# AOZ8621UNI

## 1-Channel Unidirectional High-Power TVS

## 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

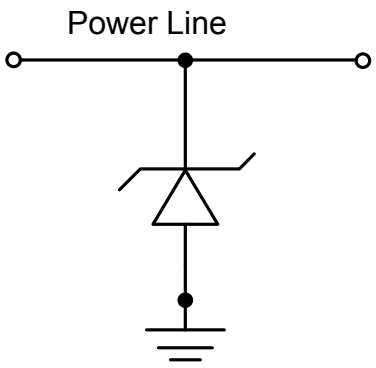
- ESD protection for high-speed data lines:
  - IEC 61000-4-2 (ESD) ±30kV (air and contact)
    - Air discharge:±30kV
    - Contact discharge: ±30kV
- IEC 61000-4-5 (Lightning, 8/20μs) ±380 to ±100A
- Low clamping voltage
- VRWM: 5, 7.5, 12, 15, 18, 20, 22V

## Applications

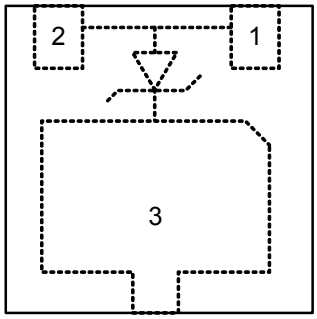
- Battery
- VBUS
- Mobile phone
- Notebook computers

Green Product

## 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 |

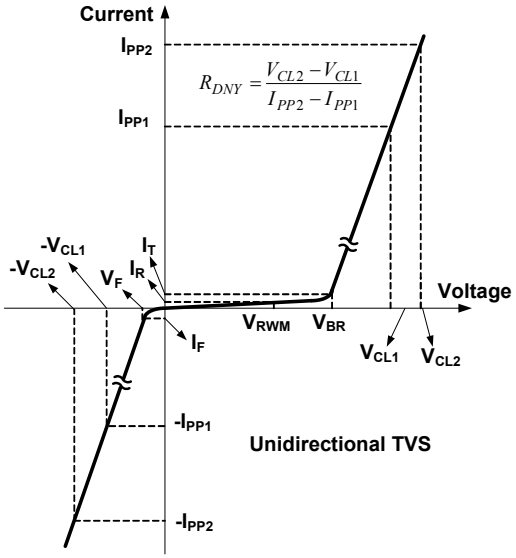
**Notes:**

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°C unless otherwise specified.

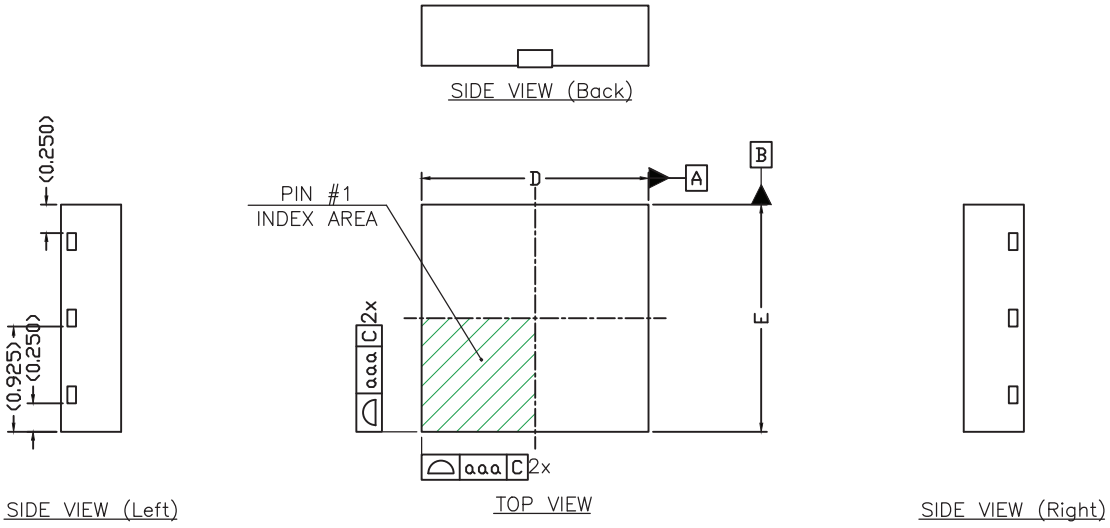
| Symbol | Parameter |
|---|---|
| $V_{RWM}$ | Maximum Reverse Working Voltage |
| $V_{BR}$ | Breakdown Voltage |
| $I_R$ | Leakage Current |
| $I_{PP}$ | Peak Pulse Current |
| $V_{CL}$ | Clamping Voltage |
| $R_{DNY}$ | Dynamic Resistance |
| $I_T$ | Test Current |
| $V_F$ | Forward Voltage |

