

6600W, 10V – 43V Surface Mount Transient Voltage Suppressor

FEATURES

- AEC-Q101 qualified
- Junction passivation optimized design technology
- $T_J = 175^\circ\text{C}$ capability suitable for high reliability and automotive requirement
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21
- Meets ISO7637-2 and ISO16750-2 surge specifications (varied by test conditions)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_{WM}	10 – 43	V
V_{BR}	11.1 – 52.8	V
P_{PPM} (10x1,000 μs)	6600	W
P_{PPM} (10x10,000 μs)	5200	W
$T_{J\text{ MAX}}$	175	$^\circ\text{C}$
Package	DO-218AB	

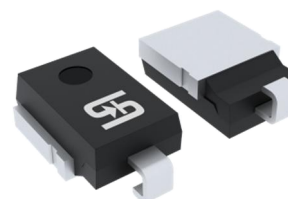
APPLICATIONS

- Transient Surge Protection.
- Automotive Load Dump Surge Protection.



MECHANICAL DATA

- Case: DO-218AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Uni-directional
- Weight: 2.691g (approximately)



DO-218AB



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Non-repetitive peak impulse power dissipation with 10/1000 μs waveform	P_{PPM}	6600	W
Non-repetitive peak impulse power dissipation with 10/10000 μs waveform ⁽¹⁾	P_{PPM}	5200	W
Steady state power dissipation ⁽²⁾	P_D	8	W
Forward Voltage at $I_F = 100\text{ A}$ ⁽³⁾	$V_{F, \text{MAX}}$	1.8	V
Peak forward surge current, 8.3 ms single half sine-wave	I_{FSM}	700	A
Junction temperature	T_J	-55 to +175	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +175	$^\circ\text{C}$

Notes:

1. Non-repetitive current pulse per Fig. 3.
2. Units mounted on PCB (16mm x 16mm Cu pad test board)
3. Pulse test with PW=0.3 ms

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP.	UNIT
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	7.6	°C/W
Junction-to-lead thermal resistance per diode	$R_{\theta JL}$	9.3	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	48.52	°C/W

Thermal Performance Note: Units mounted on PCB (16mm x 16mm Cu pad test board)

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Part number	Marking code	Breakdown voltage V_{BR} at I_T (V) (Note 1)		Test current I_T (mA)	Working stand-off voltage V_{WM} (V)	Maximum blocking leakage current I_R at V_{WM} (μA) (Note 1)	Maximum peak impulse current I_{PPM} (A) $t_p = 10/1000 \mu\text{s}$	Maximum clamping voltage V_C at I_{PPM} (V)
		Min.	Max.					
TLD8S10AH	TLD8S10A	11.1	12.3	5.0	10.0	15	388	17.0
TLD8S11AH	TLD8S11A	12.2	13.5	5.0	11.0	10	363	18.2
TLD8S12AH	TLD8S12A	13.3	14.7	5.0	12.0	10	332	19.9
TLD8S13AH	TLD8S13A	14.4	15.9	5.0	13.0	10	307	21.5
TLD8S14AH	TLD8S14A	15.6	17.2	5.0	14.0	10	284	23.2
TLD8S15AH	TLD8S15A	16.7	18.5	5.0	15.0	10	270	24.4
TLD8S16AH	TLD8S16A	17.8	19.7	5.0	16.0	10	254	26.0
TLD8S17AH	TLD8S17A	18.9	20.9	5.0	17.0	10	239	27.6
TLD8S18AH	TLD8S18A	20.0	22.1	5.0	18.0	10	226	29.2
TLD8S20AH	TLD8S20A	22.2	24.5	5.0	20.0	10	204	32.4
TLD8S22AH	TLD8S22A	24.4	26.9	5.0	22.0	10	186	35.5
TLD8S24AH	TLD8S24A	26.7	29.5	5.0	24.0	10	170	38.9
TLD8S26AH	TLD8S26A	28.9	31.9	5.0	26.0	10	157	42.1
TLD8S28AH	TLD8S28A	31.1	34.4	5.0	28.0	10	145	45.4
TLD8S30AH	TLD8S30A	33.3	36.8	5.0	30.0	10	136	48.4
TLD8S33AH	TLD8S33A	36.7	40.6	5.0	33.0	10	124	53.3
TLD8S36AH	TLD8S36A	40.0	44.2	5.0	36.0	10	114	58.1
TLD8S40AH	TLD8S40A	44.4	49.1	5.0	40.0	10	102	64.5
TLD8S43AH	TLD8S43A	47.8	52.8	5.0	43.0	10	95.1	69.4

Note:

1. Pulse test with $PW=30 \text{ ms}$

ORDERING INFORMATION

ORDERING CODE (Note)	PACKAGE	PACKING
TLD8SxxAH MAG	DO-218AB	750 / 13" Plastic reel

Note: "xx" defines voltage from 10V (TLD8S10AH) to 43V (TLD8S43AH)

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Power Derating Curve

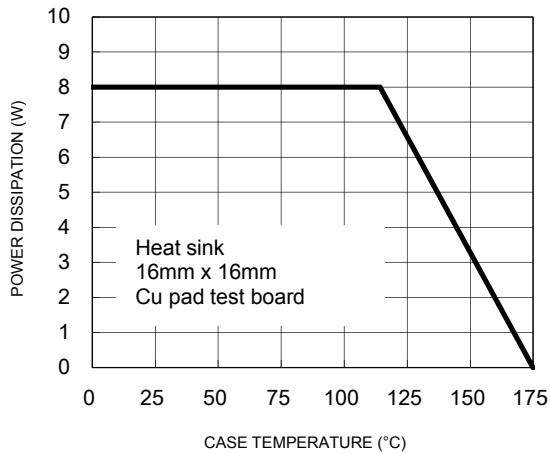


Fig.2 Load Dump Power Characteristics (10ms Exponential Waveform)

