

General Description

The AOZ8651BDT-03 is a single channel transient voltage suppressor designed to protect high speed data lines and voltage sensitive electronics from high transient conditions and ESD.

This device incorporates one bidirectional TVS diode in an ultra-small 0201 footprint package. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (± 15 kV air, ± 8 kV contact discharge).

The AOZ8651BDT-03 comes in an RoHS compliant package and is rated over a -40°C to $+125^{\circ}\text{C}$ ambient temperature range.

The ultra-small 0.6 mm x 0.3 mm 0201 footprint package makes the AOZ8651BDT-03 ideal for applications where PCB space is a premium. The small size and high ESD protection makes it ideal for protecting voltage sensitive electronics from high transient conditions and ESD.

Features

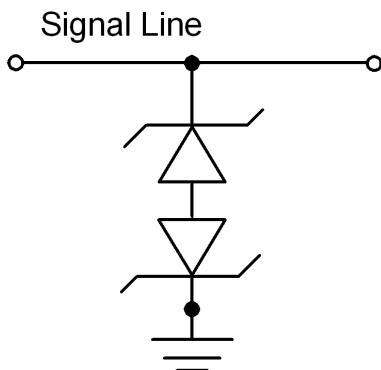
- ESD protection for high-speed data lines:
 - IEC 61000 IE-4-2, ESD immunity:
 - Air discharge: ± 30 kV;
 - Contact Discharge: ± 30 kV;
 - IEC 61000-4-5 (Lightning) 7A (8/20 μs)
 - Human Body Mode: ± 30 kV
- Bidirectional TVS
- Low capacitance: 0.5 pF
- Low clamping voltage
- Low operating voltage: 3.3 V

Applications

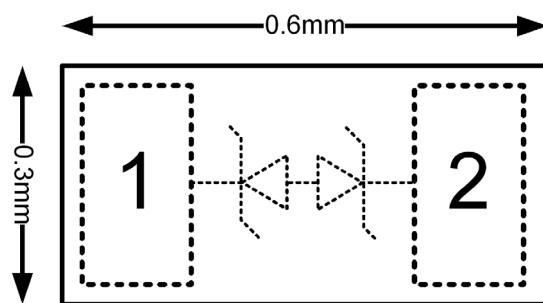
- Mobile phones
- Notebook computers
- Portable devices



Typical Application



Pin Configuration



Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8651BDT-03	-40°C to +125°C	DFN 0.6 x 0.3 A_2L	Green Product



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
Any Pin to Pin	3.3 V
Peak Pulse Current (I_{PP}), $t_P = 8/20 \mu s$	7 A
Peak Pulse Power (P_{PP}), $t_P = 8/20 \mu s$	45 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 Mode ⁽²⁾	±30 kV

Notes:

1. IEC 61000-4-2 discharge with $C_{Discharge} = 150 \text{ pF}$, $R_{Discharge} = 330 \Omega$.

2. Human Body Discharge per MIL-STD-883, Method 3015 $C_{Discharge} = 100 \text{ pF}$, $R_{Discharge} = 1.5 \text{ k}\Omega$

