ALPHA & OMEGA SEMICONDUCTOR

AOZ8360DI

1-Channel Unidirectional High-Power TVS

General Description

The AOZ8360DI 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 7.5V to 24V.

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 AOZ8360DI provides low clamping voltage making it ideally suited for power rail protection in mobile and computing devices.

The AOZ8360DI comes in a RoHS compliant and Halogen Free 2.0 mm×2.0 mm×0.55 mm package and is rated for -40°C to +125°C junction temperature range.

Features

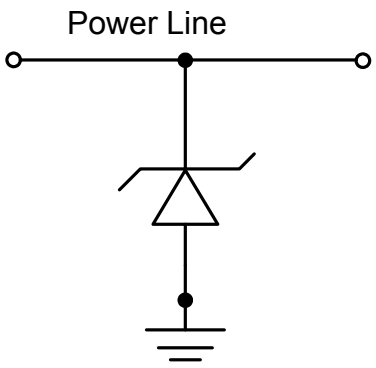
- ESD protection for high-speed data lines:
  - IEC 61000-4-2 (ESD) ±30kV (air and contact)
    - Air discharge:±30kV
    - Contact discharge: ±30kV
- IEC 61000-4-5 (Lightning, 8/20μs) ±300 to ±110A
- Low clamping voltage
- VRWM: 7.5, 12, 15, 18, 20, 22, 24V

Applications

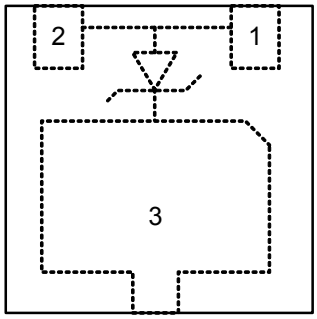
- Battery
- VBUS
- Mobile phone
- Notebook computers

Green Product

Typical Application



Pin Configuration



DFN2.0x2.0_3L
(Top View)

Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8360DI-07	-40°C to +125°C	DFN2×2-3L	Green Product
AOZ8360DI-12			
AOZ8360DI-15			
AOZ8360DI-18			
AOZ8360DI-20			
AOZ8360DI-22			
AOZ8360DI-24			

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	7.5V to 24V
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	4250 W
8/20μs Surge IEC61000-4-5 Peak Pulse Current	± 300 to 110 A

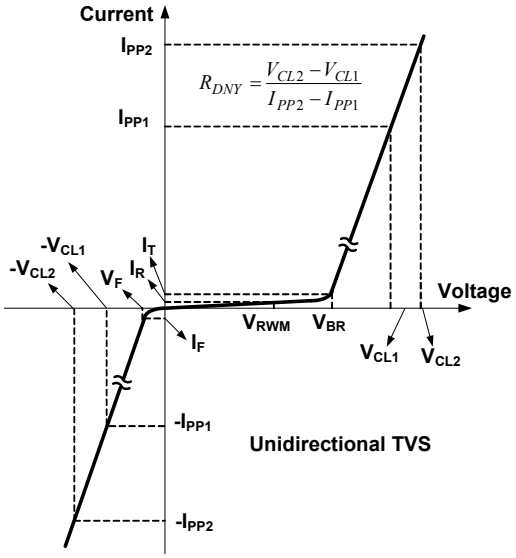
Notes:

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} (Ω)(3)(4)	C_J at 1MHz (pF) (4)
	Max	Min	Typ	Max	Typ	Max	Max	Max	Max	Typ	Typ
AOZ8360DI-07	7.5	8	9	10	10	800	300	11	15	0.01	2700
AOZ8360DI-12	12	13.2	14.5	16.5	10	800	220	16.5	23	0.02	1350
AOZ8360DI-15	15	16.5	18	19.5	10	800	180	20	27	0.04	1100
AOZ8360DI-18	18	19	21	23	15	800	165	23	31.5	0.05	950
AOZ8360DI-20	20	21.5	23.5	25.5	23	800	135	28	35	0.05	850
AOZ8360DI-22	22	23.5	25.5	27.5	20	800	135	29	36	0.05	800
AOZ8360DI-24	24	26	28	30	20	800	110	33	41	0.06	730

Notes:

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

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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.