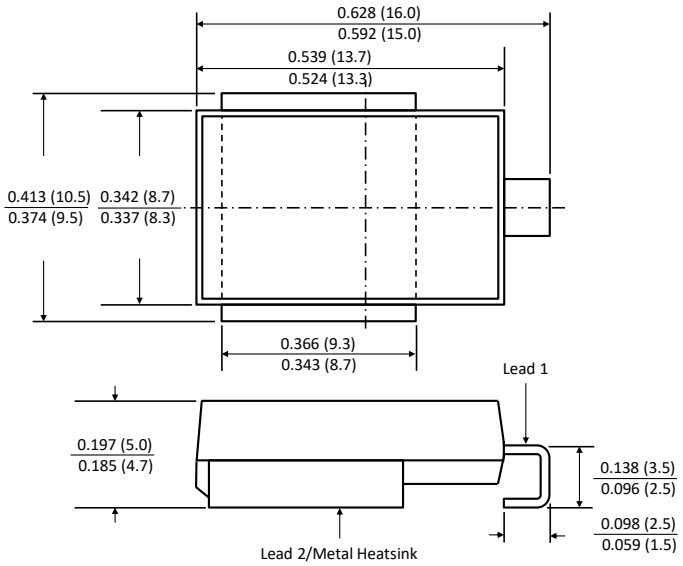
ALD5S Series

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

DO-218 Package



Dimension in inches and (millimeter)

PRIMARY CHARACTERISTICS	
V_{RWM}	16V to 43V
V_{BR}	17.8V to 52.8V
P_{PPM} (10/1000us)	3600W
T_J max	175°C
Polarity	Uni-directional & Bi-directional
Package	DO-218

FEATURES

- Glass passivated junction technology
- Low forward voltage drop for Uni-directional polarity
- Fast response time: typical less than 1.0ps from 0 Volts to BV
- TJ = 175°C capability suitable for high reliability
- High surge capability
- Maximum peak power dissipation: 3600 Watts
- Meets ISO7637-2 & ISO16750-2 surge specification (varied by test condition)
- Halogen-Free
- RoHS compliant
- AEC-Q101 qualified

Green

MECHANICAL DATA

Case: DO-218. Molded plastic over glass passivated junction Molding compound meets UL 94V-0 flammability rating

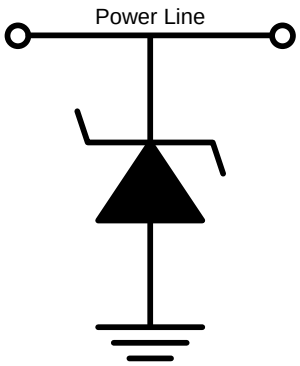
Terminal: Solderable per MIL-STD-750, Method 2026

Polarity: Heat sink is anode, Color band denoted positive end (cathode) except Bidirectional.

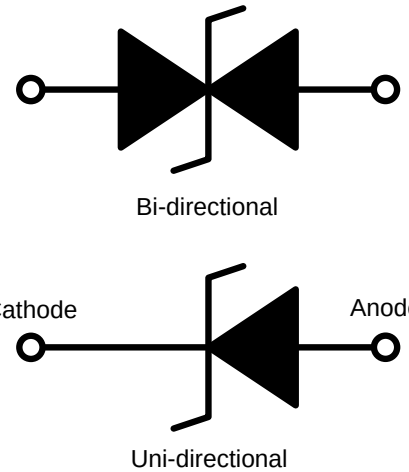
Typical Application

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting. Especially for automotive load dump protection application.

Typical Application



Functional Diagram



Ordering Information

Part Number	Quantity	Packing Option	Component Package	Packing Specification
ALD5SxxA	750	Tape & Reel - 24mm/13" tape	DO-218	EIA STD RS-481

AOS products are offered in packages with Pb-free plating and compliant to RoHS standards.
Please visit https://aosmd.com/sites/default/files/media/AOSGreenPolicy.pdf for additional information.