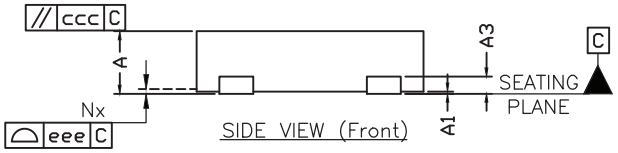
| Part Number | $V_{RWM}$ (V) | $V_{BR}$ at 1mA (V) | | | $I_R$ at Max. $V_{RWM}$ (nA) | | Rated $I_{PP}$ (A) (3) | $V_{CL}$ at 1A (V) (3)(4) | $V_{CL}$ at $I_{PP\_RATED}$ (V) (3)(4) | $R_{DNY}$ 1A to $I_{PP\_RATED}$ ($\Omega$)(3)(4) | $C_J$ at 1MHz (pF) (4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Max | Min | Typ | Max | Typ | Max | Max | Max | Max | Typ | Typ |
| 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 |

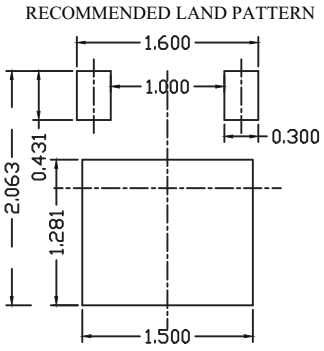
**Notes:**

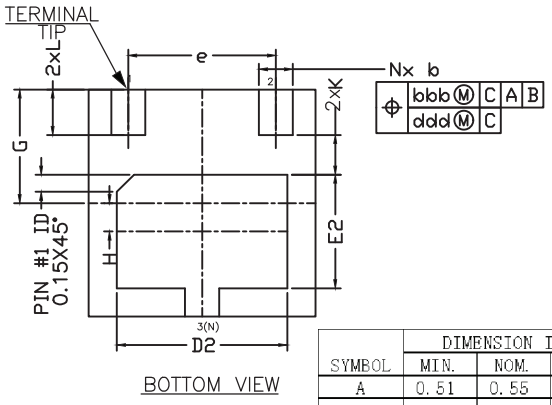
3. These specifications are guaranteed by design and characterization.
4. Per IEC61000-4-5 Surge 1.2/50µs (8/20µs).

## Package Dimensions, DFN2x2-3L, EP1_S




UNIT: mm

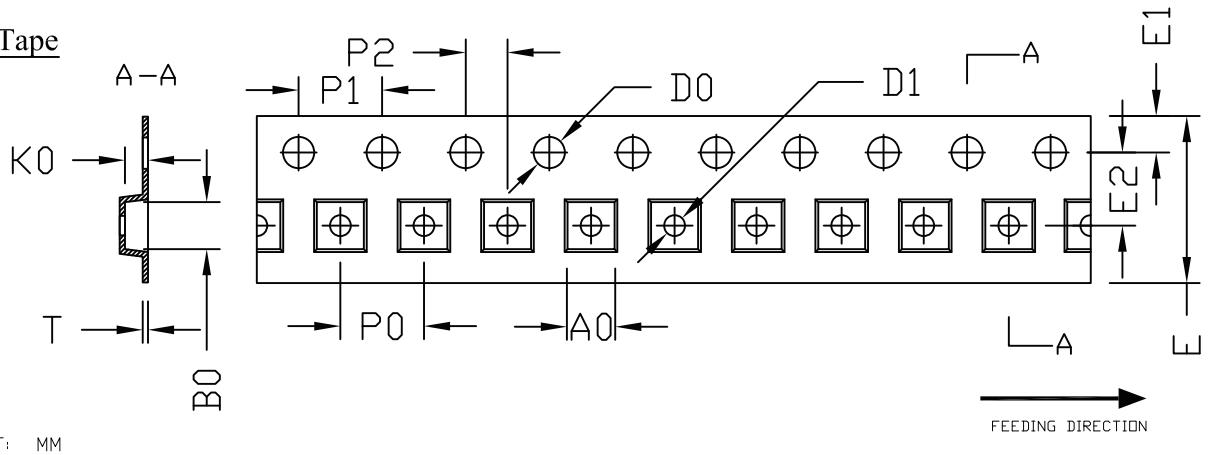
| SYMBOL | DIMENSION IN MM | | | DIMENSION IN INCH | | |
|---|---|---|---|---|---|---|
| | MIN. | NOM. | MAX. | MIN. | NOM. | MAX. |
| A | 0.51 | 0.55 | 0.60 | 0.020 | 0.022 | 0.024 |
| A1 | 0.00 | 0.02 | 0.05 | 0.000 | 0.001 | 0.002 |
| A3 | --- | 0.15Ref | --- | ---- | 0.006Ref | ---- |
| b | 0.25 | 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

