

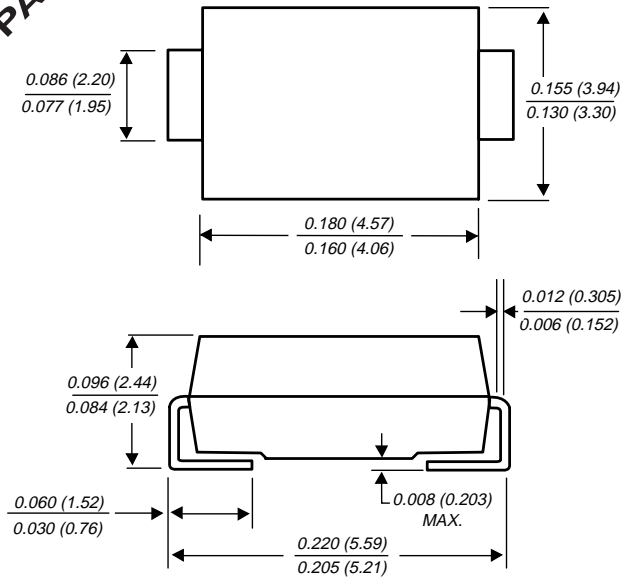
# TPSMB6.8 THRU TPSMB43A

## 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<sub>(BR)</sub>
- ◆ For devices with V<sub>(BR)</sub> ≥ 10V I<sub>D</sub> is typically less than 2.0μA at T<sub>A</sub> = 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)	I <sub>PPM</sub>	SEE TABLE 1	Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (NOTES 2, 3)	I <sub>FSM</sub>	70.0	Amps
Instantaneous forward voltage at 50A (NOTE 3)	V <sub>F</sub>	3.5	Volts
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +185	°C

**NOTES:**

- (1) Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub> = 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<sub>A</sub>=25°C unless otherwise noted) TABLE 1**

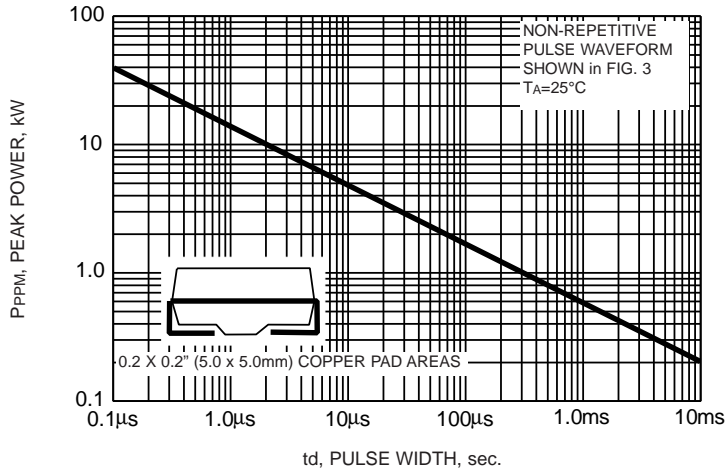
Device	Device Marking Code	Breakdown Voltage V <sub>(BR)</sub> (Volts) (NOTE 1)		Test Current at I <sub>T</sub> (mA)	Stand-off Voltage V <sub>WM</sub> (Volts)	Maximum Reverse Leakage at V <sub>WM</sub> I <sub>D</sub> (μA)	Maximum Reverse Leakage at V <sub>WM</sub> , T <sub>J</sub> =150°C I <sub>D</sub> (μA)	Maximum Peak Pulse Surge Current I <sub>PPM</sub> (NOTE 2) (Amps)	Maximum Clamping Voltage at I <sub>PP</sub> V <sub>C</sub> (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:**

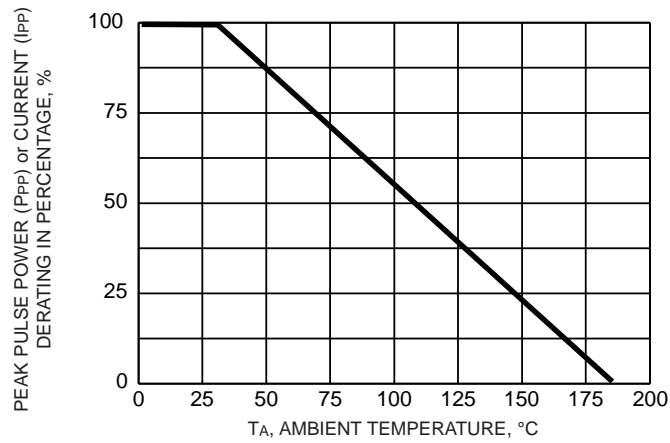
- (1) V<sub>(BR)</sub> measured after I<sub>T</sub> applied for 300μs, I<sub>T</sub>=square wave pulse or equivalent
- (2) Surge current waveform per Fig. 3 and derate per Fig. 2
- (3) All terms and symbols are consistent with ANSI/IEEE C62.35

**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**

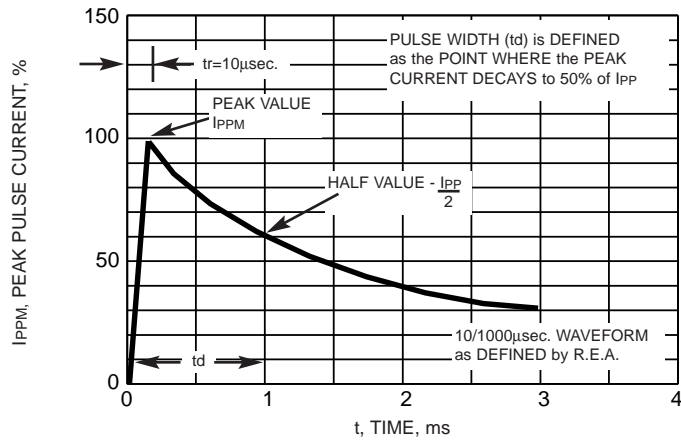


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

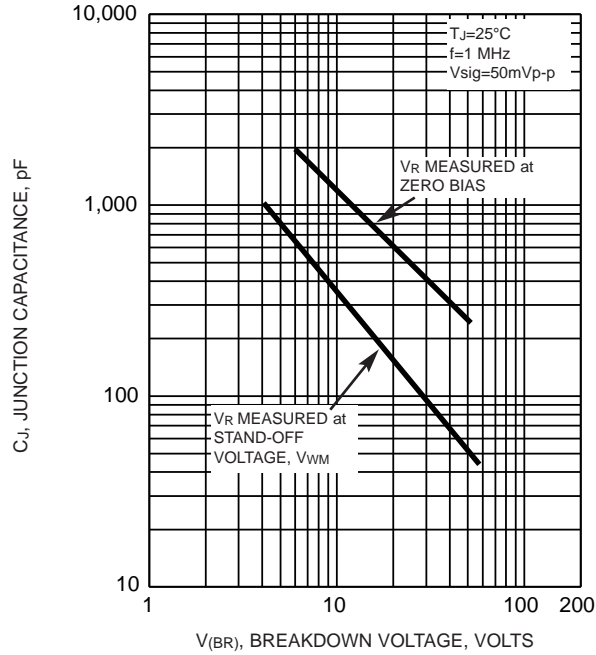


FIG. 5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