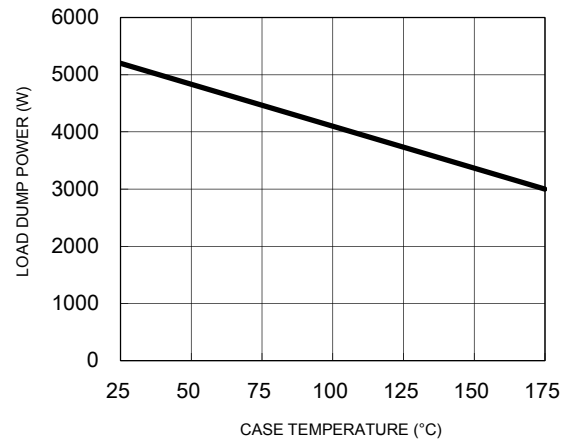


Fig.3 Clamping Power Pulse Waveform

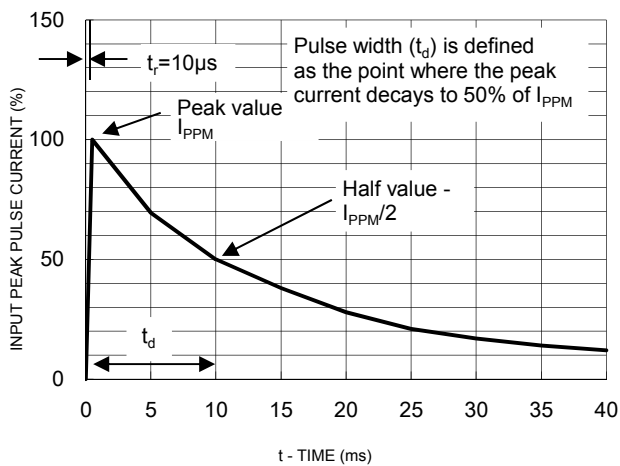


Fig.4 Reverse Power Capability

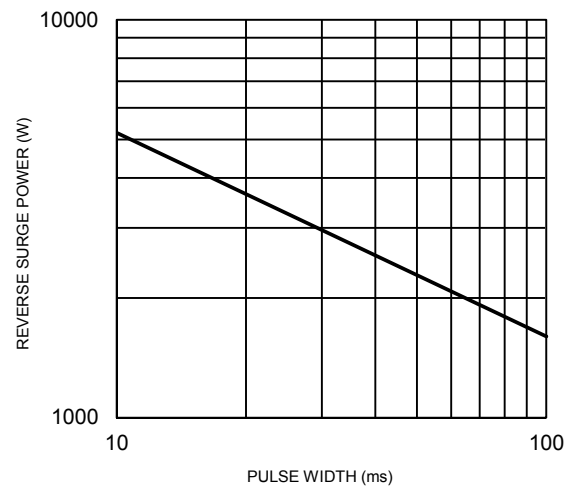


Fig.5 Typical Transient Thermal Impedance

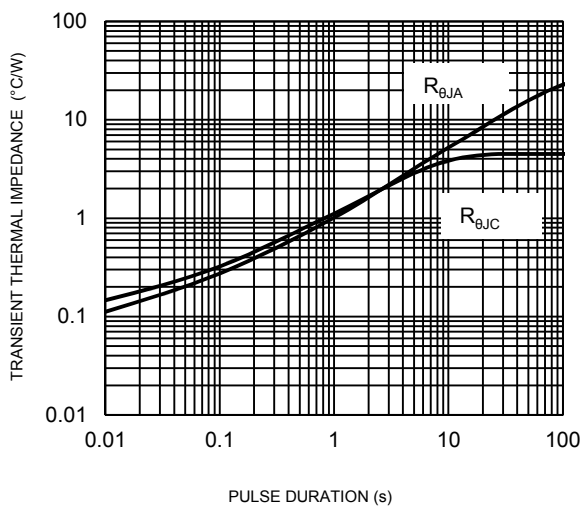
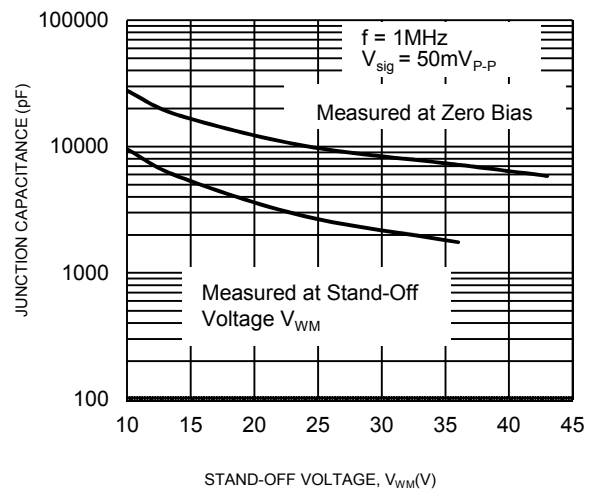
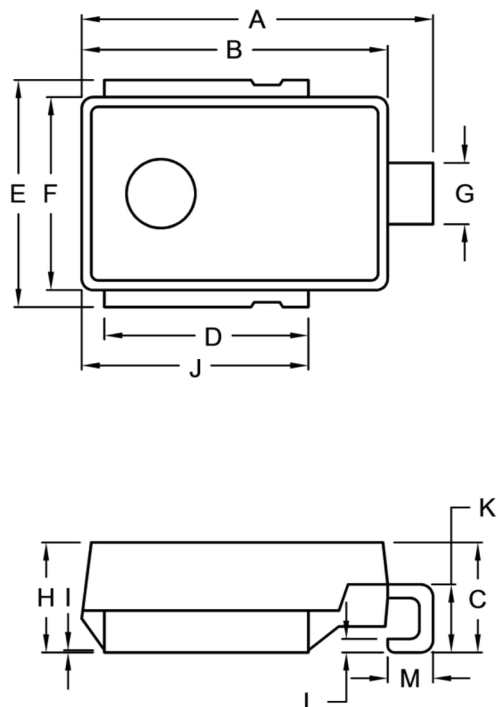


Fig.6 Typical Junction Capacitance



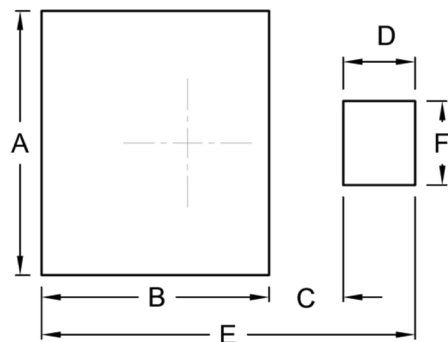
PACKAGE OUTLINE DIMENSIONS

DO-218AB



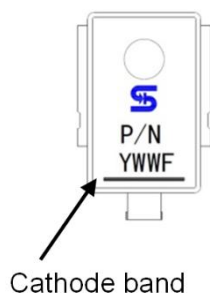
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	15.00	16.00	0.591	0.630
B	13.30	13.70	0.524	0.539
C	4.70	5.50	0.185	0.217
D	8.70	9.30	0.343	0.366
E	9.50	10.50	0.374	0.413
F	8.30	8.70	0.327	0.343
G	2.40	3.00	0.094	0.118
H	4.70	5.00	0.185	0.197
I	0.00	0.10	0.000	0.004
J	9.70	10.30	0.382	0.406
K	2.50	3.50	0.098	0.138
L	0.50	0.70	0.020	0.028
M	1.50	2.50	0.059	0.098

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	11.00	0.433
B	9.50	0.374
C	3.10	0.122
D	3.00	0.118
E	15.60	0.614
F	3.50	0.138

MARKING DIAGRAM



P/N = Marking Code
YWW = Date Code
F = Factory Code

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