

## General Description

The AOZ8854DT-03 is a 4-channel transient voltage suppressor array designed to protect high speed data lines such as SD and SIM Cards in mobile phones from damaging ESD events.

This device incorporates eight surge rated, low capacitance steering diodes and a TVS in a single package. During transient conditions, the steering diodes direct the transient to either the positive side of the power supply line or to ground.

The AOZ8854DT-03 comes in a RoHS compliant and Halogen Free 1.3mm x 0.8mm x 0.4 mm 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 immunity:
    - Air discharge:  $\pm 30$  kV
    - Contact discharge:  $\pm 30$  kV
  - IEC61000-4-5 (Lightning, 8/20  $\mu$ s):  $\pm 9$  A
- Protects five I/O lines
- Low capacitance between I/O to GND: 0.7 pF
- Low clamping voltage
- Low operating voltage: 3.3 V

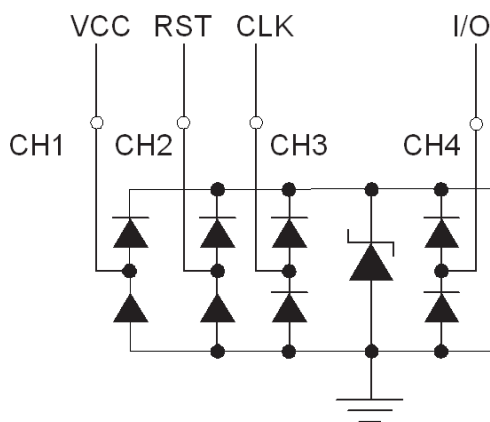
## Applications

- SD and SIM cards
- Monitors and flat panel displays
- Set-top box
- Mobile Phone
- Notebook computers

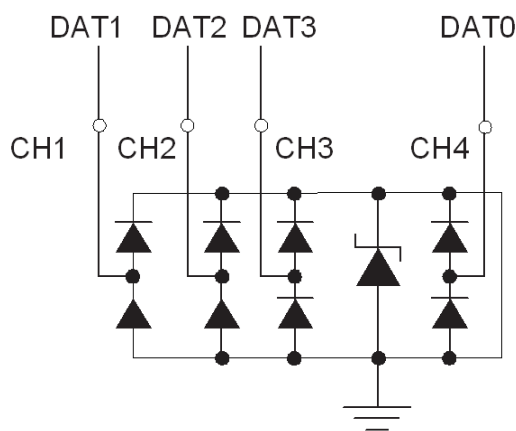


## Typical Applications

**SIM Card Protection**



**SD Card Protection**



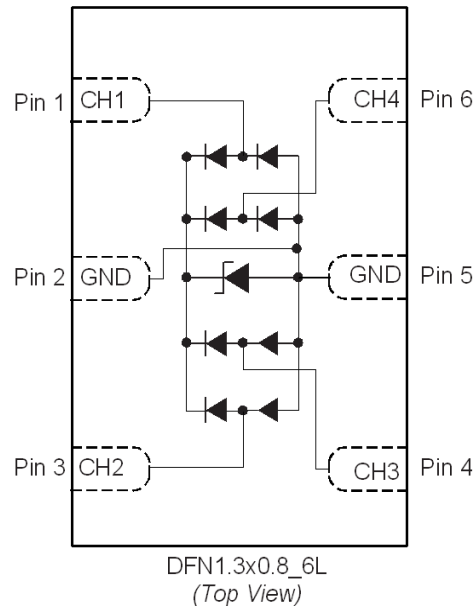
## Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8854DT-03	-40°C to +125°C	DFN1.3mm x0.8mm_6L	Green Product



AOS Green Products use reduced levels of Halogens, and are also RoHS compliant.  
Please visit [www.aosmd.com/media/AOSGreenPolicy.pdf](http://www.aosmd.com/media/AOSGreenPolicy.pdf) for additional information.

## Pin Configuration



## Absolute Maximum Ratings

Exceeding the Absolute Maximum ratings may damage the device.

Parameter	Rating
Storage Temperature ( $T_S$ )	-65°C to +150°C
ESD Rating per IEC61000-4-2, contact <sup>(1)</sup>	±30 kV
ESD Rating per IEC61000-4-2, air <sup>(1)</sup>	±30 kV
Peak Pulse Current per IEC61000-4-5 Surge 8/20 $\mu$ s	±9 A
Peak Pulse Power per IEC61000-4-5 Surge 8/20 $\mu$ s	54 W