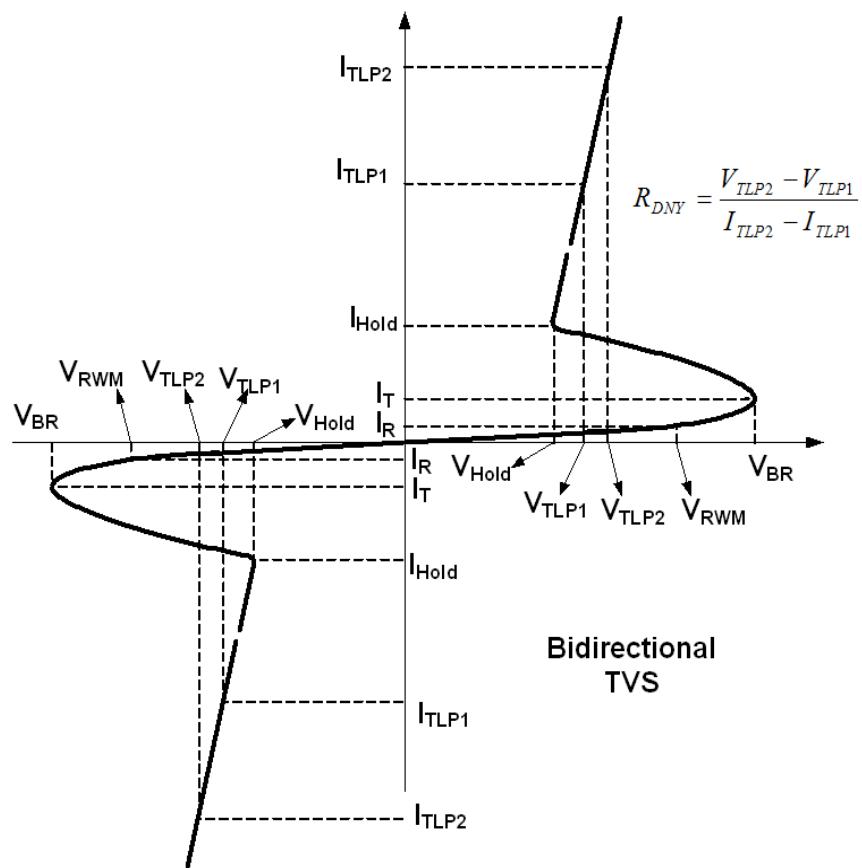
Maximum Operating Conditions

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

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

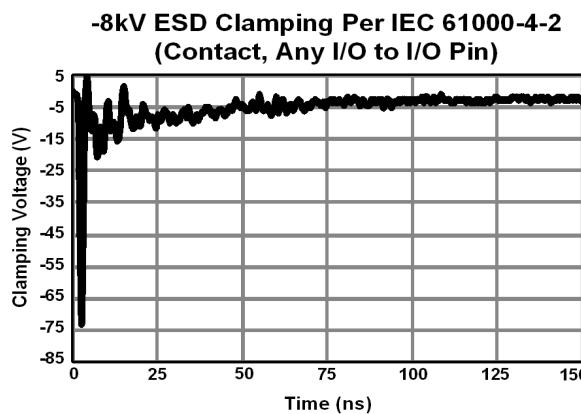
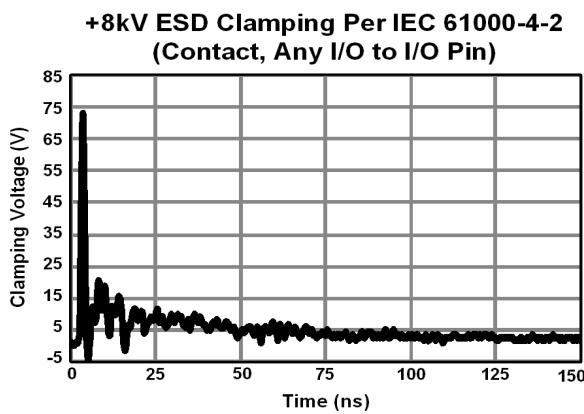
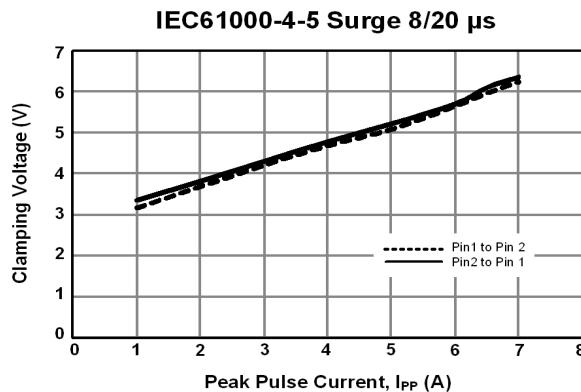
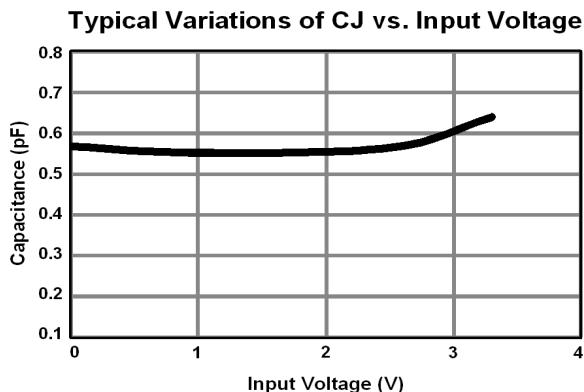
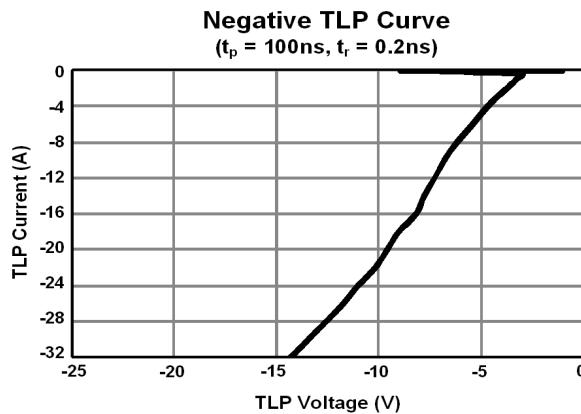
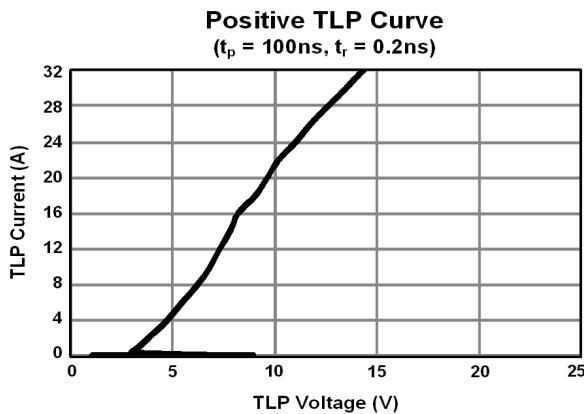


