Certificate Number: Q10561

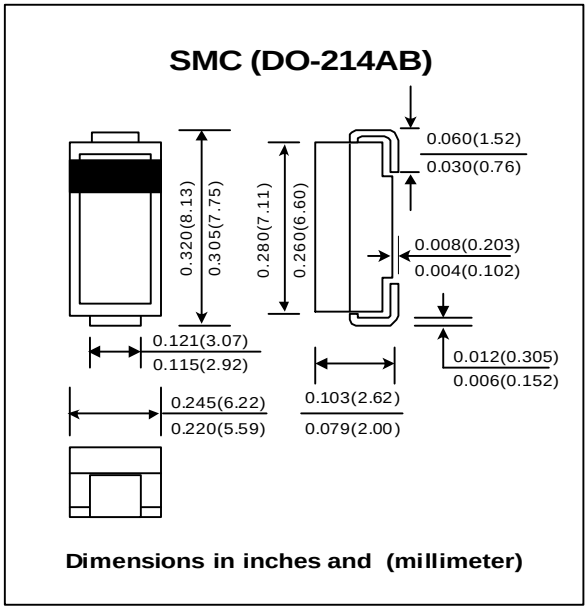
Certificate Number: E17276

TPSMC6.8 ~ TPSMC43A

AUTOMOTIVE SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

V_{BR} : 6.8 - 43 Volts

P_{PK} : 1500 Watts



FEATURES :

* 1500W peak pulse power capability with a 10/1000ms waveform, repetition rate (duty cycle): 0.01%
* Excellent clamping capability
* Low incremental surge resistance
* Very fast response time
* For devices with $V_{(BR)}$? 10V I_D are typically less than 1.0mA at Ta = 150?C
* Pb / RoHS Free

MECHANICAL DATA

* Case : SMC Molded plastic
* Epoxy : UL94V-O rate flame retardant
* Lead : Lead Formed for Surface Mount
* Polarity : Color band denotes cathode end except Bipolar.
* Mounting position : Any
* Weight : 0.21 grams

Maximum Ratings and Thermal Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 µs waveform (1)(2) Fig.5	P_{PPM}	Minimum 1500	W
Peak power pulse current with a 10/1000?s waveform (1) Fig.2	I_{PPM}	See Next Table	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (2)(3)	I_{FSM}	200	A
Maximum instantaneous forward voltage at 100A(3)	V_F	3.5	V
Operating and Storage Temperature Range	T_J, T_{STG}	- 65 to + 185	°C

Notes :

(1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1

(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

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Type	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Leakage @ V_{RWM}, Tj=150°C	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ I_{PPM}
	V_{BR} (V)		It	V_{RWM}	I_R	I_D	I_{PPM}(2)	V_{RSM}
	Min.	Max.	(mA)	(V)	(µA)	(µA)	(A)	(V)
TPSMC6.8	6.12	7.48	10	5.50	1000	10000	139	10.8
TPSMC6.8A	6.45	7.14	10	5.80	1000	10000	143	10.5
TPSMC7.5	6.75	8.25	10	6.05	500	5000	128	11.7
TPSMC7.5A	7.13	7.88	10	6.40	500	2000	132	11.3
TPSMC8.2	7.38	9.02	10	6.63	200	2000	120	12.5
TPSMC8.2A	7.79	8.61	10	7.02	200	500	124	12.1
TPSMC9.1	8.19	10.0	1.0	7.37	50	500	109	13.8
TPSMC9.1A	8.65	9.55	1.0	7.78	50	200	112	13.4
TPSMC10	9.00	11.0	1.0	8.10	20	200	100	15.0
TPSMC10A	9.50	10.5	1.0	8.55	20	50	103	14.5
TPSMC11	9.90	12.1	1.0	8.92	5.0	50	92.6	16.2
TPSMC11A	10.5	11.6	1.0	9.40	5.0	10	96.2	15.6
TPSMC12	10.8	13.2	1.0	9.72	2.0	10	86.7	17.3
TPSMC12A	11.4	12.6	1.0	10.2	2.0	10	89.8	16.7
TPSMC13	11.7	14.3	1.0	10.5	2.0	10	78.9	19.0
TPSMC13A	12.4	13.7	1.0	11.1	2.0	10	82.4	18.2
TPSMC15	13.5	16.5	1.0	12.1	1.0	10	68.2	22.0
TPSMC15A	14.3	15.8	1.0	12.8	1.0	10	70.8	21.2
TPSMC16	14.4	17.6	1.0	12.9	1.0	10	63.8	23.5
TPSMC16A	15.2	16.8	1.0	13.6	1.0	10	66.7	22.5
TPSMC18	16.2	19.8	1.0	14.5	1.0	10	56.6	26.5
TPSMC18A	17.1	18.9	1.0	15.3	1.0	10	59.5	25.2
TPSMC20	18.0	22.0	1.0	16.2	1.0	10	51.5	29.1
TPSMC20A	19.0	21.0	1.0	17.1	1.0	10	54.2	27.7
TPSMC22	19.8	24.2	1.0	17.8	1.0	10	47.0	31.9
TPSMC22A	20.9	23.1	1.0	18.8	1.0	10	49.0	30.6
TPSMC24	21.6	26.4	1.0	19.4	1.0	10	43.2	34.7
TPSMC24A	22.8	25.2	1.0	20.5	1.0	10	45.2	33.2
TPSMC27	24.3	29.7	1.0	21.8	1.0	10	38.4	39.1
TPSMC27A	25.7	28.4	1.0	23.1	1.0	10	40.0	37.5
TPSMC30	27.0	33.0	1.0	24.3	1.0	10	34.5	43.5
TPSMC30A	28.5	31.5	1.0	25.6	1.0	10	36.2	41.4
TPSMC33	29.7	36.3	1.0	26.8	1.0	10	31.4	47.7
TPSMC33A	31.4	34.7	1.0	28.2	1.0	10	32.8	45.7
TPSMC36	32.4	39.6	1.0	29.1	1.0	10	28.8	52.0
TPSMC36A	34.2	37.8	1.0	30.8	1.0	10	30.1	49.9
TPSMC39	35.1	42.9	1.0	31.6	1.0	10	26.6	56.4
TPSMC39A	37.1	41.0	1.0	33.3	1.0	10	27.8	53.9
TPSMC43	38.7	47.3	1.0	34.8	1.0	10	24.2	61.9
TPSMC43A	40.9	45.2	1.0	36.8	1.0	10	25.3	59.3

