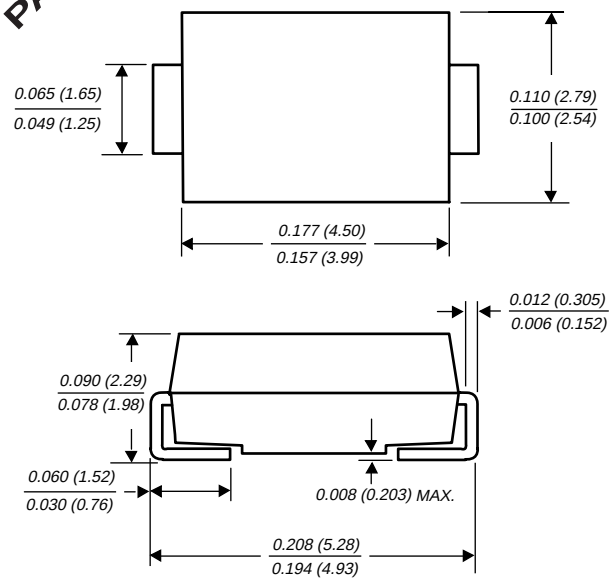
TPSMA6.8 THRU TPSMA43A

SURFACE MOUNT AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage - *6.8 to 43.0 Volts* ***Peak Pulse Power -*** *400 Watts*

PATENTED

DO-214AC
MODIFIED J-BEND



Dimensions in inches and (millimeters)

Available in uni-directional only

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Ideal for automated placement
- Low profile package
- Built-in strain relief
- Exclusive patented PAR™ oxide passivated chip construction
- 400W 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 $V_{(BR)}$ min.
- For devices with $V_{(BR)} \geq 10V$ I_D are typically less than 1.0μA 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-214AC molded plastic body over passivated chip
Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes positive end (cathode)
Mounting Position: Any
Weight: 0.002 ounces, 0.064 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATINGS	*SYMBOLS*	*VALUE*	*UNITS*
Peak power dissipation with a 10/1000μs waveform, (NOTES 1, 2 FIG. 3)	P_{PPM}	Minimum 400	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) (NOTE 3)	I_{FSM}	40.0	Amps
Maximum instantaneous forward voltage at 25A (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 P.C.B. with 0.2 x 0.2" (5.0 x 0.5mm) copper pads attached to each terminal
(3) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes 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_A=150°C I_D (μA)	Maximum Peak Pulse Surge Current I_{PPM} (NOTE 2) (Amps)	Maximum Clamping Voltage at I_{PP} Vc (Volts)
TPSMA6.8	ADP	6.12	7.48	10.0	5.50	300	1000	37.0	10.8
TPSMA6.8A	AEP	6.45	7.14	10.0	5.80	300	1000	38.1	10.5
TPSMA7.5	AFP	6.75	8.25	10.0	6.05	150	500	34.2	11.7
TPSMA7.5A	AGP	7.13	7.88	10.0	6.40	150	500	35.4	11.3
TPSMA8.2	AHP	7.38	9.02	10.0	6.63	50.0	200	32.0	12.5
TPSMA8.2A	AKP	7.79	8.61	10.0	7.02	50.0	200	33.1	12.1
TPSMA9.1	ALP	8.19	10.00	1.0	7.37	10.0	50.0	29.0	13.8
TPSMA9.1A	AMP	8.65	9.55	1.0	7.78	10.0	50.0	29.9	13.4
TPSMA10	ANP	9.00	11.00	1.0	8.10	5.0	20.0	26.7	15.0
TPSMA10A	APP	9.50	10.50	1.0	8.65	5.0	20.0	27.6	14.5
TPSMA11	AQP	9.90	12.10	1.0	8.92	1.0	5.0	24.7	16.2
TPSMA11A	ARP	10.50	11.60	1.0	9.40	1.0	5.0	25.6	15.6
TPSMA12	ASP	10.80	13.20	1.0	9.72	1.0	5.0	23.1	17.3
TPSMA12A	ATP	11.40	12.60	1.0	10.20	1.0	5.0	24.0	16.7
TPSMA13	AUP	11.70	14.30	1.0	10.50	1.0	5.0	21.1	19.0
TPSMA13A	AVP	12.40	13.70	1.0	11.10	1.0	5.0	22.0	18.2
TPSMA15	AWP	13.50	16.30	1.0	12.10	1.0	5.0	18.2	22.0
TPSMA15A	AXP	14.30	15.80	1.0	12.80	1.0	5.0	18.9	21.2
TPSMA16	AYP	14.40	17.60	1.0	12.90	1.0	5.0	17.0	23.5
TPSMA16A	AZP	15.20	16.80	1.0	13.60	1.0	5.0	17.8	22.5
TPSMA18	BDP	16.20	19.80	1.0	14.50	1.0	5.0	15.1	26.5
TPSMA18A	BEP	17.10	18.90	1.0	15.30	1.0	5.0	15.9	25.5
TPSMA20	BFP	18.00	22.00	1.0	16.20	1.0	5.0	13.7	29.1
TPSMA20A	BGP	19.00	21.00	1.0	17.10	1.0	5.0	14.4	27.7
TPSMA22	BHP	19.80	24.20	1.0	17.80	1.0	5.0	12.5	31.9
TPSMA22A	BKP	20.90	23.10	1.0	18.80	1.0	5.0	13.1	30.6
TPSMA24	BLP	21.60	26.40	1.0	19.40	1.0	5.0	11.5	34.7
TPSMA24A	BMP	22.80	25.20	1.0	20.50	1.0	5.0	12.0	33.2
TPSMA27	BNP	24.30	29.70	1.0	21.80	1.0	5.0	10.2	39.1
TPSMA27A	BPP	25.70	28.40	1.0	23.10	1.0	5.0	10.7	37.5
TPSMA30	BQP	27.00	33.00	1.0	24.30	1.0	5.0	9.2	43.5
TPSMA30A	BRP	28.50	31.50	1.0	25.60	1.0	5.0	9.7	41.4
TPSMA33	BSP	29.70	36.30	1.0	26.80	1.0	5.0	8.4	47.7
TPSMA33A	BTP	31.40	34.70	1.0	28.20	1.0	5.0	8.8	45.7
TPSMA36	BUP	32.40	39.60	1.0	29.10	1.0	5.0	7.7	52.0
TPSMA36A	BVP	34.20	37.80	1.0	30.80	1.0	5.0	8.0	49.9
TPSMA39	BWP	35.10	42.90	1.0	31.60	1.0	5.0	7.1	56.4
TPSMA39A	BXP	37.10	41.00	1.0	33.30	1.0	5.0	7.4	53.9
TPSMA43	BYP	38.70	47.30	1.0	34.80	1.0	5.0	6.5	61.9
TPSMA43A	BZP	40.90	45.20	1.0	36.80	1.0	5.0	6.7	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

