

## *Data Sheet*

Customer: \_\_\_\_\_

Product: Transient Voltage Suppressors 1500W – 1.5SMCJ Series

Size : DO-214AB(SMC) \_\_\_\_\_

Issued Date: 10-Feb.-2015 \_\_\_\_\_

Edition: Ver. 1 \_\_\_\_\_

### Record of change

Date	Ver.	Description	Page
10-Feb.-2015	1		

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10-Feb.-2015	10-Feb.-2015	10-Feb.-2015	
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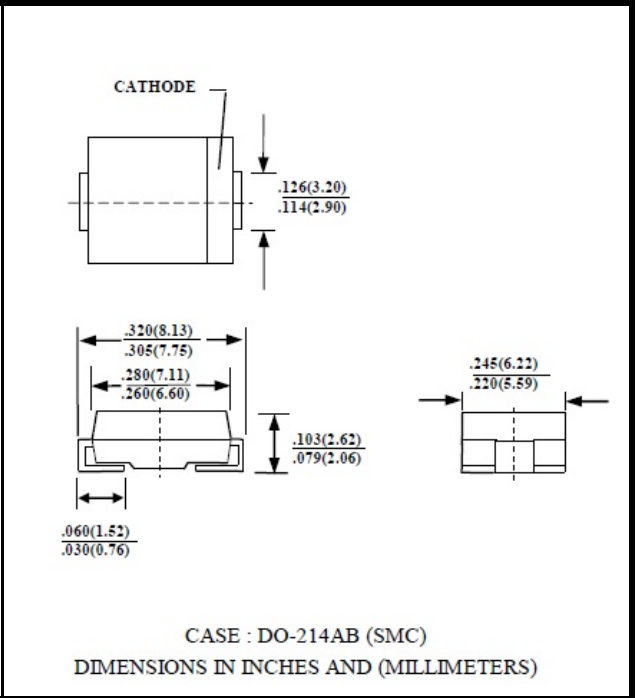
**1500W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR**

**FEATURES**

- PLASTIC PACKAGE HAS UNDERWRITERS LABORATORY FLAMMABILITY CLASSIFICATION 94V-0
- GLASS PASSIVATED JUNCTION
- LOW PROFILE
- EXCELLENT CLAMPING CAPABILITY
- LOW INCREMENTAL SURGE RESISTANCE
- FAST RESPONSE TIME: TYPICALLY LESS THAN 1.0 ps FROM 0 VOLTS TO V(BR) MIN
- 1500 W PEAK PULSE POWER CAPABILITY WITH A 10/1000  $\mu$ S WAVEFORM , REPETITION RATE (DUTY CYCLE) : 0.01%
- TYPICAL  $I_D$  LESS THAN 1 $\mu$ A ABOVE 10V
- HIGH TEMPERATURE SOLDERING GUARANTEED: 250 $^{\circ}$ C/10 SECONDS AT TERMINALS
- ROHS & REACH COMPLIANT

**MECHANICAL DATA**

- CASE : MOLDED PLASTIC
- TERMINALS : SOLDER PLATED
- POLARITY : INDICATED BY CATHODE BAND
- WEIGHT : 0.21 GRAMS



**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**  
RATINGS AT 25 $^{\circ}$ C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED

RATINGS	SYMBOL	VALUE	UNITS
PEAK PULSE POWER DISSIPATION ON 10/1000 $\mu$ S WAVEFORM (NOTE 1)	$P_{PPM}$	MINIMUM 1500	WATTS
PEAK PULSE CURRENT OF 0N 10/1000 $\mu$ S WAVEFORM (NOTE 1)	$I_{PPM}$	SEE NEXT TABLE	A
STEADY STATE POWER DISSIPATION AT $T_L=75^{\circ}$ C (NOTE 2)	$P_{M(AV)}$	6.5	WATTS
OPERATING JUNCTION AND STORAGE TEMPERATURE RANGE	$T_J, T_{STG}$	- 55 TO + 150	$^{\circ}$ C

NOTE :

1. NON-REPETITIVE CURRENT PULSE, PER FIG.5 AND DERATED ABOVE  $T_A=25^{\circ}$ C PER FIG 1.
2. MOUNTED ON 8.0 $\times$ 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