MAXIMUM RATINGS (25°C ambient temperature unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000µs waveform (1)	P_{PPM}	3600	Watts
Peak Pulse Power Dissipation on 10/10000µs waveform (1)	P_{PPM}	2800	Watts
Peak Pulse Current of on 10/1000µs waveform	I_{PPM}	See next table	Amps
Power dissipation on infinite heatsink (T_C = 25°C)	P_D	5	Watts
Peak Forward Surge Current,8.3ms Single Half Sine-Wave, Superimposed on Rated Load. (JEDEC Method)	I_{FSM}	500	Amps
Operating junction and Storage Temperature Range	T_J T_{STG}	-55 to +175	°C

Note:
1. Non-repetitive current pulse above T_A = 25 °C

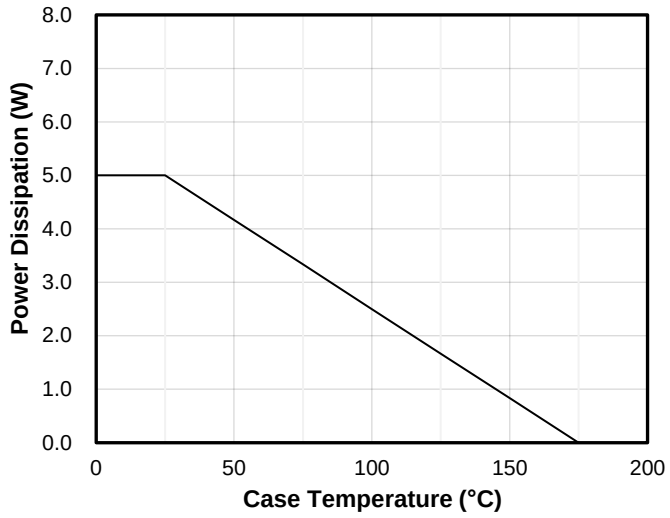
ELECTRICAL CHARACTERISTICS

PART NUMBER		REVERSE STAND-OFF VOLTAGE VRWM(V)	BREAKDOWN VOLTAGE VBR(V) @IT		TEST CURRENT I_T (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc(V)	MAXIMUM PEAK PULSE CURRENT Ipp (A)	MAXIMUM REVERSE LEAKAGE @ VRWM IR(µA)
UNI- POLAR	BI-POLAR		MIN	MAX				
ALD5S16A	ALD5S16CA	16.0	17.80	19.70	5	26.0	138.5	10
ALD5S17A	ALD5S17CA	17.0	18.90	20.90	5	27.6	130.5	10
ALD5S18A	ALD5S18CA	18.0	20.00	22.10	5	29.2	123.5	10
ALD5S20A	ALD5S20CA	20.0	22.20	24.50	5	32.4	111.5	10
ALD5S22A	ALD5S22CA	22.0	24.40	26.90	5	35.5	101.5	10
ALD5S24A	ALD5S24CA	24.0	26.70	29.50	5	38.9	93.0	10
ALD5S26A	ALD5S26CA	26.0	28.90	31.90	5	42.1	86.0	10
ALD5S28A	ALD5S28CA	28.0	31.10	34.40	5	45.4	79.5	10
ALD5S30A	ALD5S30CA	30.0	33.30	36.80	5	48.4	74.5	10
ALD5S33A	ALD5S33CA	33.0	36.70	40.60	5	53.3	68.0	10
ALD5S36A	ALD5S36CA	36.0	40.00	44.20	5	58.1	62.0	10
ALD5S40A	ALD5S40CA	40.0	44.40	49.10	5	64.5	56.0	10
ALD5S43A	ALD5S43CA	43.0	47.80	52.80	5	69.4	52.0	10

