

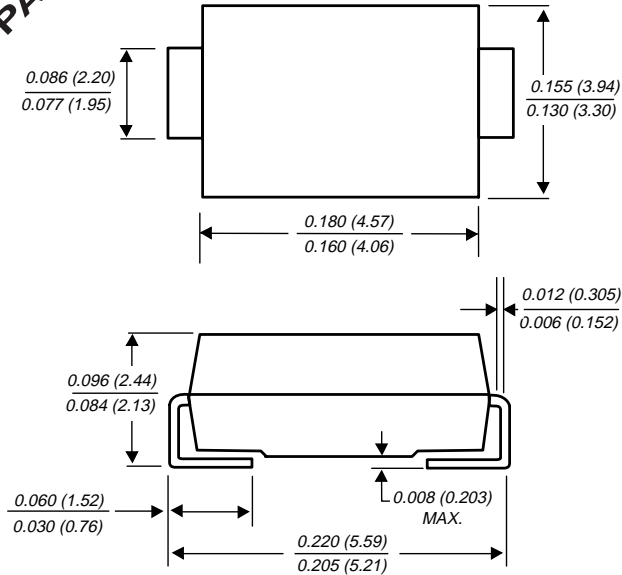
TPSMB6.8 THRU TPSMB43A

SURFACE MOUNT AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage - 6.8 - 43 Volts Peak Pulse Power - 600 Watts

PATENTED

DO-214AA
Modified J-Bend



Dimensions in inches and (millimeters)

Available in uni-directional only

FEATURES

- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Easy pick and place
- ◆ Low profile package
- ◆ Built-in strain relief ideal for automated placement
- ◆ Exclusive patented PAR™ oxide passivated chip construction
- ◆ 600W peak pulse power capability with a 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time: typically less than 1.0ps from 0 Volts to V_(BR)
- ◆ For devices with V_(BR) ≥ 10V I_D is typically less than 2.0μA at T_A = 150°C
- ◆ Designed for under the hood surface mount applications
- ◆ High temperature soldering: 250°C/10 seconds at terminals



MECHANICAL DATA

Case: JEDEC DO-214AA molded plastic body over passivated junction

Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Polarity: Color band denotes positive end (cathode)

Mounting Position: Any

Weight: 0.003 ounces, 0.093 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| | SYMBOLS | VALUE | UNITS |
|--|-----------------------------------|-------------|-------|
| Peak pulse power dissipation with a 10/1000μs waveform (NOTES 1,2, FIG. 1) | PPPM | Minimum 600 | Watts |
| Peak pulse current with a 10/1000μs waveform (NOTE 1, FIG. 3) | IPPM | SEE TABLE 1 | Amps |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (NOTES 2, 3) | I _{FSM} | 70.0 | Amps |
| Instantaneous forward voltage at 50A (NOTE 3) | V _F | 3.5 | Volts |
| Operating junction and storage temperature range | T _J , T _{STG} | -65 to +185 | °C |

NOTES:

(1) Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig. 2

(2) Mounted on 0.2 x 0.2" (5.0 x 5.0mm) land areas per figure

(3) Mounted on 8.3ms single half sine-wave duty cycle=4 pulses per minute maximum