PART NUMBER	DEVICE MARKING CODE		WORKING PEAK REVERSE VOLTAGE $V_{WM}$	BREAKDOWN VOLTAGE $V_{(BR)}$ (VOLTS) at $I_T$		TEST CURRENT $I_T$ (mA)	MAXIMUM CLAMPING VOLTAGE AT $I_{PPM}$ VC(Volts)	MAX PEAK PULSE SURGE CURRENT $I_{PPM}$ (NOTE 2) (Amps)	MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ ( $\mu$ A)
	UNI	BI		MIN	MAX				
1.5SMCJ5.0-	GDD	BDD	5.0	6.40	7.82	10	9.6	156.3	800
1.5SMCJ5.0A-	GDE	BDE	5.0	6.40	7.07	10	9.2	163.0	800
1.5SMCJ6.0-	GDF	BDF	6.0	6.67	8.15	10	11.4	131.6	800
1.5SMCJ6.0A-	GDG	BDG	6.0	6.67	7.37	10	10.3	145.6	800
1.5SMCJ6.5-	GDH	BDH	6.5	7.22	8.82	10	12.3	122.0	500
1.5SMCJ6.5A-	GDK	BDK	6.5	7.22	7.98	10	11.2	133.9	500
1.5SMCJ7.0-	GDL	BDL	7.0	7.78	9.51	10	13.3	112.8	200
1.5SMCJ7.0A-	GDM	BDM	7.0	7.78	8.60	10	12.0	125.0	200
1.5SMCJ7.5-	GDN	BDN	7.5	8.33	10.2	1.0	14.3	104.9	100
1.5SMCJ7.5A-	GDP	BDP	7.5	8.33	9.21	1.0	12.9	116.3	100
1.5SMCJ8.0-	GDQ	BDQ	8.0	8.89	10.9	1.0	15.0	100.0	50.0
1.5SMCJ8.0A-	GDR	BDR	8.0	8.89	9.83	1.0	13.6	110.3	50.0
1.5SMCJ8.5-	GDS	BDS	8.5	9.44	11.5	1.0	15.9	94.3	10.0
1.5SMCJ8.5A-	GDT	BDT	8.5	9.44	10.4	1.0	14.4	104.2	10.0
1.5SMCJ9.0-	GDU	BDU	9.0	10.0	12.2	1.0	16.9	88.8	5.0
1.5SMCJ9.0A-	GDV	BDV	9.0	10.0	11.1	1.0	15.4	97.4	5.0
1.5SMCJ10-	GDW	BDW	10.0	11.1	13.6	1.0	18.8	79.8	5.0
1.5SMCJ10A-	GDX	BDX	10.0	11.1	12.3	1.0	17.0	88.2	5.0
1.5SMCJ11-	GDY	BDY	11.0	12.2	14.9	1.0	20.1	74.6	5.0
1.5SMCJ11A-	GDZ	BDZ	11.0	12.2	13.5	1.0	18.2	82.4	5.0
1.5SMCJ12-	GED	BED	12.0	13.3	16.3	1.0	22.0	68.2	5.0
1.5SMCJ12A-	GEE	BEE	12.0	13.3	14.7	1.0	19.9	75.4	5.0
1.5SMCJ13-	GEF	BEF	13.0	14.4	17.6	1.0	23.8	63.0	5.0
1.5SMCJ13A-	GEG	BEG	13.0	14.4	15.9	1.0	21.5	69.8	5.0
1.5SMCJ14-	GEH	BEH	14.0	15.6	19.1	1.0	25.8	58.1	5.0
1.5SMCJ14A-	GEK	BEK	14.0	15.6	17.2	1.0	23.2	64.7	5.0
1.5SMCJ15-	GEL	BEL	15.0	16.7	20.4	1.0	26.9	55.8	5.0
1.5SMCJ15A-	GEM	BEM	15.0	16.7	18.5	1.0	24.4	61.5	5.0
1.5SMCJ16-	GEN	BEN	16.0	17.8	21.8	1.0	28.8	52.1	5.0
1.5SMCJ16A-	GEP	BEP	16.0	17.8	19.7	1.0	26.0	57.7	5.0
1.5SMCJ17-	GEQ	BEQ	17.0	18.9	23.1	1.0	30.5	49.2	5.0
