



General Description

The AOZ8934 is a transient voltage suppressor array designed to protect high speed data lines. It is specially designed to protect portable devices that utilize the USB port for battery charging.

This device incorporates three 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. It provides a typical line-to-line capacitance of 0.3 pF and low insertion loss up to 6 GHz providing greater signal integrity making it ideally suited for USB 2.0 applications. An integrated 26V TVS diode is used for protection of the USB voltage bus.

The AOZ8934 comes in a RoHS compliant SOT23-6 package and is rated for -40 °C to +125 °C junction temperature range.

Features

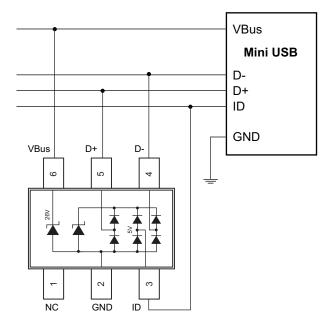
- Array of surge rated diodes with internal TVS diode
- ESD protection for high-speed data lines:
 - IEC 61000-4-2, level 4 (ESD) immunity test
 Air discharge: ±20 kV; contact discharge: ±15 kV
 - IEC61000-4-4 (EFT) 40 A (5/50 ns)
 - IEC61000-4-5 (Lightning) 4 A (8/20 μs)
 - Human Body Model (HBM) ±24 kV
- Low capacitance between I/O lines
- Low clamping voltage on D+, D- and ID pins
- Protects USB VBus operating up to 26 V
 - IEC61000-4-2, level 4 (ESD) immunity test
 Air discharge: ±30 kV; contact discharge: ±30 kV
 - IEC61000-4-5 (Lightning) 30 A (8/20 μs)
- Small package saves board space

Applications

- USB 2.0
- USB OTG



Typical Application



AOZ8934CI-26



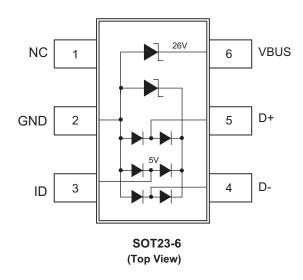
Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental		
AOZ8934CI-26	-40 °C to +85 °C	SOT23-6	RoHS Compliant 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.

Pin Configuration



Absolute Maximum Ratings

Exceeding the Absolute Maximum ratings may damage the device.

Parameter	
Storage Temperature (T _S)	-65 °C to +150 °C
ESD Rating per IEC61000-4-2, contact ⁽¹⁾	±15 kV
ESD Rating per IEC61000-4-2, air ⁽¹⁾	±20 kV
ESD Rating per Human Body Model ⁽²⁾	±24 kV

Notes:

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

Maximum Operating Ratings

Parameter	Rating			
Junction Temperature (T _J)	-40 °C to +125 °C			

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Electrical Characteristics

 $T_A = 25$ °C unless otherwise specified.

Symbol	Parameter	Diagram				
I _{PP}	Maximum Reverse Peak Pulse Current	ļ.				
V _{CL}	Clamping Voltage @ I _{PP}	I ₽				
V _{RWM}	Working Peak Reverse Voltage					
I _R	Maximum Reverse Leakage Current					
V_{BR}	Breakdown Voltage	V _{CL} V _{BR} V _{RWM}				
I _T	Test Current	IR V _F				
V _F	Forward Voltage @ I _F					
P _{pk}	Peak Power Dissipation (IEC61000-4-5 8/20 µs pulse)	Ipp				
CJ	Max. Capacitance @ V _R = 0 and f = 1 MHz					

	V _{RWM} (V)	V _{BR} (V) Min.	I _R (μΑ)	V _F (V)	V _{CL} @ I _{PP} 8/20 μs ⁽³⁾			C ^J ((pF)
Pin	Max.	I _T = 100 μA	Max.	Typ.	I _{PP} (A)	V _{CL} (V)	P _{pk} (W)	Тур.	Max.
D+, D-, ID	5	6	1.0	0.85	4	7	30	0.6	0.75
VBUS	26	29	1.0	0.85	30	50	1500	200	250

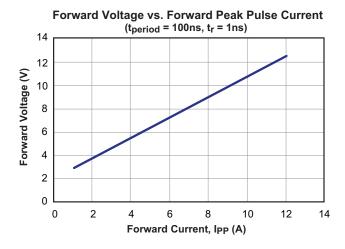
Notes:

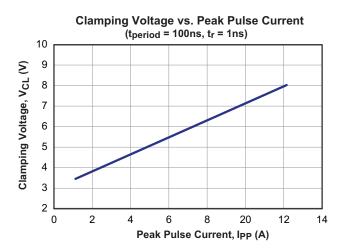
3. These specifications are guaranteed by design and characterization.