ELECTRICAL CHARACTERISTICS at (T_A=25°C unless otherwise noted) TABLE 1

| Device | Device Marking Code | Breakdown Voltage V _(BR) (Volts) (NOTE 1) | | Test Current at I _T (mA) | Stand-off Voltage V _{WM} (Volts) | Maximum Reverse Leakage at V _{WM} I _D (μA) | Maximum Reverse Leakage at V _{WM} , T _J =150°C I _D (μA) | Maximum Peak Pulse Surge Current I _{PPM} (NOTE 2) (Amps) | Maximum Clamping Voltage at I _{PP} V _C (Volts) |
|-----------|---------------------|--|------|-------------------------------------|---|--|--|---|--|
| | | Min. | Max. | | | | | | |
| TPSMB6.8 | KDP | 6.12 | 7.48 | 10.0 | 5.50 | 500 | 1000 | 55.6 | 10.8 |
| TPSMB6.8A | KEP | 6.45 | 7.14 | 10.0 | 5.80 | 500 | 1000 | 57.1 | 10.5 |
| TPSMB7.5 | KFP | 6.75 | 8.25 | 10.0 | 6.05 | 250 | 500 | 51.3 | 11.7 |
| TPSMB7.5A | KGP | 7.13 | 7.88 | 10.0 | 6.40 | 250 | 500 | 53.1 | 11.3 |
| TPSMB8.2 | KHP | 7.38 | 9.02 | 10.0 | 6.63 | 100 | 200 | 48.0 | 12.5 |
| TPSMB8.2A | KKP | 7.79 | 8.61 | 10.0 | 7.02 | 100 | 200 | 49.6 | 12.1 |
| TPSMB9.1 | KLP | 8.19 | 10.0 | 1.0 | 7.37 | 25 | 50.0 | 43.5 | 13.8 |
| TPSMB9.1A | KMP | 8.65 | 9.55 | 1.0 | 7.78 | 25 | 50.0 | 44.8 | 13.4 |
| TPSMB10 | KNP | 9.00 | 11.0 | 1.0 | 8.10 | 5.0 | 20.0 | 40.0 | 15.0 |
| TPSMB10A | KPP | 9.50 | 10.5 | 1.0 | 8.55 | 5.0 | 20.0 | 41.4 | 14.5 |
| TPSMB11 | KQP | 9.90 | 12.1 | 1.0 | 8.92 | 2.0 | 5.0 | 37.0 | 16.2 |
| TPSMB11A | KRP | 10.5 | 11.6 | 1.0 | 9.40 | 2.0 | 5.0 | 38.5 | 15.6 |
| TPSMB12 | KSP | 10.8 | 13.2 | 1.0 | 9.72 | 2.0 | 5.0 | 34.7 | 17.3 |
| TPSMB12A | KTP | 11.4 | 12.6 | 1.0 | 10.2 | 2.0 | 5.0 | 35.9 | 16.7 |
| TPSMB13 | KUP | 11.7 | 14.3 | 1.0 | 10.5 | 2.0 | 5.0 | 31.6 | 19.0 |
| TPSMB13A | KVP | 12.4 | 13.7 | 1.0 | 11.1 | 2.0 | 5.0 | 33.0 | 18.2 |
| TPSMB15 | KWP | 13.5 | 16.5 | 1.0 | 12.1 | 2.0 | 5.0 | 27.3 | 22.0 |
| TPSMB15A | KXP | 14.3 | 15.8 | 1.0 | 12.8 | 2.0 | 5.0 | 28.3 | 21.2 |
| TPSMB16 | KYP | 14.4 | 17.6 | 1.0 | 12.9 | 2.0 | 5.0 | 25.5 | 23.5 |
| TPSMB16A | KZP | 15.2 | 16.8 | 1.0 | 13.6 | 2.0 | 5.0 | 26.7 | 22.5 |
| TPSMB18 | LDP | 16.2 | 19.8 | 1.0 | 14.5 | 2.0 | 5.0 | 22.6 | 26.5 |
| TPSMB18A | LEP | 17.1 | 18.9 | 1.0 | 15.3 | 2.0 | 5.0 | 23.8 | 25.2 |
| TPSMB20 | LFP | 18.0 | 22.0 | 1.0 | 16.2 | 2.0 | 5.0 | 20.6 | 29.1 |
| TPSMB20A | LGP | 19.0 | 21.0 | 1.0 | 17.1 | 2.0 | 5.0 | 21.7 | 27.7 |
| TPSMB22 | LHP | 19.8 | 24.2 | 1.0 | 17.8 | 2.0 | 5.0 | 18.8 | 31.9 |
| TPSMB22A | LKP | 20.9 | 23.1 | 1.0 | 18.8 | 2.0 | 5.0 | 19.6 | 30.6 |
| TPSMB24 | LLP | 21.6 | 26.4 | 1.0 | 19.4 | 2.0 | 5.0 | 17.3 | 34.7 |
| TPSMB24A | LMP | 22.8 | 25.2 | 1.0 | 20.5 | 2.0 | 5.0 | 18.1 | 33.2 |
| TPSMB27 | LNP | 24.3 | 29.7 | 1.0 | 21.8 | 2.0 | 5.0 | 15.3 | 39.1 |
| TPSMB27A | LPP | 25.7 | 28.4 | 1.0 | 23.1 | 2.0 | 5.0 | 16.0 | 37.5 |
| TPSMB30 | LQP | 27.0 | 33.0 | 1.0 | 24.3 | 2.0 | 5.0 | 13.8 | 43.5 |
| TPSMB30A | LRP | 28.5 | 31.5 | 1.0 | 25.6 | 2.0 | 5.0 | 14.5 | 41.4 |
| TPSMB33 | LSP | 29.7 | 36.3 | 1.0 | 26.8 | 2.0 | 5.0 | 12.6 | 47.7 |
| TPSMB33A | LTP | 31.4 | 34.7 | 1.0 | 28.2 | 2.0 | 5.0 | 13.1 | 45.7 |
| TPSMB36 | LUP | 32.4 | 39.6 | 1.0 | 29.1 | 2.0 | 5.0 | 11.5 | 52.0 |
| TPSMB36A | LVP | 34.2 | 37.8 | 1.0 | 30.8 | 2.0 | 5.0 | 12.0 | 49.9 |
| TPSMB39 | LWP | 35.1 | 42.9 | 1.0 | 31.6 | 2.0 | 5.0 | 10.6 | 56.4 |
| TPSMB39A | LXP | 37.1 | 41.0 | 1.0 | 33.3 | 2.0 | 5.0 | 11.1 | 53.9 |
| TPSMB43 | LYP | 38.7 | 47.3 | 1.0 | 34.8 | 2.0 | 5.0 | 9.7 | 61.9 |
| TPSMB43A | LZP | 40.9 | 45.2 | 1.0 | 36.8 | 2.0 | 5.0 | 10.1 | 59.3 |