### Notes:

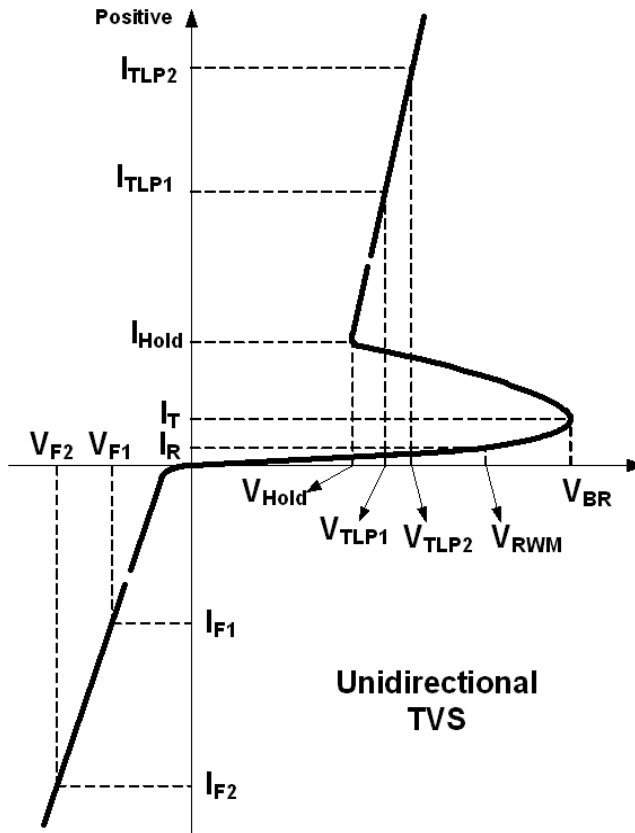
1. IEC 61000-4-2 discharge with  $C_{Discharge} = 150\text{pF}$ ,  $R_{Discharge} = 330\ \Omega$ .
2. Human Body Discharge per MIL-STD-883, Method 3015  $C_{Discharge} = 100\ \text{pF}$ ,  $R_{Discharge} = 1.5\ \text{k}\Omega$ .

## Maximum Operating Ratings

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

## Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise specified. Any I/O pin to GND.



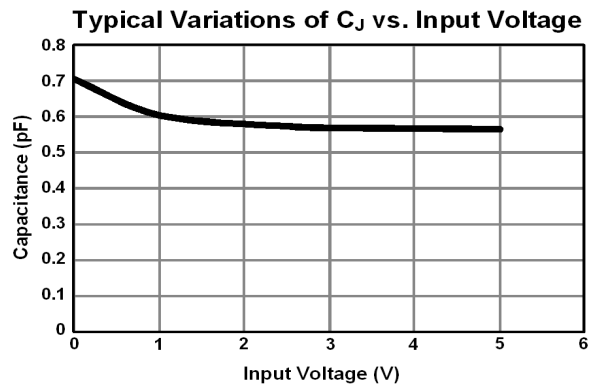
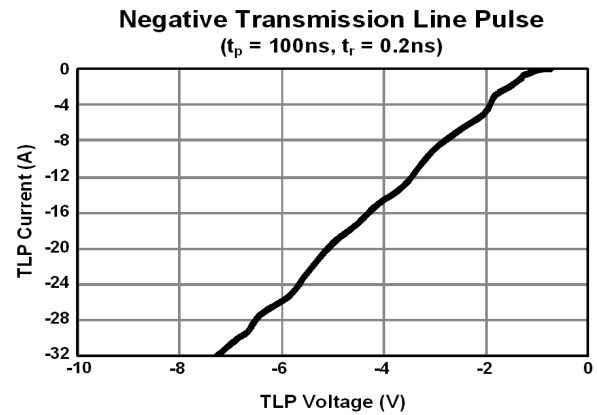
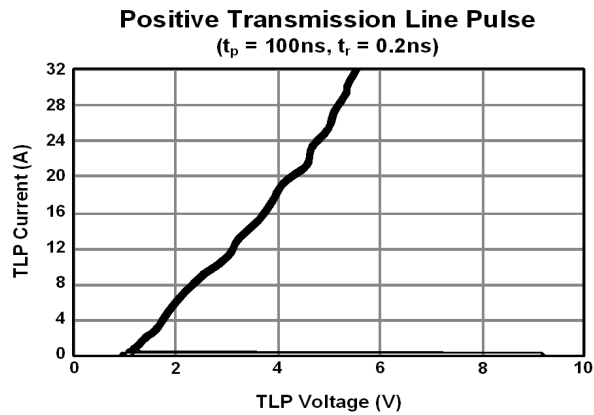
Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
$V_{RWM}$	Reverse Working Voltage	I/O pin to ground			3.3	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 100\ \mu\text{A}$	6	9.5	11	V
$I_R$	Reverse Leakage Current	$V_T = \text{Max. } V_{RWM}$		1	50	nA
$V_F$	Forward Voltage	$I_F = 15\text{mA}$		0.85		V
$V_{CL}$	Clamping Voltage <sup>(3)(4)</sup> (100ns Transmission Line Pulse)	$I_{TLP} = 1\text{ A}$ $I_{TLP} = -1\text{ A}$		2 -2	3 -3	V
		$I_{TLP} = 16\text{ A}$ $I_{TLP} = -16\text{ A}$		4 -4	5 -5	
$R_{DNY}$	Dynamic Resistance <sup>(3)(4)</sup>	$I_{TLP} = 8\text{ A to } 16\text{ A}$ $I_{TLP} = -8\text{ A to } -16\text{ A}$		0.18 0.18		$\Omega$
$I_{PP}$	Peak Pulse Current <sup>(3)</sup> IE61000-4-5 Surge 8/20 $\mu\text{s}$	Any I/O pin to GND GND to any I/O pin			$\pm 9$	A
$V_{CL}$	Clamping Voltage <sup>(3)</sup> IEC61000-4-5 Surge 8/20 $\mu\text{s}$	$I_{PP} = 1\text{ A}$ $I_{PP} = -1\text{ A}$		1.5 -1.5	2.5 -2.5	V
		$I_{PP} = 9\text{ A}$ $I_{PP} = -9\text{ A}$		4.5 -4.5	6 -6	
$C_J$	Junction Capacitance	$V_{I/O} = 0\text{V}$ , $f = 1\text{ MHz}$ , Any I/O pin to GND		0.7	0.9	pF

