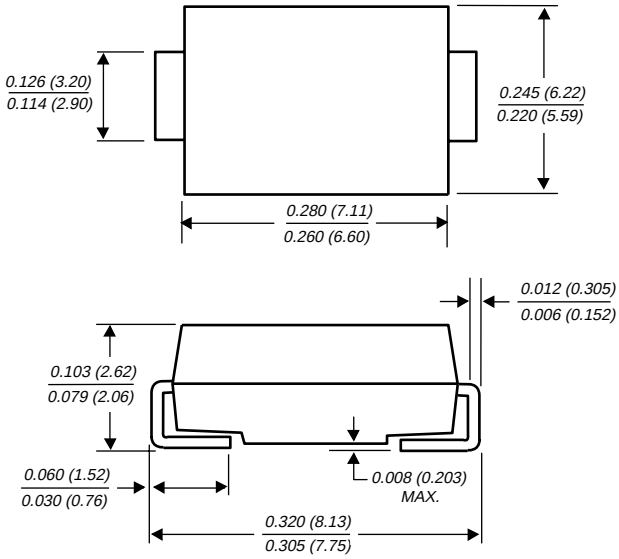
TPSMC6.8 THRU TPSMC43A

AUTOMOTIVE SURFACE MOUNT
TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage - *6.8 to 43 Volts* ***Peak Pulse Power -*** *1500 Watts*

PATENTED

DO-214AB
Modified J-Bend



Dimensions in inches and (millimeters)

Available in uni-directional only

FEATURES

- Designed for under the hood surface mount applications
- 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
- 1500W 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 $V_{(BR)} \geq 10V$ I_D are typically less than 1.0μA at T_A=150°C
- High temperature soldering: 250°C/10 seconds at terminals

MECHANICAL DATA

Case: JEDEC DO-214AB 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: 0.007 ounces, 0.2 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. 3)	P_{PPM}	Minimum 1500	Watts
Peak power pulse current with a 10/1000μs waveform (NOTE 1, FIG. 1)	I_{PPM}	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}	200.0	Amps
Maximum instantaneous forward voltage at 100A (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 0.31 X 0.31" (8.0 X 8.0mm) copper pads to each terminal
(3) Measured on 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minute maximum

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

Device	Device Marking Code	Breakdown Voltage $V_{(BR)}$ (Volts) (NOTE 1) Min.	Max.	Test Current at I_T (mA)	Stand-off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_R (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} Vc (Volts)
TPSMC6.8	DDP	6.12	7.48	10.0	5.50	1000	10000	139.0	10.8
TPSMC6.8A	DEP	6.45	7.14	10.0	5.80	1000	10000	143.0	10.5
TPSMC7.5	DFP	6.75	8.25	10.0	6.05	500	5000	128.0	11.7
TPSMC7.5A	DGP	7.13	7.88	10.0	6.40	500	5000	133.0	11.3
TPSMC8.2	DHP	7.38	9.02	10.0	6.63	200	2000	120.0	12.5
TPSMC8.2A	DKP	7.79	8.61	10.0	7.02	200	2000	124.0	12.1
TPSMC9.1	DLP	8.19	10.0	1.0	7.37	50	500	109.0	13.8
TPSMC9.1A	DMP	8.65	9.55	1.0	7.78	50	500	112.0	13.4
TPSMC10	DNP	9.00	11.0	1.0	8.10	20	200	100.0	15.0
TPSMC10A	DPP	9.50	10.5	1.0	8.55	20	200	103.0	14.5
TPSMC11	DQP	9.90	12.1	1.0	8.92	5.0	50	92.6	16.2
TPSMC11A	DRP	10.5	11.6	1.0	9.40	5.0	50	96.2	15.6
TPSMC12	DSP	10.8	13.2	1.0	9.72	2.0	10	86.7	17.3
TPSMC12A	DTP	11.4	12.6	1.0	10.2	2.0	10	89.8	16.7
TPSMC13	DUP	11.7	14.3	1.0	10.5	2.0	10	78.9	19.0
TPSMC13A	DVP	12.4	13.7	1.0	11.1	2.0	10	82.4	18.2
TPSMC15	DWP	13.5	16.5	1.0	12.1	2.0	10	68.2	22.0
TPSMC15A	DXP	14.3	15.8	1.0	12.8	2.0	10	70.8	21.2
TPSMC16	DYP	14.4	17.6	1.0	12.9	2.0	10	63.8	23.5
TPSMC16A	DZP	15.2	16.8	1.0	13.6	2.0	10	66.7	22.5
TPSMC18	EDP	16.2	19.8	1.0	14.5	2.0	10	56.6	26.5
TPSMC18A	EEP	17.1	18.9	1.0	15.3	2.0	10	59.5	25.2
TPSMC20	EFP	18.0	22.0	1.0	16.2	2.0	10	51.5	29.1
TPSMC20A	EGP	19.0	21.0	1.0	17.1	2.0	10	54.2	27.7
TPSMC22	EHP	19.8	24.2	1.0	17.8	2.0	10	47.0	31.9
TPSMC22A	EKP	20.9	23.1	1.0	18.8	2.0	10	49.0	30.6
TPSMC24	ELP	21.6	26.4	1.0	19.4	2.0	10	43.2	34.7
TPSMC24A	EMP	22.8	25.2	1.0	20.5	2.0	10	45.2	33.2
TPSMC27	ENP	24.3	29.7	1.0	21.8	2.0	10	38.4	39.1
TPSMC27A	EPP	25.7	28.4	1.0	23.1	2.0	10	40.0	37.5
TPSMC30	EQP	27.0	33.0	1.0	24.3	2.0	10	34.5	43.5
TPSMC30A	ERP	28.5	31.5	1.0	25.6	2.0	10	36.2	41.4
TPSMC33	ESP	29.7	36.3	1.0	26.8	2.0	10	31.4	47.7
TPSMC33A	ETP	31.4	34.7	1.0	28.2	2.0	10	32.8	45.7
TPSMC36	EUP	32.4	39.6	1.0	29.1	2.0	10	28.8	52.0
TPSMC36A	EVP	34.2	37.8	1.0	30.8	2.0	10	30.1	49.9
TPSMC39	EWP	35.1	42.9	1.0	31.6	2.0	10	26.6	56.4
TPMSC39A	EXP	37.1	41.0	1.0	33.3	2.0	10	27.8	53.9
TPSMC43	EYP	38.7	47.3	1.0	34.8	2.0	10	24.2	61.9
TPSMC43A	EZP	40.9	45.2	1.0	36.8	2.0	10	25.3	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

