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

FEATURES

- AEC-Q101 qualified
- Junction passivation optimized design technology
- T_J =175 °C capability suitable for high reliability and automotive requirement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21
- Meets ISO7637-2 and ISO16750-2 surge specifications (varied by test conditions)
- Meets IEC 61000-4-2 (Level: 4) / ISO 10605 (Level: L4)

APPLICATIONS

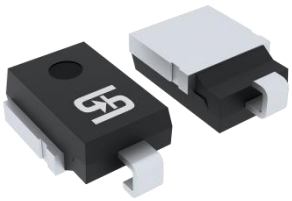
- Transient Surge Protection
- Automotive Load Dump Surge Protection

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)

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

Pb-Free RoHS COMPLIANT HALOGEN FREE



DO-218AB



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

Notes:
1. Non-repetitive current pulse per Fig.3
2. Pulse test with PW = 0.3ms

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\Theta JC}$	0.8	°C/W

Thermal Performance Note: With ideal heatsink

ELECTRICAL SPECIFICATIONS (T_A = 25°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 blocking leakage current I_R at V_{WM} T_J =175°C (μA) (Note 1)	Maximum peak impulse current I_{PPM} (A) tp =10/1000 (μs)	Maximum clamping voltage V_C at I_{PPM} (V)	Typical temp. coefficient of V_{BR} αT (%/°C) (Note 2)
		Min	Max							
TLD8S10AH	TLD8S10A	11.1	12.3	5.0	10.0	15	250	388	17.0	0.069
TLD8S11AH	TLD8S11A	12.2	13.5	5.0	11.0	10	150	363	18.2	0.072
TLD8S12AH	TLD8S12A	13.3	14.7	5.0	12.0	10	150	332	19.9	0.074
TLD8S13AH	TLD8S13A	14.4	15.9	5.0	13.0	10	150	307	21.5	0.076
TLD8S14AH	TLD8S14A	15.6	17.2	5.0	14.0	10	150	284	23.2	0.078
TLD8S15AH	TLD8S15A	16.7	18.5	5.0	15.0	10	150	270	24.4	0.080
TLD8S16AH	TLD8S16A	17.8	19.7	5.0	16.0	10	150	254	26.0	0.081
TLD8S17AH	TLD8S17A	18.9	20.9	5.0	17.0	10	150	239	27.6	0.082
TLD8S18AH	TLD8S18A	20.0	22.1	5.0	18.0	10	150	226	29.2	0.083
TLD8S20AH	TLD8S20A	22.2	24.5	5.0	20.0	10	150	204	32.4	0.085
TLD8S22AH	TLD8S22A	24.4	26.9	5.0	22.0	10	150	186	35.5	0.086
TLD8S24AH	TLD8S24A	26.7	29.5	5.0	24.0	10	150	170	38.9	0.087
TLD8S26AH	TLD8S26A	28.9	31.9	5.0	26.0	10	150	157	42.1	0.088
TLD8S28AH	TLD8S28A	31.1	34.4	5.0	28.0	10	150	145	45.4	0.089
TLD8S30AH	TLD8S30A	33.3	36.8	5.0	30.0	10	150	136	48.4	0.090
TLD8S33AH	TLD8S33A	36.7	40.6	5.0	33.0	10	150	124	53.3	0.091
TLD8S36AH	TLD8S36A	40.0	44.2	5.0	36.0	10	150	114	58.1	0.091
TLD8S40AH	TLD8S40A	44.4	49.1	5.0	40.0	10	150	102	64.5	0.092
TLD8S43AH	TLD8S43A	47.8	52.8	5.0	43.0	10	150	95.1	69.4	0.093

Note:

1. Pulse test with PW = 30ms
2. To calculate V_{BR} vs. junction temperature, use the following formula:
   V_{BR} at T_J = V_{BR} at 25 °C x (1 + αT x (T_J - 25))