### Notes:

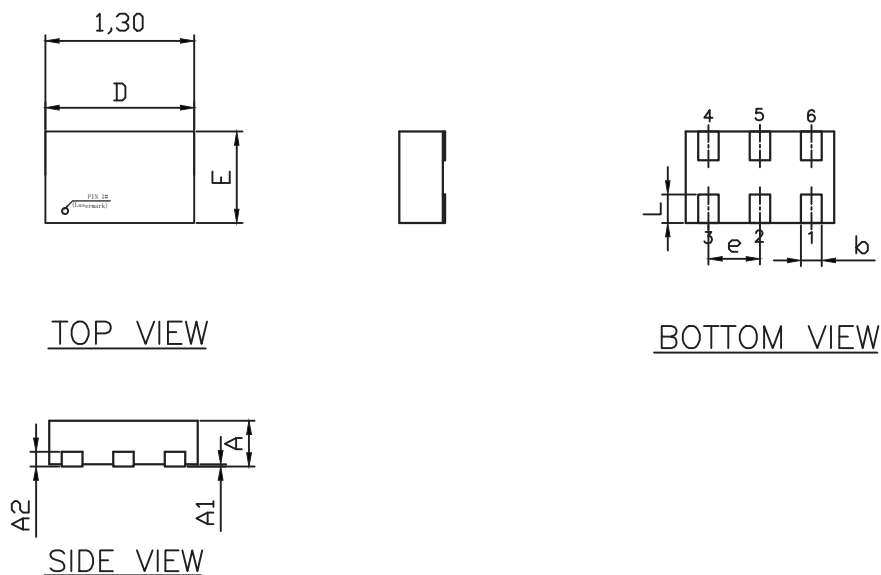
3. These specifications are guaranteed by design and characterization.

4. Measurements performed using a 100ns Transmission Line Pulse (TLP) system.

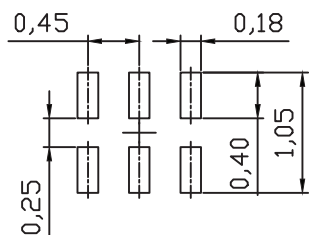
## Typical Performance Characteristics



## Package Dimensions, DFN1.3x0.8\_6L



## RECOMMENDED LAND PATTERN



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.37	0.40	0.43	0.015	0.016	0.017
A1	0.00	0.02	0.05	0.000	0.001	0.002
A2	0.08	0.13	0.18	0.003	0.005	0.007
b	0.13	0.18	0.23	0.005	0.007	0.009
D	1.20	1.30	1.40	0.047	0.051	0.055
E	0.70	0.80	0.90	0.028	0.031	0.035
e	0.45 BSC			0.018 BSC		
L	0.20	0.25	0.30	0.008	0.010	0.012