NOTES:

- (1) V_(BR) measured after I_T applied for 300μs, I_T=square wave pulse or equivalent
- (2) Surge current waveform per Fig. 3 and derate per Fig. 2
- (3) All terms and symbols are consistent with ANSI/IEEE C62.35

MAXIMUM RATINGS AND CHARACTERISTIC CURVES TPSMB6.8 THRU TPSMB43A

FIG. 1 - PEAK PULSE POWER RATING CURVE

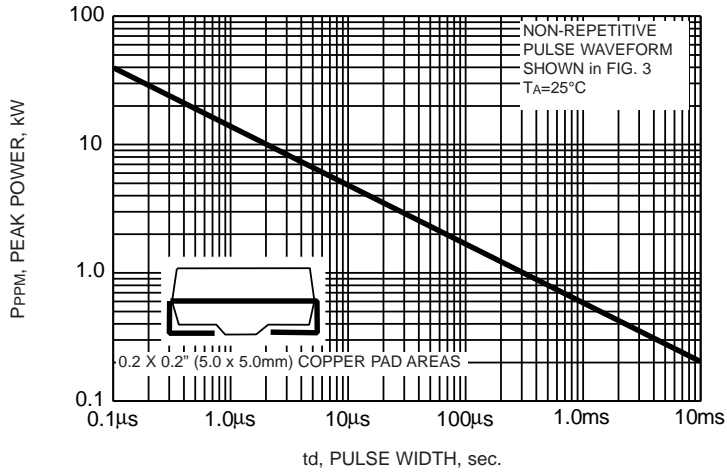


FIG. 2 - PULSE DERATING CURVE

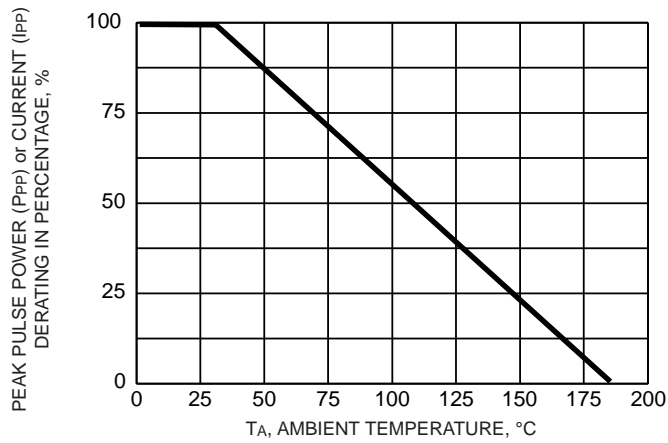


FIG. 3 - PULSE WAVEFORM

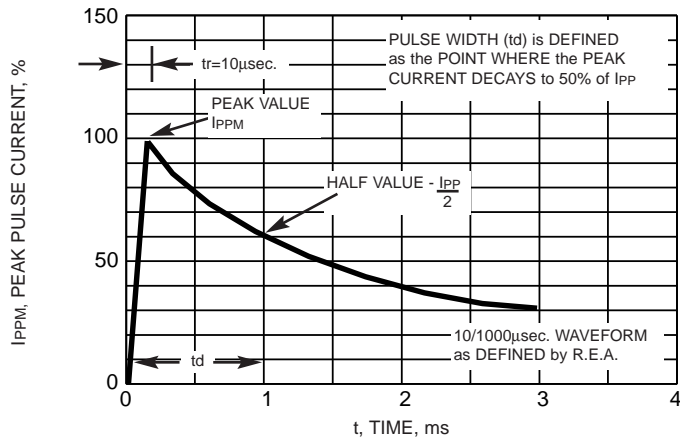


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

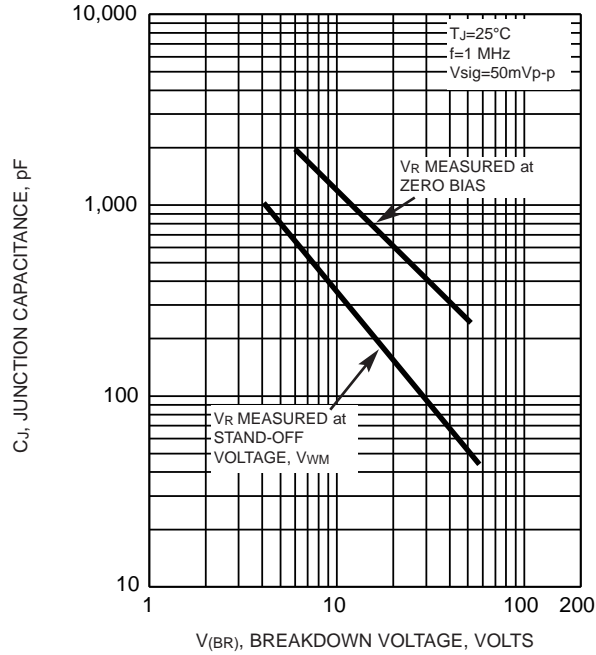


FIG. 5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