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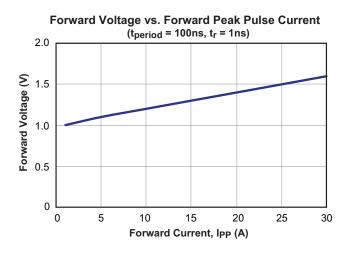


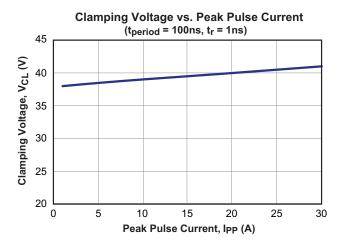
Typical Performance Characteristics for D+, D- and ID





Typical Performance Characteristics for VBUS

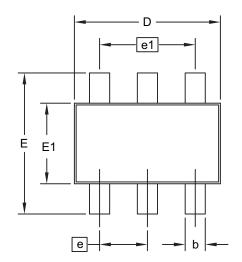


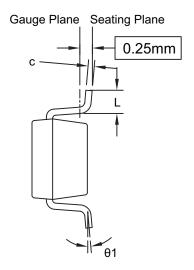


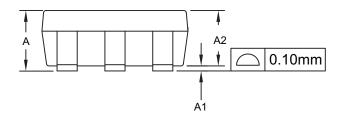
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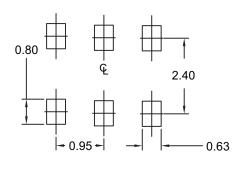
Package Dimensions, SOT23, 6L







RECOMMENDED LAND PATTERN



UNIT: mm

Dimensions in millimeters

Symbols	Min.	Nom.	Max.			
Α	0.80		1.25			
A1	0.00		0.15			
A2	0.70	1.10	1.20			
b	0.30	0.40	0.50			
С	0.08	0.13	0.20			
D	2.70	2.90	3.10			
E	2.50	2.80	3.10			
E1	1.50	1.70				
е	0.95 BSC					
e1	1.90 BSC					
L	0.30		0.60			
θ1	0°		8°			

Dimensions in inches

Symbols	Min.	Nom.	Max.			
Α	0.035		0.049			
A1	0.000		0.006			
A2	0.031	0.043	0.047			
b	0.012	0.016	0.020			
С	0.003	0.005	0.008			
D	0.106	0.114	0.122			
Е	0.098	0.110	0.122			
E1	0.059	0.063	0.067			
е	0.037 BSC					
e1	()				
L	0.012		0.024			
θ1	0°		8°			

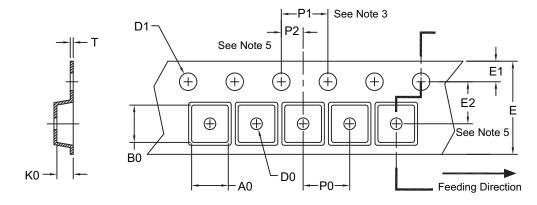
Note:

- 1. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5mils each.
- 2. Dimension "L" is measured in gauge plane.
- 3. Tolerance ±0.100mm (4 mil) unless otherwise specified.
- 4. Followed from JEDEC MO-178C & MO-193C.
- 5. Controlling dimension is millimeter. Converted inch dimensions are not necessarily exact.



Tape and Reel Dimensions, SOT23, 6L

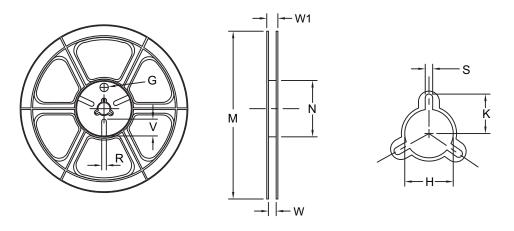
Carrier Tape



UNIT: mm

Package	A0	В0	K0	D0	D1	Е	E1	E2	P0	P1	P2	Т
SOT-23	3.15	3.27	1.34	1.10	1.50	8.00	1.75	3.50	4.00	4.00	2.00	0.25
(8 mm)	±0.10	±0.10	±0.10	±0.01	±0.10	±0.20	±0.10	±0.05	±0.10	±0.10	±0.05	±0.05

Reel

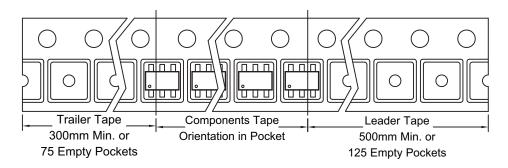


UNIT: mm

Tape Size	Reel Size	М	N	w	W1	н	K	S	G	R	V
8mm	ø180	ø180.00	ø60.50	9.00	11.40	ø13.00	10.60	2.00	ø9.00	5.00	18.00
		±0.50	±0.50	±0.30	±1.00	+0.50/-0.20		±0.50			

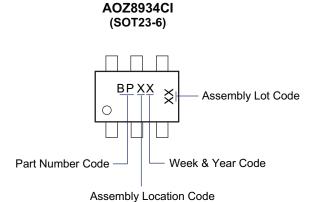
Leader / Trailer & Orientation







Part Marking



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