Notes :

(1) V_{BR} measured after It applied for 300 µs., It = square wave pulse or equivalent.
(2) Surge current waveform per Fig. 5 and derate per Fig. 1
(3) "PSMC" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (TPSMC6.8 - TPSMC43A)

FIG.1 - PULSE DERATING CURVE

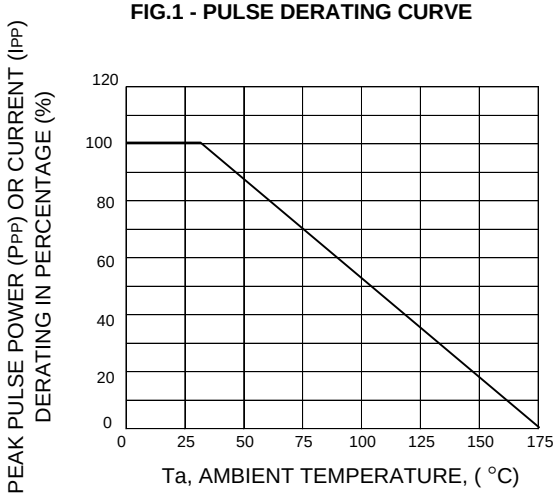


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

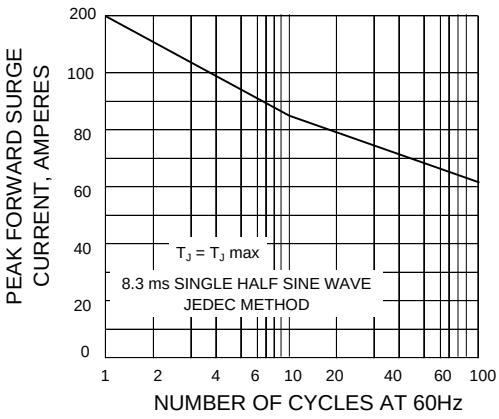


FIG.3 - TYPICAL JUNCTION CAPACITANCE

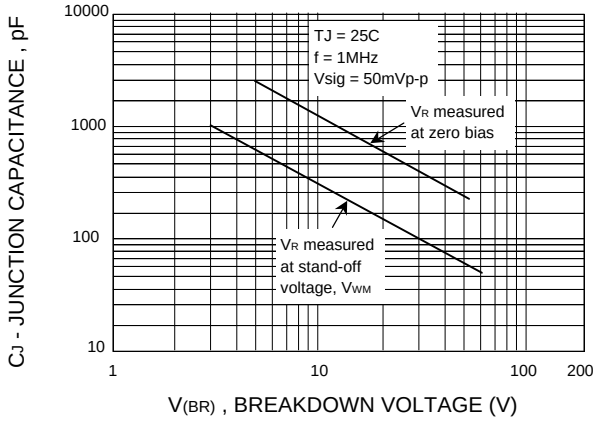


FIG.4 - PULSE RATING CURVE

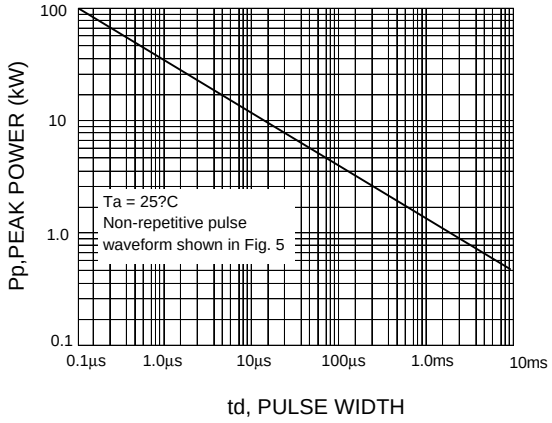


FIG.5 - PULSE WAVEFORM