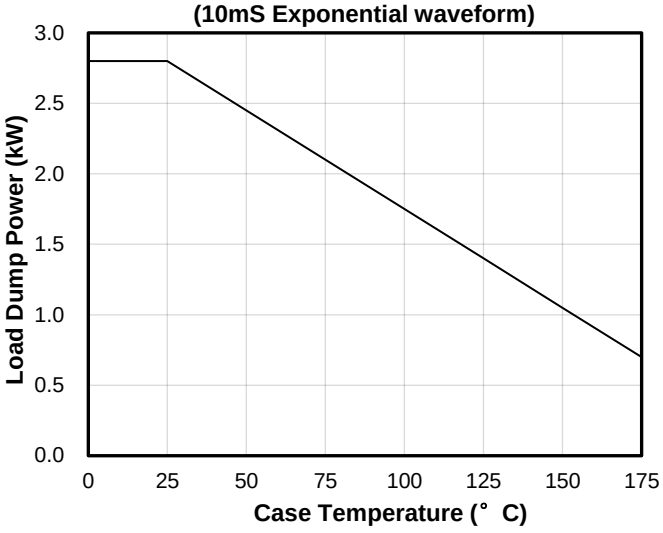
Note:
For uni-directional part, the maximum V_F = 1.8 V at I_F = 100 A measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

RATINGS AND CHARACTERISTICS CURVES (T_A = 25°C unless otherwise noted)

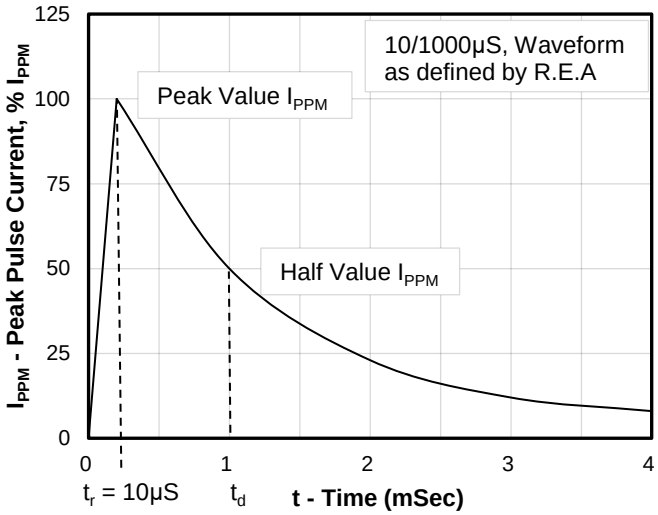
Power De-Rating Curve



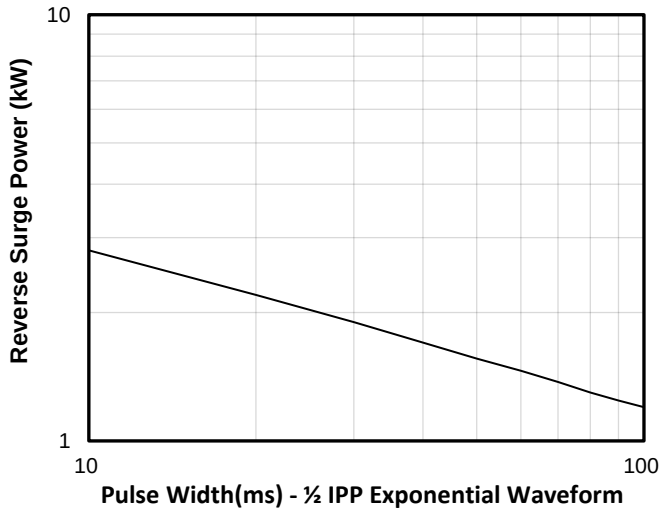
Load Dump Power Charateristics (10mS Exponential waveform)



