4600W, 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
- 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)

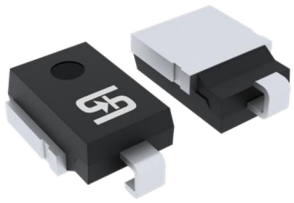
KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{WM}	10 – 43	V
V_{BR}	11.1 – 52.8	V
P_{PPM} (10x1,000μs)	4600	W
P_{PPM} (10x10,000μs)	3600	W
$T_{J\ MAX}$	175	°C
Package	DO-218AB	

APPLICATIONS

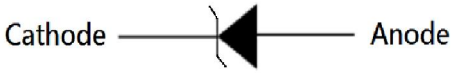
- Transient Surge Protection.
- Automotive Load Dump Surge Protection.

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: 2.682g (approximately)



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}	4600	W
Non-repetitive peak impulse power dissipation with 10/10000μs waveform (1)	P_{PPM}	3600	W
Steady state power dissipation (2)	P_D	6	W
Forward Voltage at I_F=100 A (3)	$V_{F,\ MAX}$	1.9	V
Peak forward surge current, 8.3 ms single half sine-wave	I_{FSM}	600	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. 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	$R_{\Theta JC}$	7.75	°C/W
Junction-to-lead thermal resistance per diode	$R_{\Theta JL}$	9.97	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\Theta JA}$	49.27	°C/W

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

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 peak impulse current I_{PPM} (A) tp =10/1000 μs	Maximum clamping voltage V_C at I_{PPM} (V)
		Min.	Max.					
TLD6S10AH	TLD6S10A	11.1	12.3	5.0	10.0	15	271	17.0
TLD6S11AH	TLD6S11A	12.2	13.5	5.0	11.0	10	253	18.2
TLD6S12AH	TLD6S12A	13.3	14.7	5.0	12.0	10	231	19.9
TLD6S13AH	TLD6S13A	14.4	15.9	5.0	13.0	10	214	21.5
TLD6S14AH	TLD6S14A	15.6	17.2	5.0	14.0	10	198	23.2
TLD6S15AH	TLD6S15A	16.7	18.5	5.0	15.0	10	189	24.4
TLD6S16AH	TLD6S16A	17.8	19.7	5.0	16.0	10	177	26.0
TLD6S17AH	TLD6S17A	18.9	20.9	5.0	17.0	10	167	27.6
TLD6S18AH	TLD6S18A	20.0	22.1	5.0	18.0	10	158	29.2
TLD6S20AH	TLD6S20A	22.2	24.5	5.0	20.0	10	142	32.4
TLD6S22AH	TLD6S22A	24.4	26.9	5.0	22.0	10	130	35.5
TLD6S24AH	TLD6S24A	26.7	29.5	5.0	24.0	10	118	38.9
TLD6S26AH	TLD6S26A	28.9	31.9	5.0	26.0	10	106	42.1
TLD6S28AH	TLD6S28A	31.1	34.4	5.0	28.0	10	101	45.4
TLD6S30AH	TLD6S30A	33.3	36.8	5.0	30.0	10	95	48.4
TLD6S33AH	TLD6S33A	36.7	40.6	5.0	33.0	10	86	53.3
TLD6S36AH	TLD6S36A	40.0	44.2	5.0	36.0	10	79	58.1
TLD6S40AH	TLD6S40A	44.4	49.1	5.0	40.0	10	71	64.5
TLD6S43AH	TLD6S43A	47.8	52.8	5.0	43.0	10	66	69.4

Note:

1. Pulse test with PW=30 ms

ORDERING INFORMATION

ORDERING CODE (Note)	PACKAGE	PACKING
TLD6SxxAH MAG	DO-218AB	750 / 13” Plastic reel

Note: "xx" defines voltage from 10V (TLD6S10AH) to 43V (TLD6S43AH)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Power Derating Curve