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FIG. 1 - PEAK PULSE POWER RATING CURVE

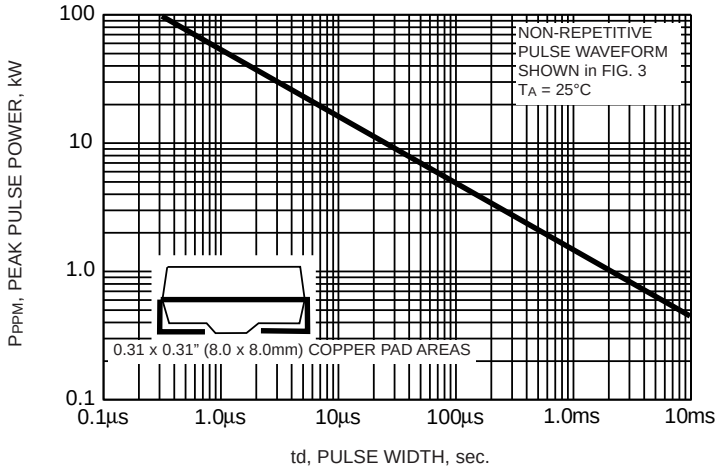

FIG. 2 - PULSE DERATING CURVE

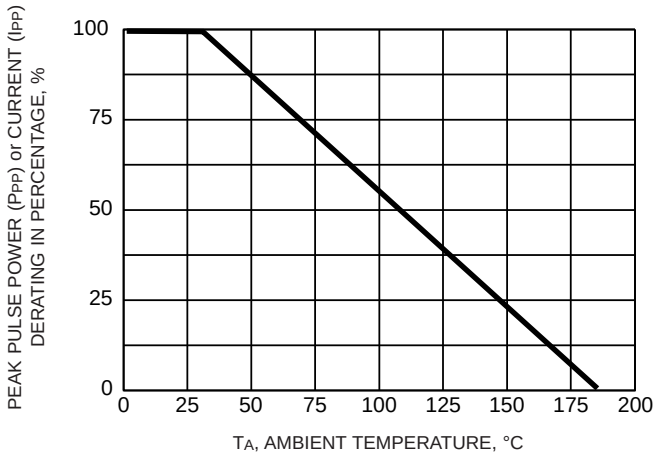

FIG. 3 - PULSE WAVEFORM

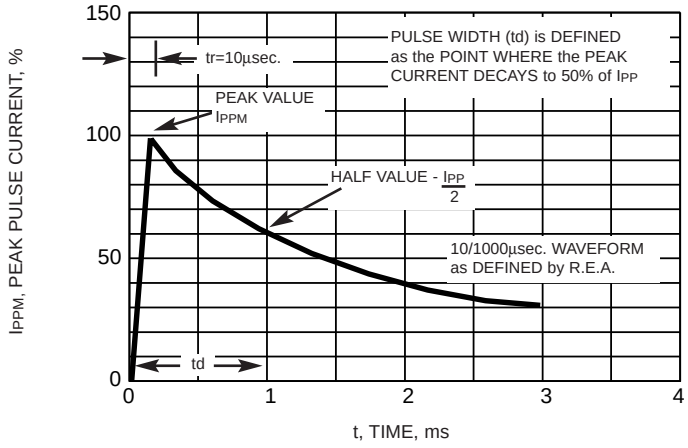

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FIG. 4 - TYPICAL JUNCTION CAPACITANCE

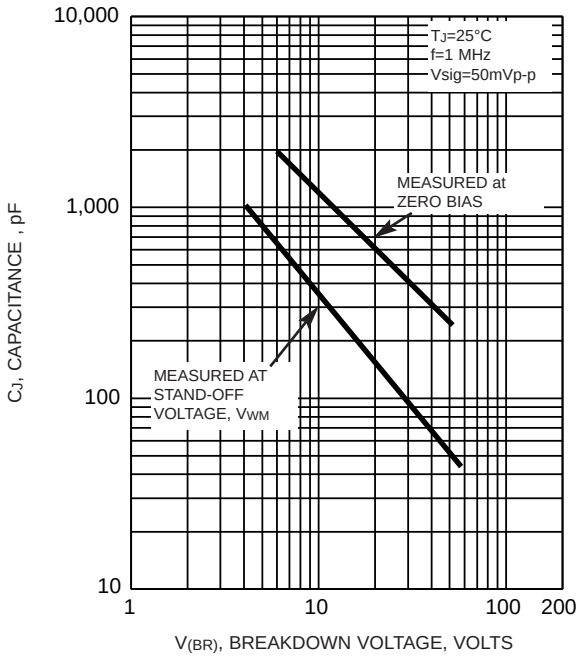

FIG. 5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT