

ALS5W10A – ALS5W43A

Surface Mount Load Dump Transient Voltage Suppressors

REVERSE VOLTAGE – 10~43 Volts
PEAK PULSE POWER – 3600 Watt

FEATURES

- High current capability
- Low Forward Voltage Drop
- Low reverse current
- Low thermal resistance
- Excellent high temperature stability
- Low power loss and high efficiency
- High forward surge capability
- Meet ISO7637-2 and ISO16750-2 surge specification (varied by test condition)
- Meet MSL level 1, per J-STD-020
- LF maximum peak of 260 °C
- AEC-Q101 qualified
- PPAP capable
- Automotive grade
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

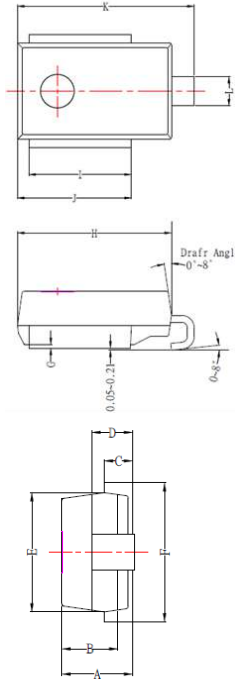
APPLICATION

- High peak power
- High-temperature
- Clamping diode
- Load switching and lighting
- Use in sensitive electronics protection against voltage transients induced by inductive automotive ECU module, especially for automotive load dump protection application

MECHANICAL DATA

- Case: DO-218 outline plastic package
- Terminals: Matte tin plated, solderable per MIL-STD-750 Method 2026 , J-STD-002 and JESD 22-B10^③
- Molding Compound Flammability Rating:UL94-0
- High temperature soldering guaranteed: 260°C/10second
- Polarity: Heatsink is anode
- Corresponds to taping packages. (750PCS/Reel)
- Weight: 2.74 grams (Approximate)

DO-218



DO-218			
Dim.	Min.	TYP.	Max.
A	4.75	5.00	5.25
B	3.66	3.96	4.26
C	1.80	2.00	2.20
D	2.58	2.88	3.18
E	8.20	8.50	8.80
F	9.50	----	10.50
G	----	0.30	----
H	13.20	13.50	13.80
I	8.70	9.00	9.30
J	9.70	10.00	10.25
K	15.00	15.50	16.00
L	2.30	----	3.00

All Dimensions in millimeter

Primary Characteristics

VWM	10 V to 43 V
VBR	11.1 V to 52.8 V
PPPM (10 x 1000 uS)	3600 W
PPPM (10 x 10 000 uS)	2800 W
IFSM	500 A
Polarity	Uni-directional
Diode variation	Single

Note:

REV-4, Octo-2021, KSIR08

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Maximum Ratings (TA = 25 °C unless otherwise noted)				
Parameter		Symbol	Value	Units
Peak pulse power dissipation	10/1000 μ s waveform	PPPM	3600	W
	10/10 000 μ s waveform		2800	
Peak forward surge current 8.3 ms single half sine-wave		IFSM	500	A
Operating junction and storage temperature range		TJ, TSTG	-55 to +175	°C

Electrical Characteristics (TA = 25 °C unless otherwise noted)								
Part Number	Breakdown Voltage V _{BR} (V)		Test Current I _T (mA)	Stand-OFF Voltage V _{WM} (V)	Maximum Reverse Leakage at V _{WM} I _D (μ A)	Maximum Leakage at V _{WM} T _J = 175 °C I _D (μ A)	Max. Peak Pulse Current at 10/1000 μ s Waveform (A)	Maximum Clamping Voltage at IPPM V _C (V)
	Min.	Max.						
ALS5W10A	11.1	12.3	5.0	10.0	15	250	211	17.0
ALS5W11A	12.2	13.5	5.0	11.0	10	150	198	18.2
ALS5W12A	13.3	14.7	5.0	12.0	10	150	181	19.9
ALS5W13A	14.4	15.9	5.0	13.0	10	150	167	21.5
ALS5W14A	15.6	17.2	5.0	14.0	10	150	155	23.2
ALS5W15A	16.7	18.5	5.0	15.0	10	150	148	24.4
ALS5W16A	17.8	19.7	5.0	16.0	10	150	138	26.0
ALS5W17A	18.9	20.9	5.0	17.0	10	150	130	27.6
ALS5W18A	20.0	22.1	5.0	18.0	10	150	123	29.2
ALS5W20A	22.2	24.5	5.0	20.0	10	150	111	32.4
ALS5W22A	24.4	26.9	5.0	22.0	10	150	101	35.5
ALS5W24A	26.7	29.5	5.0	24.0	10	150	93	38.9
ALS5W26A	28.9	31.9	5.0	26.0	10	150	86	42.1
ALS5W28A	31.1	34.4	5.0	28.0	10	150	79	45.4
ALS5W30A	33.3	36.8	5.0	30.0	10	150	74	48.4
ALS5W33A	36.7	40.6	5.0	33.0	10	150	68	53.3
ALS5W36A	40.0	44.2	5.0	36.0	10	150	62	58.1
ALS5W40A	44.4	49.1	5.0	40.0	10	150	56	64.5
ALS5W43A	47.8	52.8	5.0	43.0	10	150	52	69.4

Note:

4. For all types maximum VF = 2.0V at IF = 100A measured on 8.3ms single half sine-wave.

RATING AND CHARACTERISTIC CURVES
ALS5W10A – ALS5W43A

FIG.1- Power Derating Curve

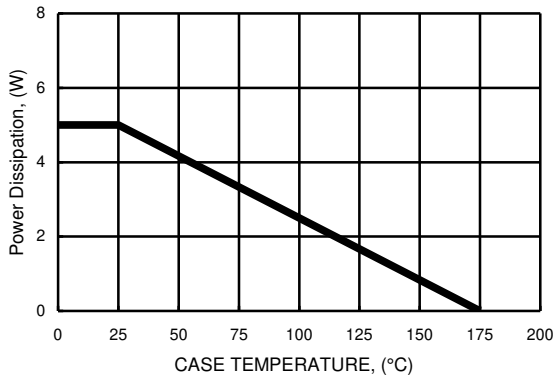


FIG.2- Load Dump Power Characteristics
(10ms Exponential Waveform)

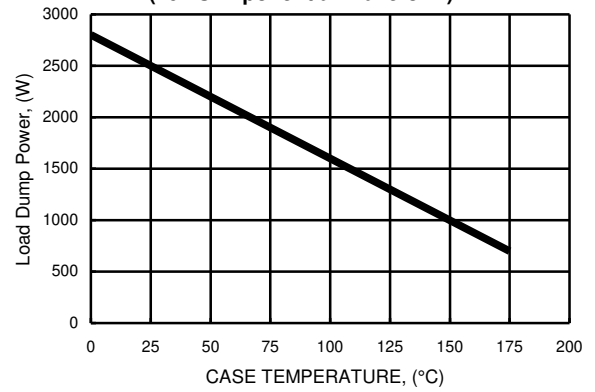


Fig.3 - Pulse Waveform

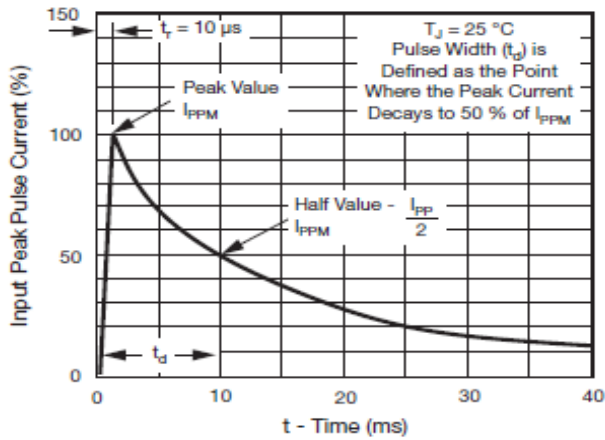


FIG.4- Reverse Power Capability

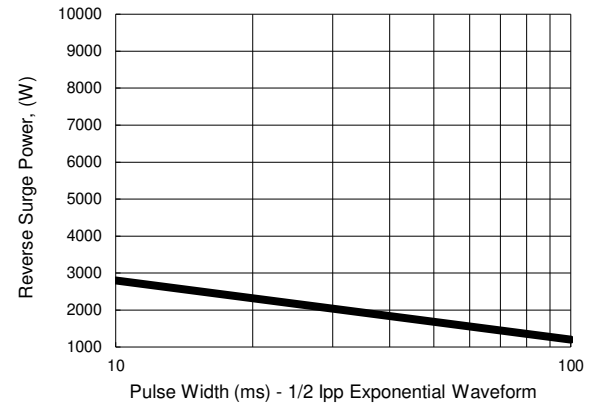


FIG.5- Typical Transient Thermal Impedance

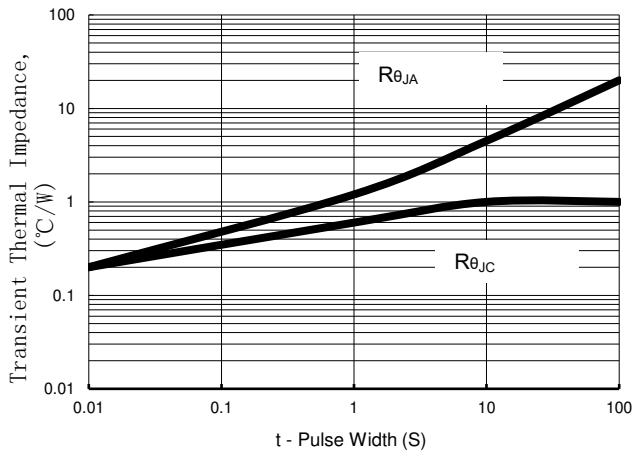
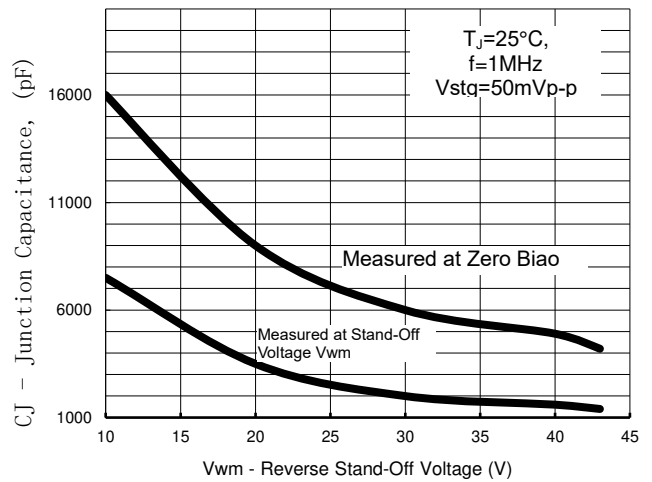
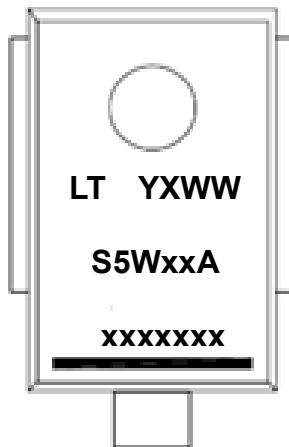


FIG.6- Typical Junction Capacitance