1.5SMCJ17A-	GER	BER	17.0	18.9	20.9	1.0	27.6	54.3	5.0
1.5SMCJ18-	GES	BES	18.0	20.0	24.4	1.0	32.2	46.6	5.0
1.5SMCJ18A-	GET	BET	18.0	20.0	22.1	1.0	29.2	51.4	5.0
1.5SMCJ20-	GEU	BEU	20.0	22.2	27.1	1.0	35.8	41.9	5.0
1.5SMCJ20A-	GEV	BEV	20.0	22.2	24.5	1.0	32.4	46.3	5.0
1.5SMCJ22-	GEW	BEW	22.0	24.4	29.8	1.0	39.4	38.1	5.0
1.5SMCJ22A-	GEX	BEX	22.0	24.4	26.9	1.0	35.5	42.3	5.0
1.5SMCJ24-	GEY	BEY	24.0	26.7	32.6	1.0	43.0	34.9	5.0
1.5SMCJ24A-	GEZ	BEZ	24.0	26.7	29.5	1.0	38.9	38.6	5.0
1.5SMCJ26-	GFD	BFD	26.0	28.9	35.3	1.0	46.6	32.2	5.0
1.5SMCJ26A-	GFE	BFE	26.0	28.9	31.9	1.0	42.1	35.6	5.0
1.5SMCJ28-	GFF	BFF	28.0	31.1	38.0	1.0	50.0	30.0	5.0
1.5SMCJ28A-	GFG	BFG	28.0	31.1	34.4	1.0	45.4	33.0	5.0
1.5SMCJ30-	GFH	BFH	30.0	33.3	40.7	1.0	53.5	28.0	5.0
1.5SMCJ30A-	GFK	BFK	30.0	33.3	36.8	1.0	48.4	31.0	5.0
1.5SMCJ33-	GFL	BFL	33.0	36.7	44.9	1.0	59.0	25.4	5.0
1.5SMCJ33A-	GFM	BFM	33.0	36.7	40.6	1.0	53.3	28.1	5.0
1.5SMCJ36-	GFN	BFN	36.0	40.0	48.9	1.0	64.3	23.3	5.0
1.5SMCJ36A-	GFP	BFP	36.0	40.0	44.2	1.0	58.1	25.8	5.0
1.5SMCJ40-	GFQ	BFQ	40.0	44.4	54.3	1.0	71.4	21.0	5.0
1.5SMCJ40A-	GFR	BFR	40.0	44.4	49.1	1.0	64.5	23.3	5.0
1.5SMCJ43-	GFS	BFS	43.0	47.8	58.4	1.0	76.7	19.6	5.0
1.5SMCJ43A-	GFT	BFT	43.0	47.8	52.8	1.0	69.4	21.6	5.0
1.5SMCJ45-	GFU	BFU	45.0	50.0	61.1	1.0	80.3	18.7	5.0
1.5SMCJ45A-	GFV	BFV	45	50.0	55.3	1.0	72.7	20.6	5.0
1.5SMCJ48-	GFW	BFW	48	53.3	65.1	1.0	85.5	17.5	5.0
1.5SMCJ48A-	GFX	BFX	48	53.3	58.9	1.0	77.4	19.4	5.0
1.5SMCJ51-	GFY	BFY	51	56.7	69.3	1.0	91.1	16.5	5.0
1.5SMCJ51A-	GFZ	BFZ	51	56.7	62.7	1.0	82.4	18.2	5.0
1.5SMCJ54-	GGD	BGD	54	60.0	73.3	1.0	96.3	15.6	5.0
1.5SMCJ54A-	GGE	BGE	54	60.0	66.3	1.0	87.1	17.2	5.0
1.5SMCJ58-	GGF	BGF	58	64.4	78.7	1.0	103.0	14.6	5.0
1.5SMCJ58A-	GGG	BGG	58	64.4	71.2	1.0	93.0	16.0	5.0
1.5SMCJ60-	GGH	BGH	60	66.7	81.5	1.0	107.0	14.0	5.0
1.5SMCJ60A-	GGK	BGK	60	66.7	73.7	1.0	96.0	15.5	5.0
1.5SMCJ64-	GGL	BGL	64	71.1	86.9	1.0	114.0	13.2	5.0
1.5SMCJ64A-	GGM	BGM	64	71.1	78.6	1.0	103.0	14.6	5.0