ORDERING INFORMATION

ORDERING CODE(1)	PACKAGE	PACKING
TLD8SxAH	DO-218AB	750 / Tape & Reel

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

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Power Derating Curve

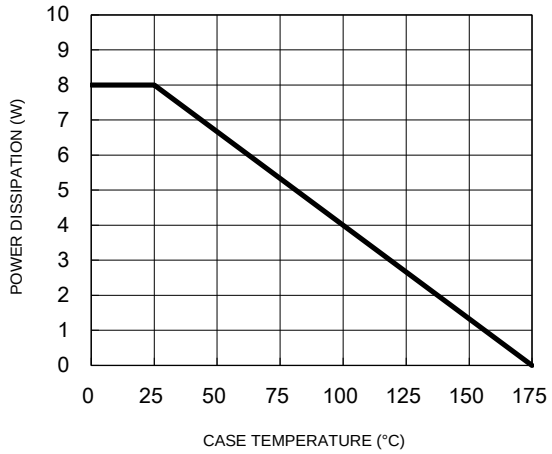


Fig.2 Load Dump Power Characteristics (10ms Exponential Waveform)

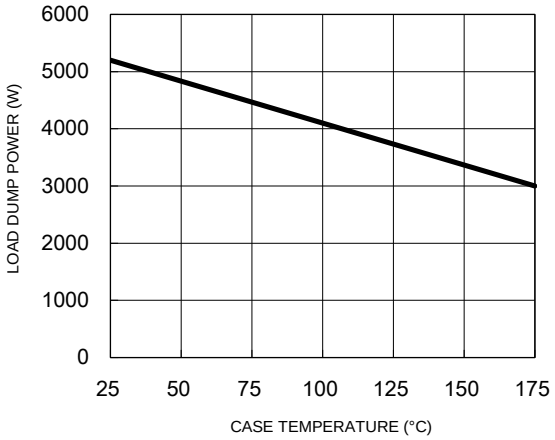


Fig.3 Clamping Power Pulse Waveform

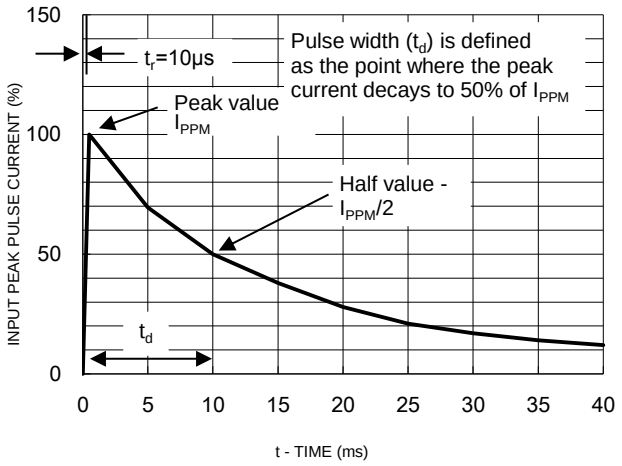


Fig.4 Reverse Power Capability

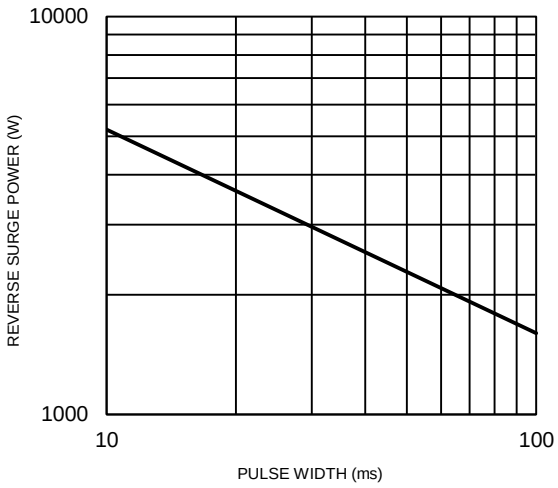


Fig.5 Typical Transient Thermal Impedance

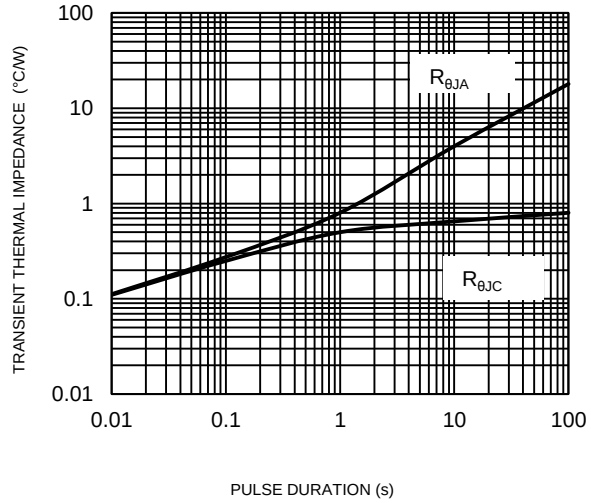