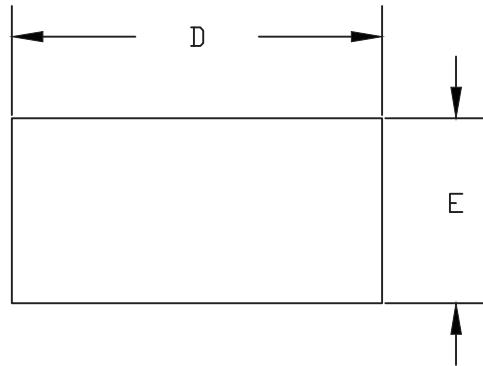
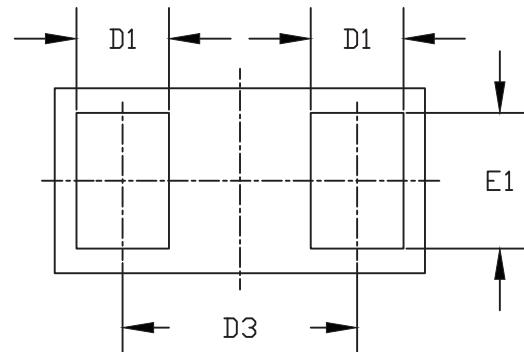
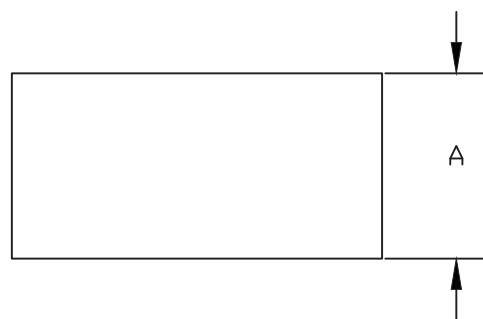
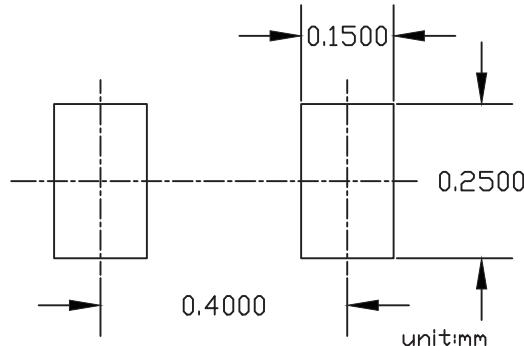
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V_{RWM}	Reverse Working Voltage				3.3	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 10 \mu\text{A}$	6	10	12	V
I_R	Reverse Leakage Current	Max. V_{RWM}		1	50	nA
V_{CL}	Clamping Voltage ⁽³⁾⁽⁴⁾ (100ns Transmission Line Pulse)	$I_{TLP} = 1 \text{ A}$		3.5		V
		$I_{TLP} = 16 \text{ A}$		7.5		
	Clamping Voltage ⁽³⁾ (IEC61000-4-5, 8/20 μs)	$I_{PP} = 1 \text{ A}$		3		
		$I_{PP} = 7 \text{ A}$		6		
R_{DNY}	Dynamic Resistance ⁽³⁾⁽⁴⁾	$I_{TLP} = 1 \text{ A}$ to 16 A		0.25		Ω
C_J	Junction Capacitance	$V_{I/O} = 0 \text{ V}$, $f = 1 \text{ MHz}$		0.5	0.7	pF