PART NUMBER	DEVICE MARKING CODE		WORKING PEAK REVERSE VOLTAGE $V_{WM}$	BREAKDOWN VOLTAGE $V_{(BR)}$ (VOLTS) at $I_T$		TEST CURRENT $I_T$ (mA)	MAXIMUM CLAMPING VOLTAGE AT $I_{PPM}$ VC(Volts)	MAX PEAK PULSE SURGE CURRENT $I_{PPM}$ (NOTE 2) (Amps)	MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ ( $\mu$ A)
	UNI	BI		MIN	MAX				
	1.5SMCJ70-	GGN	BGN	70	77.8	95.1	1.0	125.0	12.0
1.5SMCJ70A-	GGP	BGP	70	77.8	86.0	1.0	113.0	13.3	5.0
1.5SMCJ75-	GGQ	BGQ	75	83.3	102.0	1.0	134.0	11.2	5.0
1.5SMCJ75A-	GGR	BGR	75	83.3	92.1	1.0	121.0	12.4	5.0
1.5SMCJ78-	GGS	BGS	78	86.7	106.0	1.0	139.0	10.8	5.0
1.5SMCJ78A-	GGT	BGT	78	86.7	95.8	1.0	126.0	11.9	5.0
1.5SMCJ85-	GGU	BGU	85	94.4	115.0	1.0	151.0	9.9	5.0
1.5SMCJ85A-	GGV	BGV	85	94.4	104.0	1.0	137.0	10.9	5.0
1.5SMCJ90-	GGW	BGW	90	100.0	122.0	1.0	160.0	9.4	5.0
1.5SMCJ90A-	GGX	BGX	90	100.0	111.0	1.0	146.0	10.3	5.0
1.5SMCJ100-	GGY	BGY	100	111.0	136.0	1.0	179.0	8.4	5.0
1.5SMCJ100A-	GGZ	BGZ	100	111.0	123.0	1.0	162.0	9.3	5.0
1.5SMCJ110-	GHD	BHD	110	122.0	149.0	1.0	196.0	7.7	5.0
1.5SMCJ110A-	GHE	BHE	110	122.0	135.0	1.0	177.0	8.5	5.0
1.5SMCJ120-	GHF	BHF	120	133.0	163.0	1.0	214.0	7.0	5.0
1.5SMCJ120A-	GHG	BHG	120	133.0	147.0	1.0	193.0	7.8	5.0
1.5SMCJ130-	GHH	BHH	130	144.0	176.0	1.0	231.0	6.5	5.0
1.5SMCJ130A-	GHK	BHK	130	144.0	159.0	1.0	209.0	7.2	5.0
1.5SMCJ150-	GHL	BHL	150	167.0	204.0	1.0	268.0	5.6	5.0
1.5SMCJ150A-	GHM	BHM	150	167.0	185.0	1.0	243.0	6.2	5.0
1.5SMCJ160-	GHN	BHN	160	178.0	218.0	1.0	287.0	5.2	5.0
1.5SMCJ160A-	GHP	BHP	160	178.0	197.0	1.0	259.0	5.8	5.0
1.5SMCJ170-	GHQ	BHQ	170	189.0	231.0	1.0	304.0	4.9	5.0
1.5SMCJ170A-	GHR	BHR	170	189.0	209.0	1.0	275.0	5.5	5.0
1.5SMCJ180-	GHS	BHS	180	200.2	244.8	1.0	322.2	4.7	5.0
1.5SMCJ180A-	GHT	BHT	180	200.0	220.0	1.0	291.6	5.1	5.0
1.5SMCJ190-	GHU	BHU	190	211.3	258.4	1.0	340.1	4.4	5.0
1.5SMCJ190A-	GHV	BHV	190	211.0	232.0	1.0	307.8	4.9	5.0
1.5SMCJ200A-	GHW	BHW	200	224.0	247.0	1.0	324.0	4.6	5.0
1.5SMCJ220A-	GHX	BHX	220	246.0	272.0	1.0	356.0	4.2	5.0
1.5SMCJ250A-	GHZ	BHZ	250	279.0	309.0	1.0	405.0	3.7	5.0
1.5SMCJ300A-	GJE	BJE	300	335.0	371.0	1.0	486.0	3.1	5.0
1.5SMCJ350A-	GJG	BJG	350	391.0	432.0	1.0	567.0	2.6	5.0
1.5SMCJ400A-	GJK	BJK	400	447.0	494.0	1.0	648.0	2.3	5.0
1.5SMCJ440A-	GJM	BJM	440	492.0	543.0	1.0	713.0	2.1	5.0

