

26V - 82V Surface Mount Transient Voltage Suppressor

FEATURES

- AEC-Q101 qualified
- Low leakage current: 1μA at 25 °C
- $T_J = 175^{\circ}\text{C}$ capability suitable for high reliability and automotive requirement
- Meets ISO7637-2 and ISO16750-2 surge specifications (varied by test conditions)
- Meets IEC 61000-4-2 (Level: 4) / ISO 10605 (Level: L4)
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_{WM}	22 - 70	V
V_{BR}	26 - 82	V
$T_{J\text{ MAX}}$	175	°C
Package	TO-263AB (D ² PAK)	
Configuration	Single die	

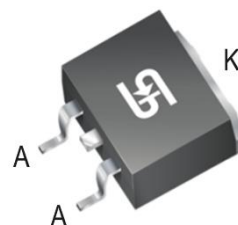


APPLICATIONS

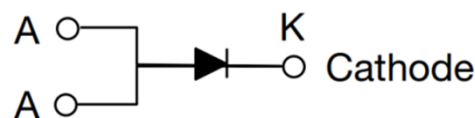
- Transient surge protection
- Automotive load dump surge protection

MECHANICAL DATA

- Case: TO-263AB (D²PAK)
- 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: As circuit diagram
- Weight: 1.44g (approximately)



TO-263AB (D²PAK)



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

PARAMETER	SYMBOL	VALUE	UNIT
Junction temperature	T_J	-55 to +175	°C
Storage temperature	T_{STG}	-55 to +175	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\theta JC}$	0.33	°C/W

Thermal Performance Note: With ideal heatsink.

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

Part number	Device marking	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 V_C at I_{PPM} $t_p = 8/20$ (μs)		Maximum V_C at I_{PPM} $t_p = 10/1000$ (μs)		Maximum temp. coefficient of V_{BR} αT (%/°C) (Note 2)
		Min	Typ	Max			25°C	175°C	V	A	V	A	
TLD26AH	TLD26AH	24.4	26	27.0	1	22	1	100	42.0	1400	36.0	140	0.096
TLD28AH	TLD28AH	26.7	28	29.5	1	24	1	100	45.0	1250	40.0	120	0.097
TLD30AH	TLD30AH	28.9	30	31.9	1	27	1	100	49.0	1400	40.0	125	0.097
TLD33AH	TLD33AH	31.1	33	34.3	1	28	1	100	56.0	1250	43.5	110	0.098
TLD35AH	TLD35AH	33.3	35	36.9	1	30	1	100	60.0	1150	45.5	95	0.099
TLD39AH	TLD39AH	36.7	39	40.5	1	33	1	100	66.0	1050	51.5	85	0.100
TLD42AH	TLD42AH	40.0	42	44.2	1	36	1	100	71.0	1000	57.0	77	0.100
TLD47AH	TLD47AH	44.4	47	49.0	1	40	1	100	76.5	950	63.0	65	0.101
TLD50AH	TLD50AH	47.8	50	52.8	1	43	1	100	81.0	900	68.0	55	0.102
TLD56AH	TLD56AH	53.3	56	58.9	1	48	1	100	90.0	770	76.0	48	0.103
TLD68AH	TLD68AH	64.4	68	71.2	1	58	1	100	110.0	620	92.0	42	0.104
TLD82AH	TLD82AH	77.8	82	86.0	1	70	1	100	135.0	550	113	35	0.105

Notes:

- Pulse test with $PW = 30\text{ms}$
- To calculate V_{BR} vs. junction temperature, use the following formula:

$$V_{BR} \text{ at } T_J = V_{BR} \text{ at } 25^\circ\text{C} \times (1 + \alpha T \times (T_J - 25))$$

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
TLDxAH	TO-263AB (D ² PAK)	800 / Tape & Reel

Notes:

- "x" defines voltage from 26V (TLD26AH) to 82V (TLD82AH)

CHARACTERISTICS CURVES

(TA = 25°C unless otherwise noted)