Notes:

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

Typical Performance Characteristics



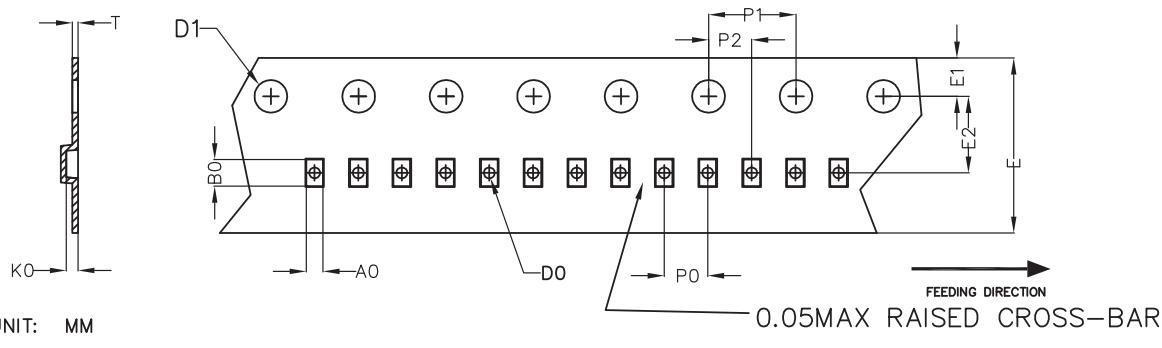
Package Dimensions, DFN 0.6x0.3A_2L,EP2

Top View

Bottom View

Side View

RECOMMEND LAND PATTERN

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.285	0.30	0.315	0.0112	0.0118	0.0124
D	0.575	0.60	0.625	0.0226	0.0236	0.0246
D1	0.12	0.15	0.18	0.0047	0.0059	0.0071
D2	0.20	0.25	0.30	----	0.0102	----
D3	---	0.38	---	----	0.0150	----
E	0.275	0.30	0.325	0.0108	0.0118	0.0128
E1	0.19	0.22	0.25	0.0075	0.0087	0.0098