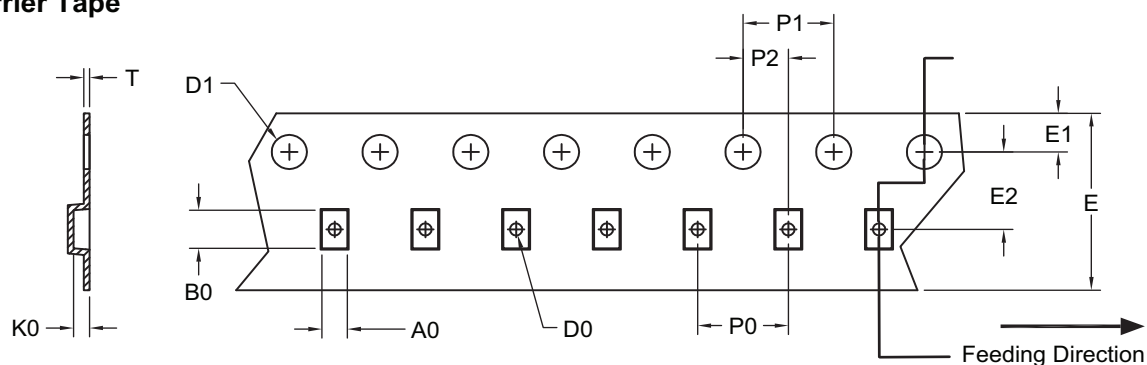
UNIT: mm

### NOTE

1. CONTROLLING DIMENSION IS MILLIMETER.  
CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.
2. LAND PATTERN DIMENSIONS ARE ONLY FOR REFERENCE.

## Tape and Reel Dimensions, DFN1.3x0.8\_6L

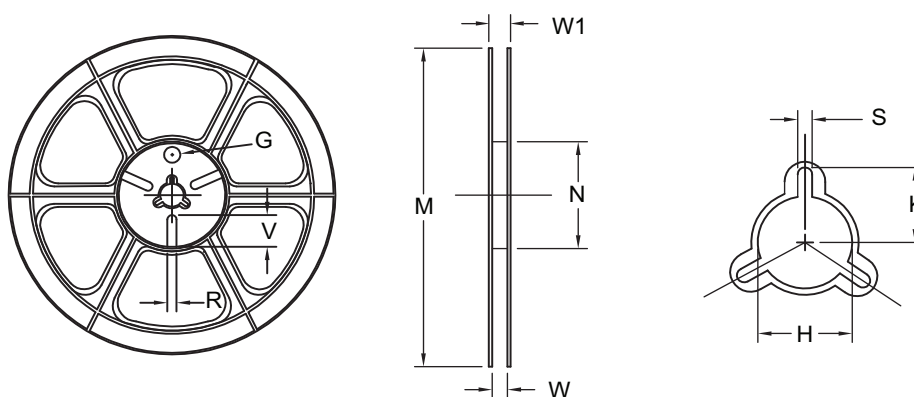
### Carrier Tape



UNIT: mm

Package	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
DFN 1.3x0.8 (8mm)	1.00 ±0.05	1.50 ±0.05	0.50 ±0.05	0.50 ±0.05	1.50 ±0.10	8.00 +0.3/-0.10	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	0.20 ±0.02

### Reel

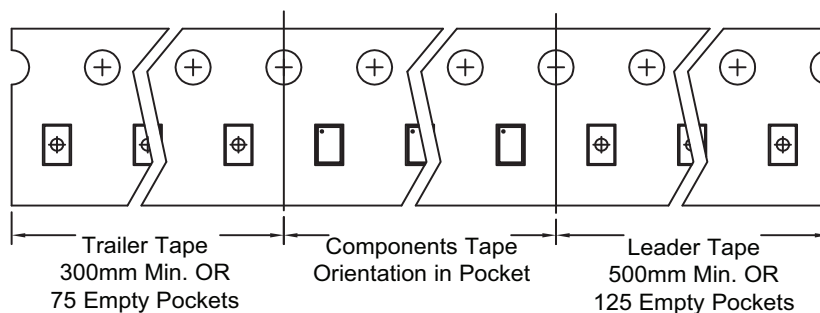


UNIT: mm

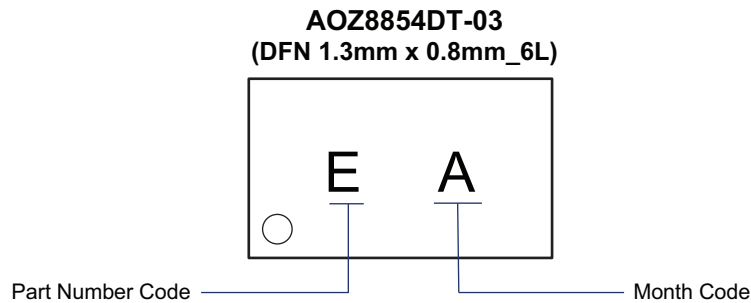
Tape Size	Reel Size	M	N	W	W1	H	K	S	E	R	R
8mm	ø178	ø178.0 ±1.0	ø60.0 ±1.0	9.0 ±0.5	—	ø13.0 +0.5 / -0.2	10.25 ±0.2	2.4 ±0.1	ø9.8	—	—

### Leader / Trailer & Orientation

**MOQ 5kpcs/per Reel**



## Part Marking



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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.