Fig.1 Peak Pulse Power Derating Curve

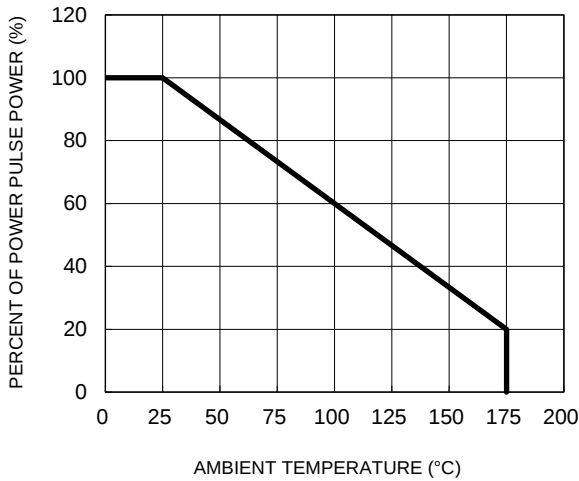


Fig.2 Non-Repetitive Peak Pulse Power vs. Pulse Time

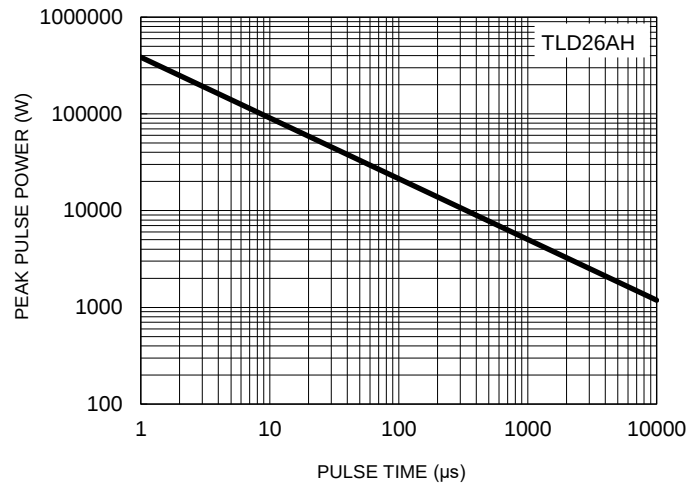


Fig.3 Typical Reverse Characteristics

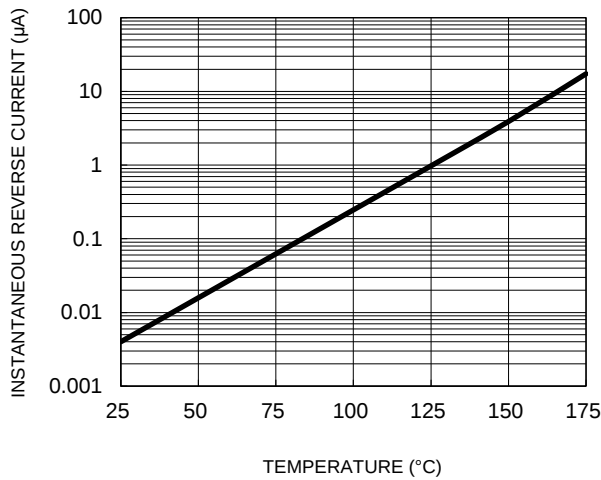


Fig.4 Typical Junction Capacitance

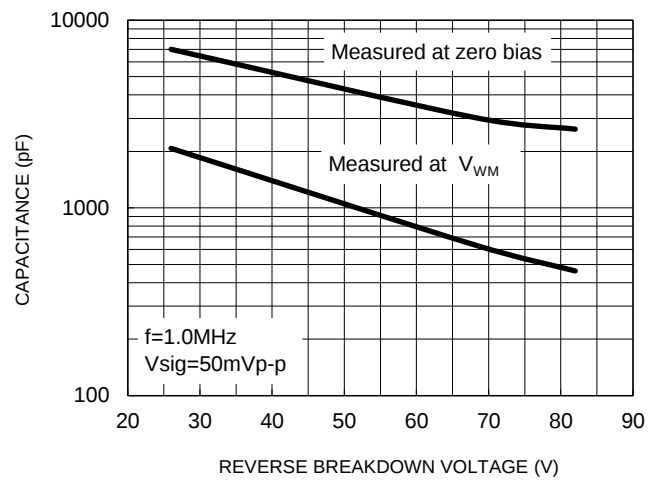
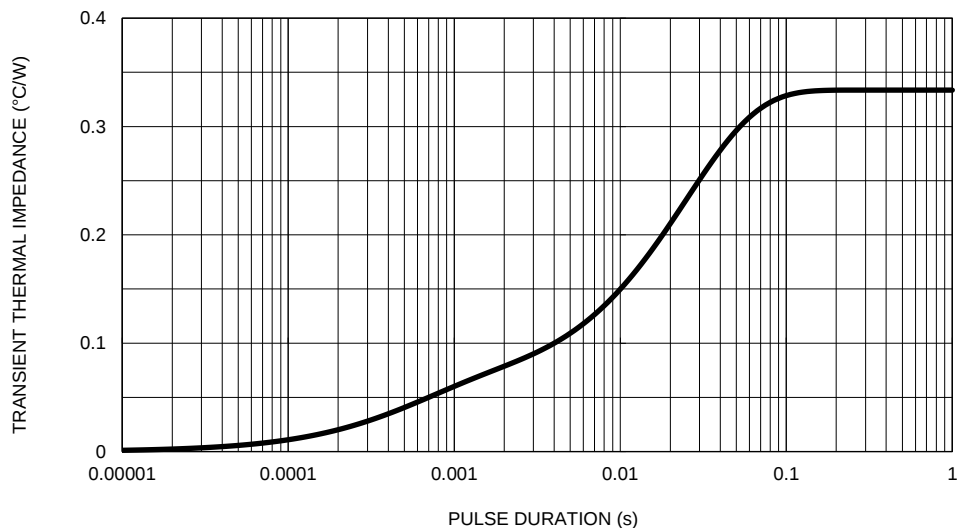