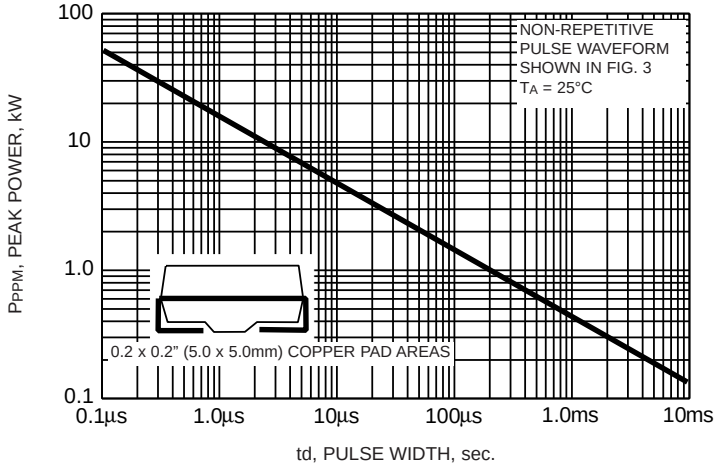

FIG. 2 - PULSE DERATING CURVE

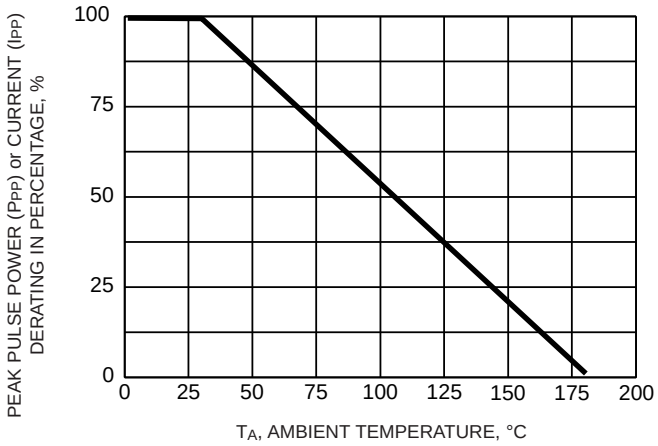

FIG. 3 - PULSE WAVEFORM

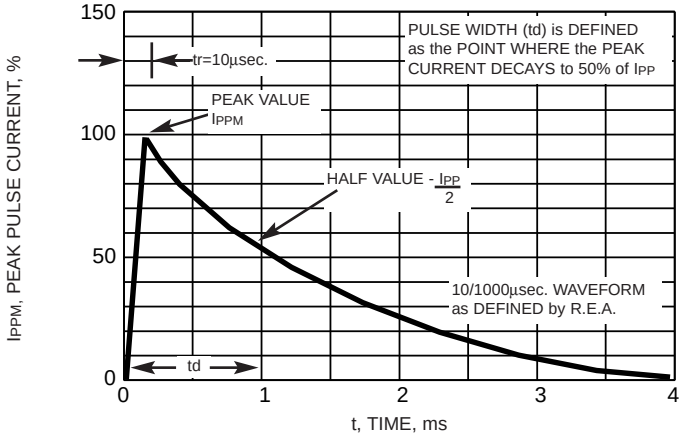

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FIG. 4 - TYPICAL JUNCTION CAPACITANCE

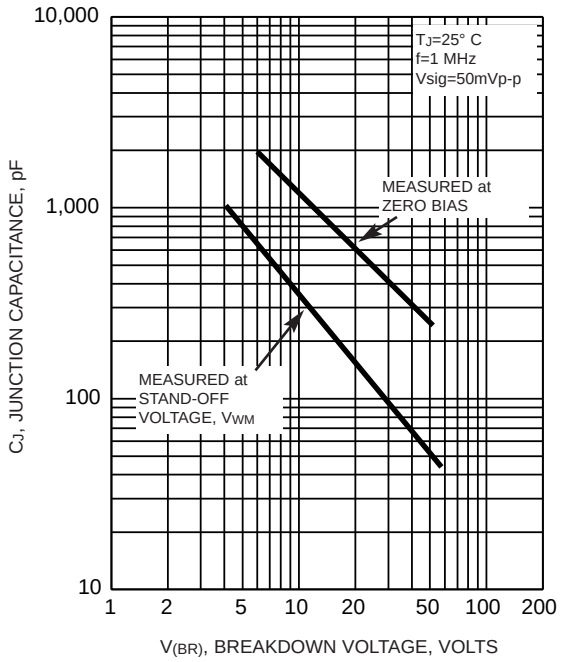

FIG. 5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT