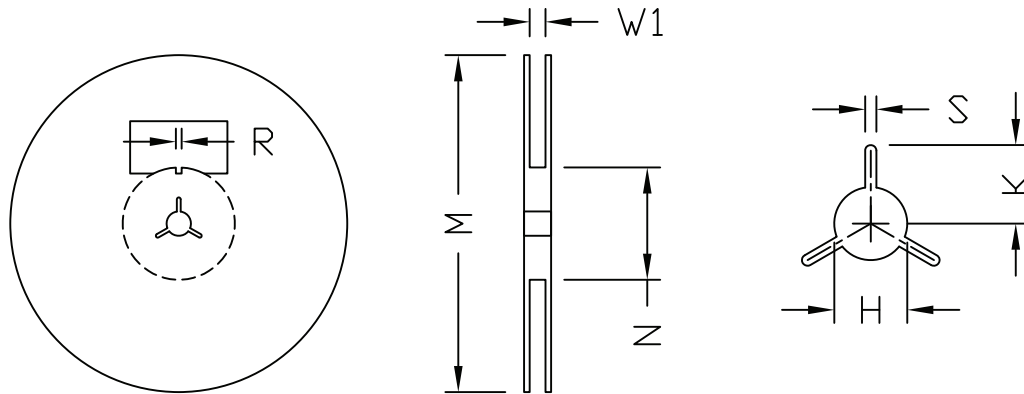
Carrier Tape



UNIT: MM

OPTION	PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
1	DFN 2X2	2.25	2.25	1.00	1.50	1.00	8.00	1.75	3.50	4.00	4.00	2.00	0.254
	DFN 2X2A	±0.05	±0.05	±0.05	+0.10 -0	+0.25 -0	+0.30 -0.10	±0.10	±0.05	±0.10	±0.10	±0.05	±0.02
	DFN 2X2B												
2	DFN 2X2C	2.30	2.30	1.00	1.50	1.00	8.00	1.75	3.50	4.00	4.00	2.00	0.30
	DFN 2X2C	±0.20	±0.20	±0.20	+0.10 -0	MIN.	+0.30 -0.10	±0.10	±0.05	±0.20	±0.20	±0.05	±0.05

REEL



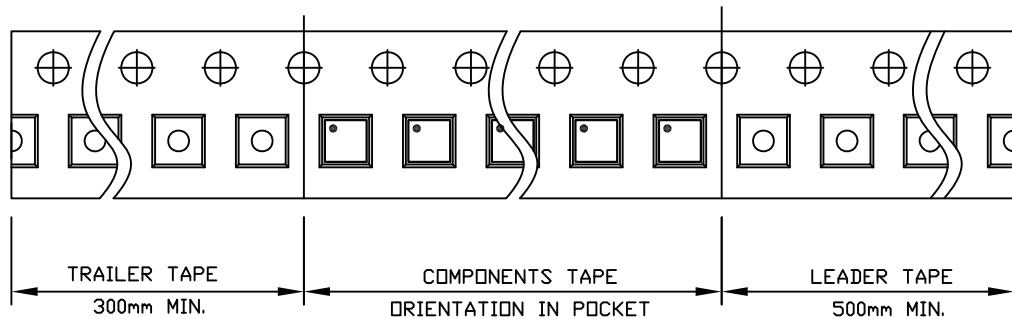
UNIT: MM

TAPE SIZE	REEL SIZE	M	N	W1	H	S	K	R
8	ø180	ø180.0	60.0	8.4	13.0	1.5	13.5	3.0
		±0.50	±0.50	+1.5 -0.0	±0.20	MIN.	MIN.	±0.50

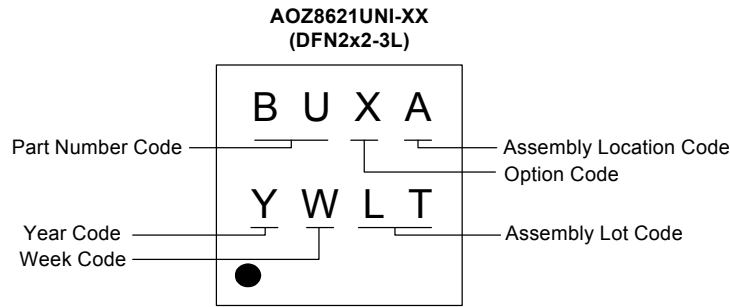
TAPE

Leader / Trailer & Orientation

Unit Per Reel:
3000pcs



Part Marking



Part Number	Option Code
AOZ8621UNI-05	5
AOZ8621UNI-07	7
AOZ8621UNI-12	C
AOZ8621UNI-15	F
AOZ8621UNI-18	K
AOZ8621UNI-20	N
AOZ8621UNI-22	R

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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.