Fig.5 Typical Transient Thermal Impedance



CHARACTERISTICS CURVES

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

Fig.6 10/1000 μs pulse waveform

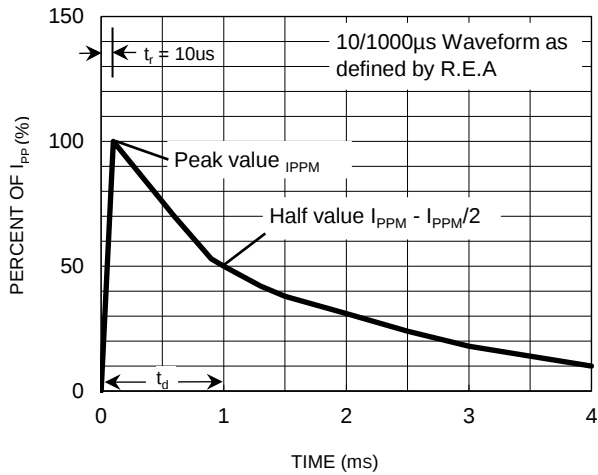
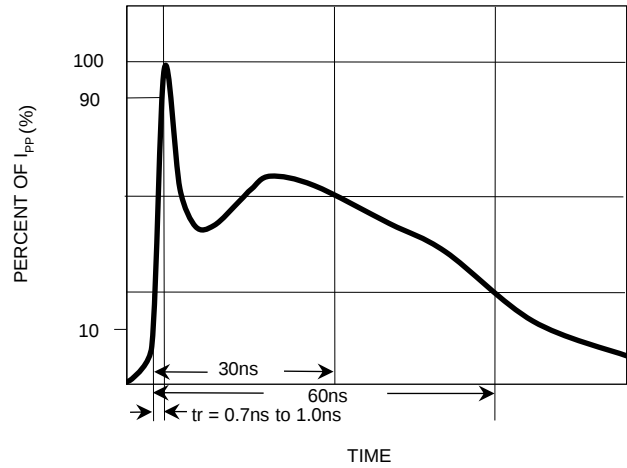
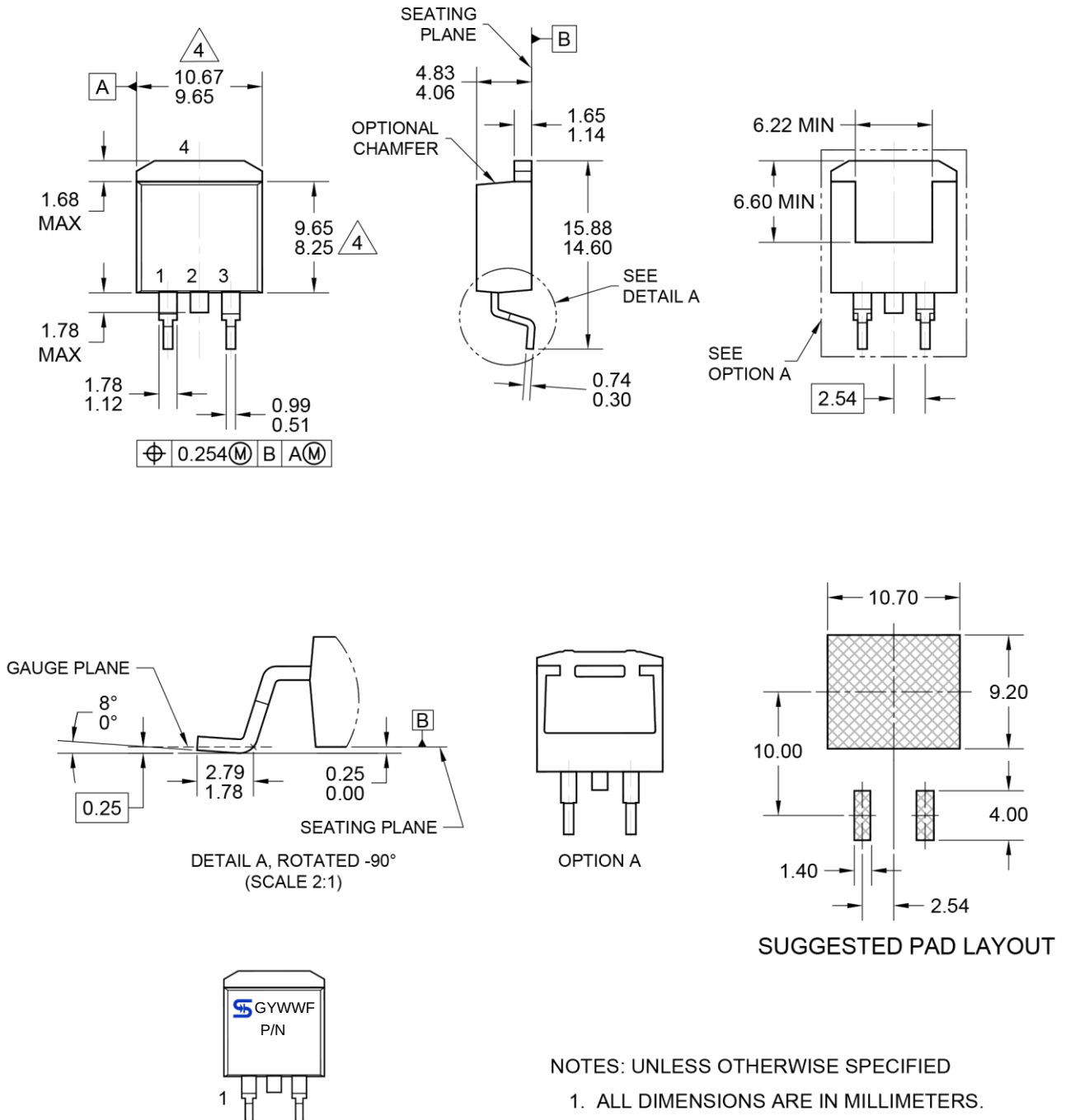


Fig.7 ESD pulse waveform



PACKAGE OUTLINE DIMENSIONS

TO-263AB (D²PAK)



MARKING DIAGRAM

P/N = Device marking
G = Green compound
YWW = Date code
F = Factory code

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. THE PACKAGE OUTLINE REFERENCE: JEDEC TO-263, VARIATION AB, ISSUE F.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DWG NO REF: HQ2SD07-TO263AB-008 REV A.

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