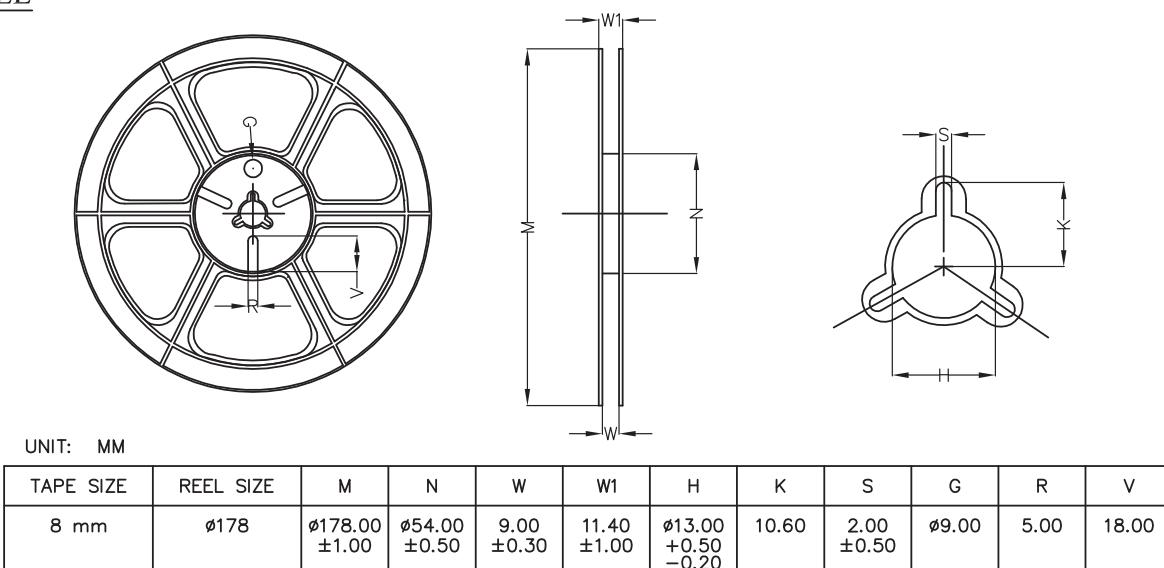
NOTE

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONS ARE INCLUSIVE OF PLATING.
2. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 6MIL EACH.
3. CONTROLLING DIMENSION IS MILLIMETER. CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.
4. PADDLE EXPOSED ON BOTTOM.

Tape and Reel Dimensions, DFN 0.6x0.3A_2L_EP2_S



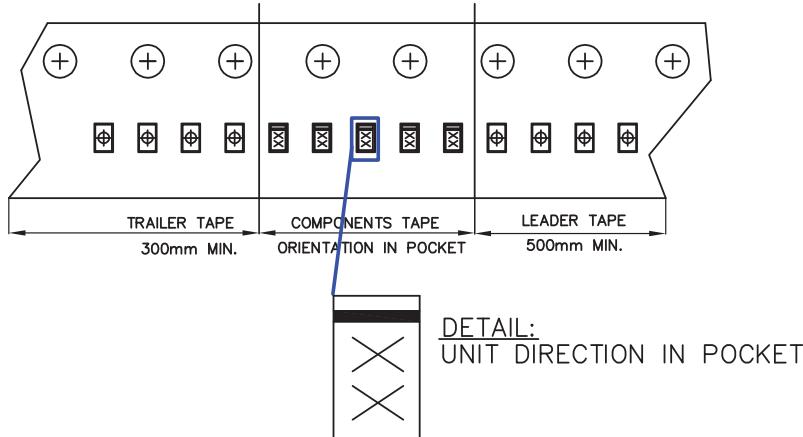
DFN0.6x0.3A_2L_EP2_S REEL



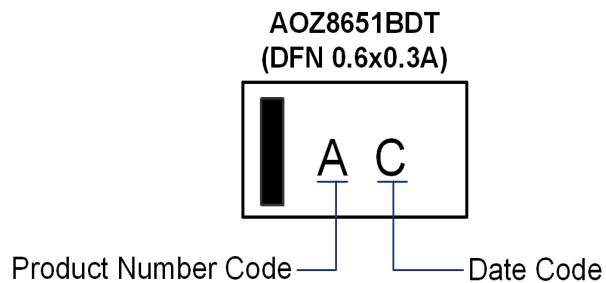
DFN0.6x0.3A_2L_EP2_S TAPE

Leader / Trailer
& Orientation

Unit Per Reel:
15000pcs



Part Marking



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As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
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.