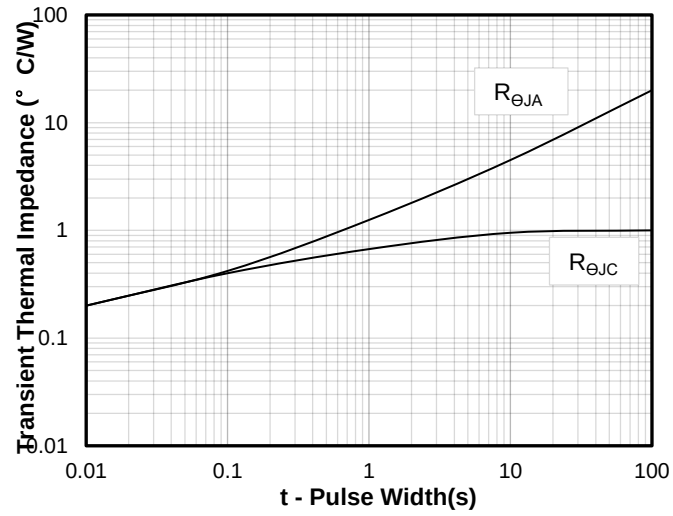
Pulse Waveform



Reverse Power Capability



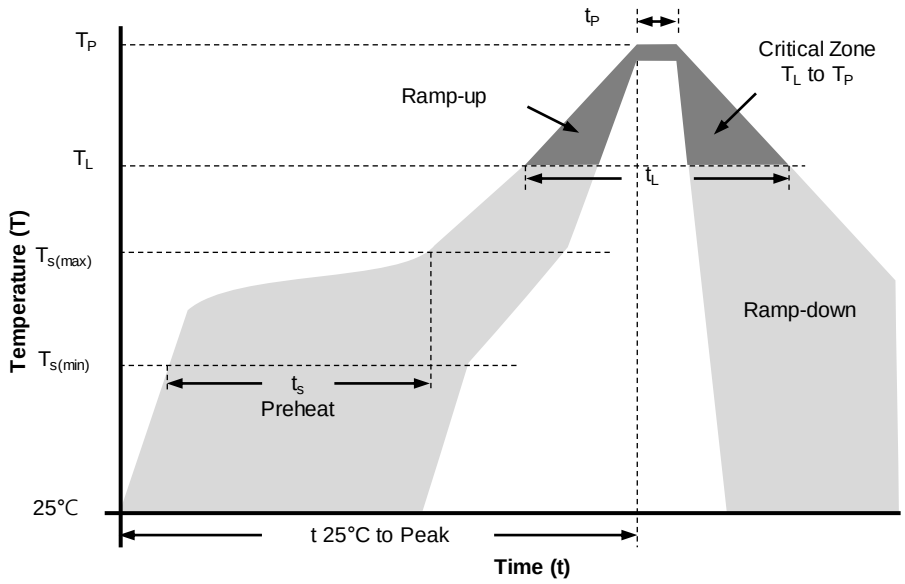
Typical Transient Theremal Impedance



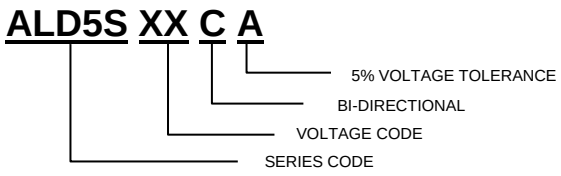
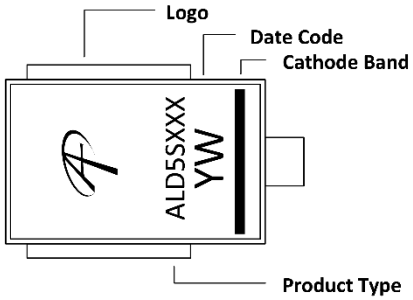
Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	-Time (min to max) (t_s)	60-120 seconds
Average ramp up rate (Liquidus Temp(T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	-Temperature Min (T_L)	217°C
	Time (t_L) maintained above T_L	60-150 seconds
Peak temperature(T_P)		245 $^{+0/-5}$°C
Time within 5°C of actual peak Temperature(t_p)		20-40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak temperature(T_p)		8 minutes max

Soldering Profile



PART MARKING

Part Number	Part Marking
	

ALD5S series

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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.