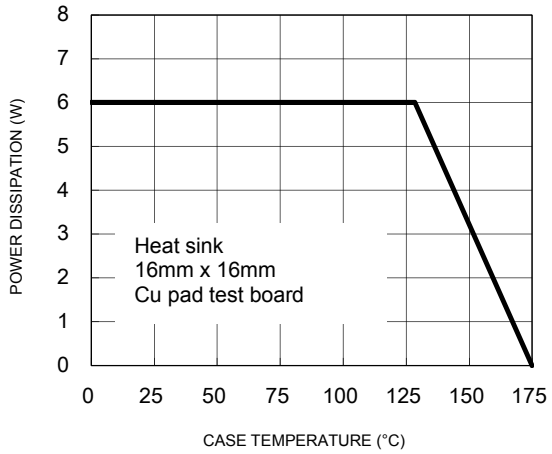


Fig.2 Load Dump Power Characteristics (10ms Exponential Waveform)

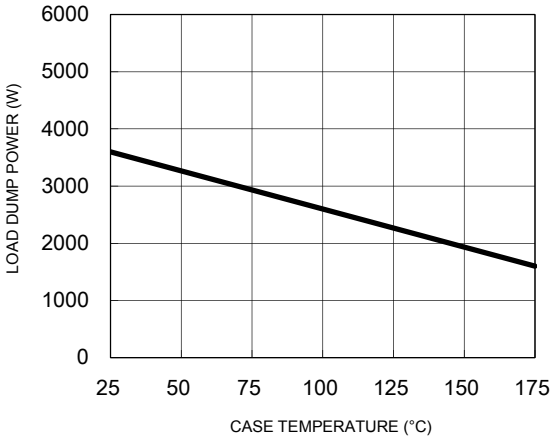


Fig.3 Clamping Power Pulse Waveform

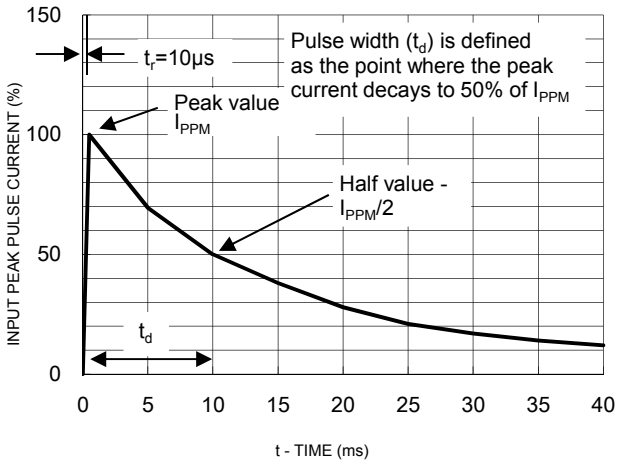


Fig.4 Reverse Power Capability

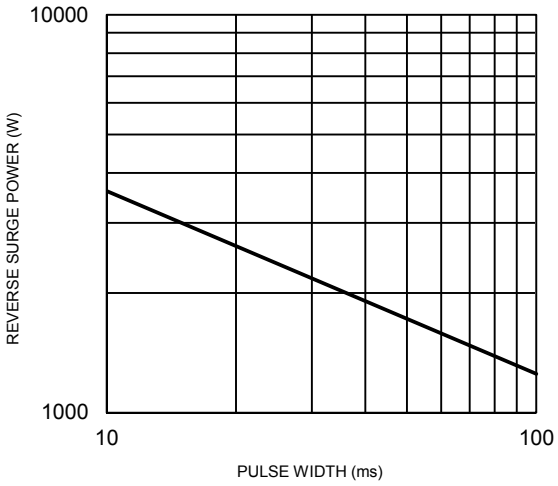


Fig.5 Typical Transient Thermal Impedance

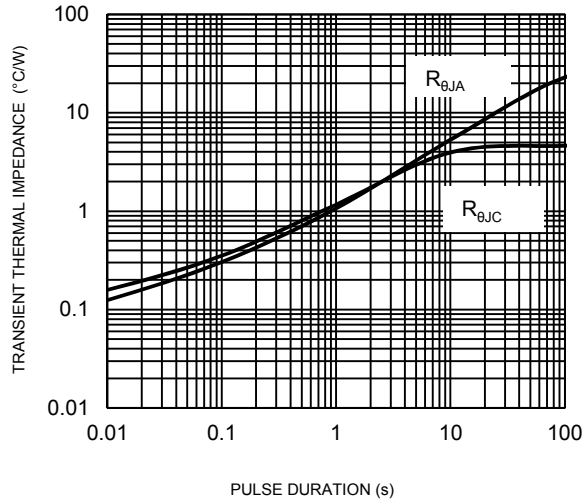
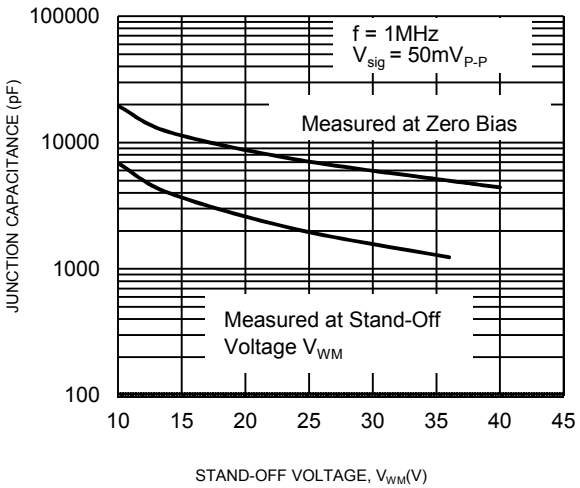
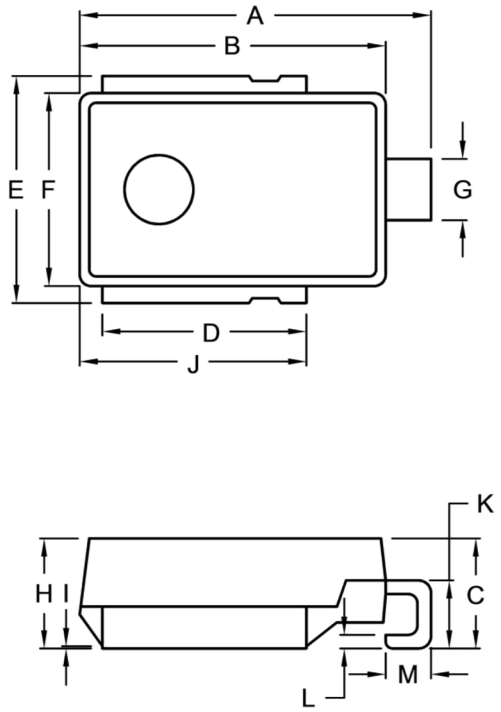


Fig.6 Typical Junction Capacitance



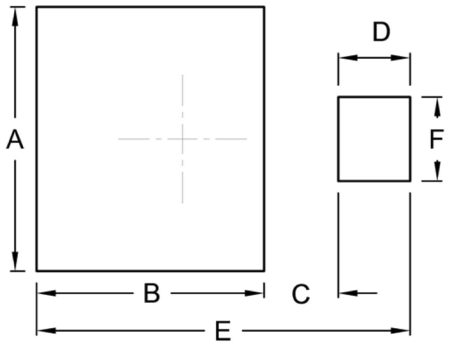
PACKAGE OUTLINE DIMENSIONS

DO-218AB



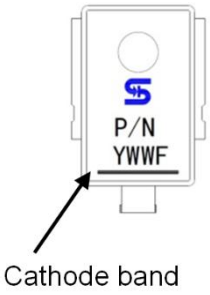
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	15.00	16.00	0.591	0.630
B	13.30	13.70	0.524	0.539
C	4.70	5.50	0.185	0.217
D	8.70	9.30	0.343	0.366
E	9.50	10.50	0.374	0.413
F	8.30	8.70	0.327	0.343
G	2.40	3.00	0.094	0.118
H	4.70	5.00	0.185	0.197
I	0.00	0.10	0.000	0.004
J	9.70	10.30	0.382	0.406
K	2.50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