Ordering Information :

Part Number	Case	Packaging
ALS5WxxA	DO-218	750pcs/ Reel

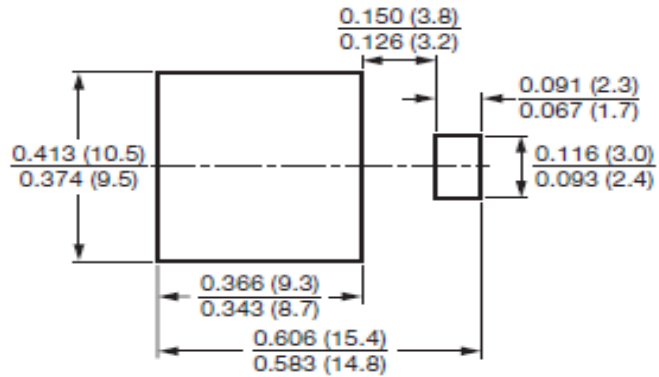
Marking Information :

LT = Manufacturer's Code Marking
S5WxxA = Product Type Marking Code
YXWW = Date Code Marking
Y = Last Digit of Year (ex: 1 = 2021)
X = Manufacturer's Internal Code
WW = Week Code (01 to 53)
xxxxxxx = Assembly Tracking Code
Cathode Bar

Packaging Information :

DEVICE	REEL DIA.	Q'TY/REEL	REEL/BOX	Q'TY/BOX	BOX/CARTON	Q'TY/CARTON	BOX SIZE	CARTON SIZE
	(INCH)	(PCS)	(REEL)	(PCS)	(BOX)	(PCS)	(mm)	(mm)
ALS5WxxA	13	750	1	750	4	3000	360*340*52	382*360*240

Soldering Pad Layout :



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