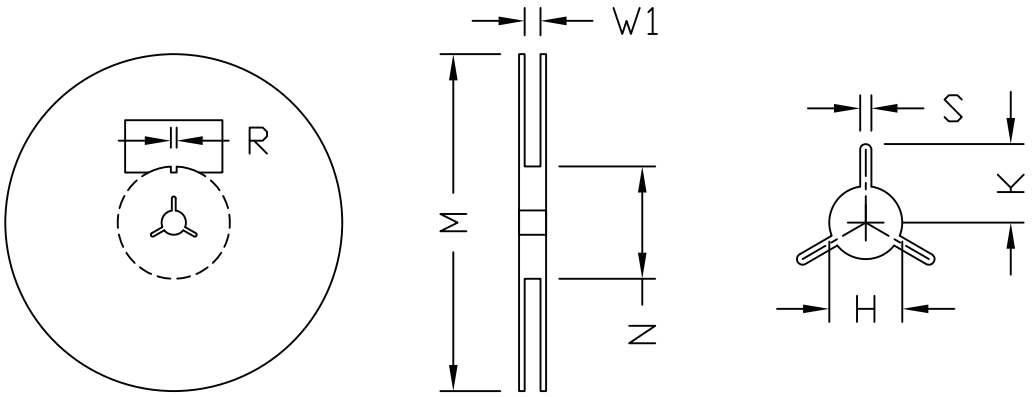
Carrier Tape




UNIT: MM

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

REEL

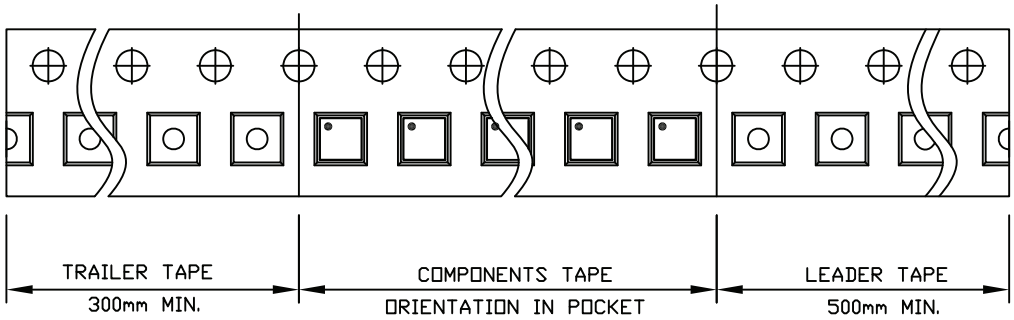



UNIT: MM

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

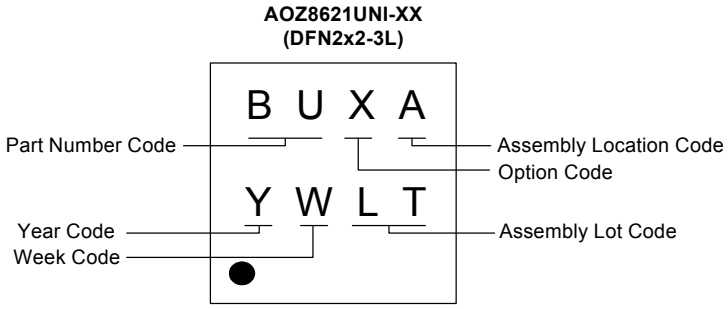
TAPE

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 |