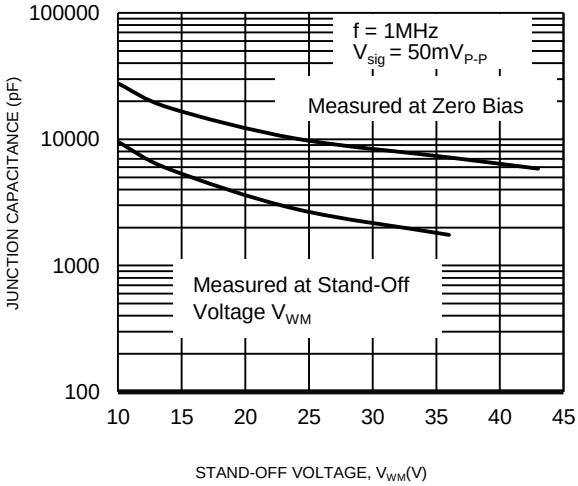
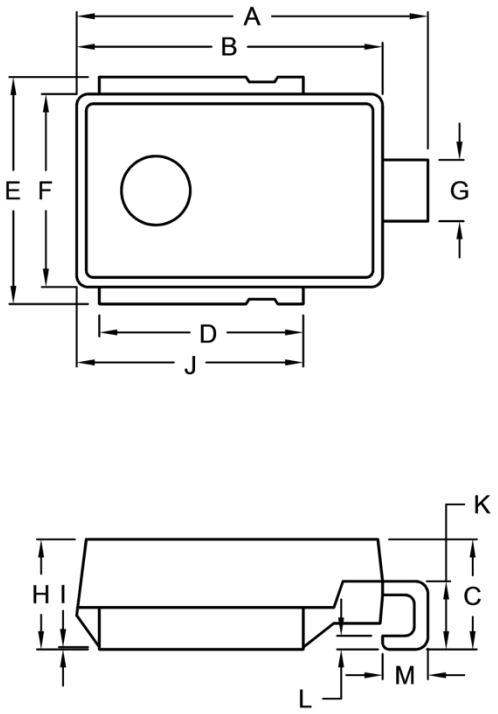


Fig.6 Typical Junction Capacitance



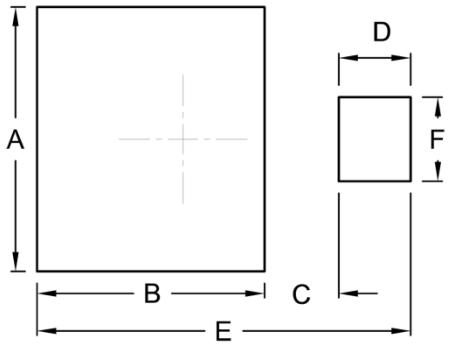
PACKAGE OUTLINE DIMENSIONS

DO-218AB



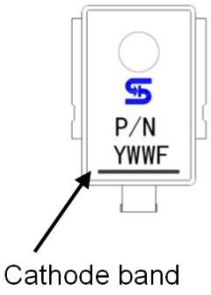
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	15.00	16.00	0.591	0.630
B	13.30	13.70	0.524	0.539
C	4.70	5.50	0.185	0.217
D	8.70	9.30	0.343	0.366
E	9.50	10.50	0.374	0.413
F	8.30	8.70	0.327	0.343
G	2.40	3.00	0.094	0.118
H	4.70	5.00	0.185	0.197
I	0.00	0.10	0.000	0.004
J	9.70	10.30	0.382	0.406
K	2.50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