NOTE :

1. Suffix "A" denotes 5% tolerance device. Without "A" denotes 10% tolerance device.
2. Add suffix "C" or "CA" after part number to specify Bi-directional devices.
3. For Bi-directional devices having  $V_R$  of 10 volts and under , the  $I_R$  limit is double.

# RATINGS AND CHARACTERISTIC CURVES 1.5SMCJ5.0 THRU 1.5SMCJ440A

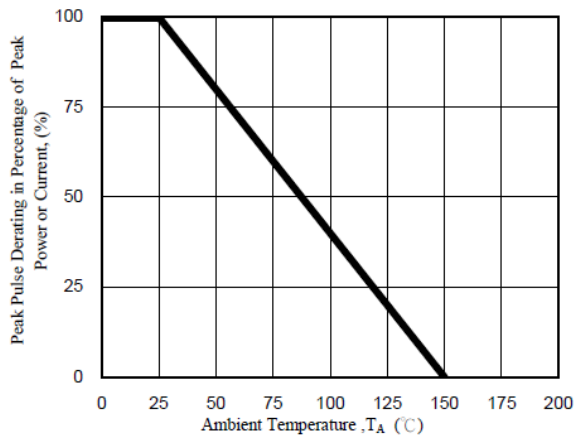


Fig. 1 - Pulse Derating Curve

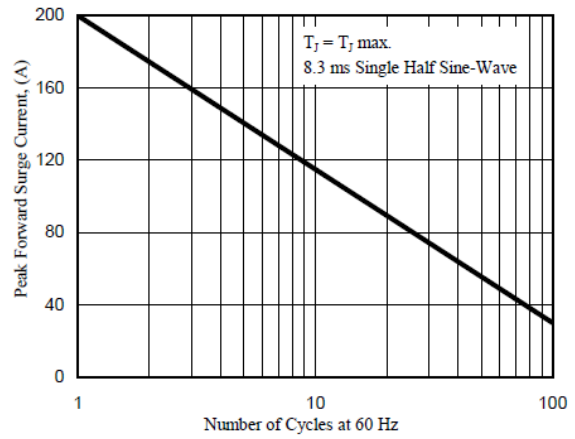


Fig. 2 - Maximum Non-Repetitive Surge Current

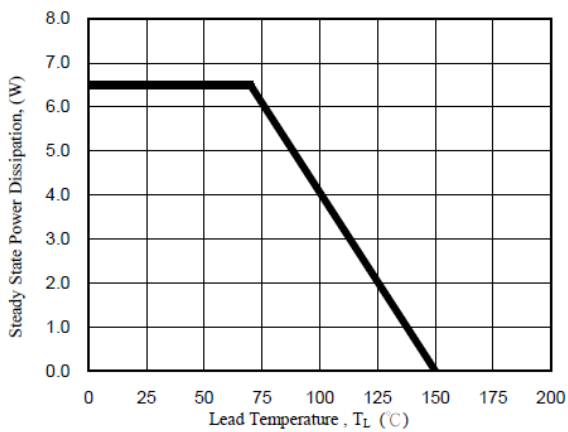


Fig. 3 - Steady State Power Derating Curve

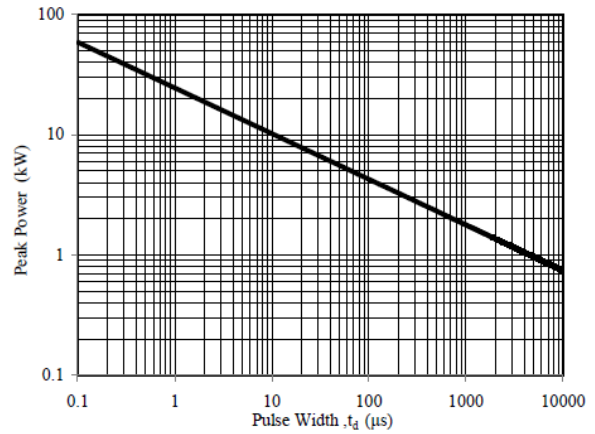


Fig. 4 - Peak Pulse Power Rating Curve

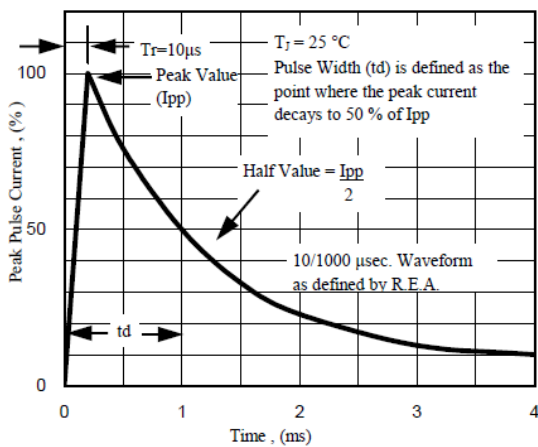


Fig. 5 - Pulse Waveform

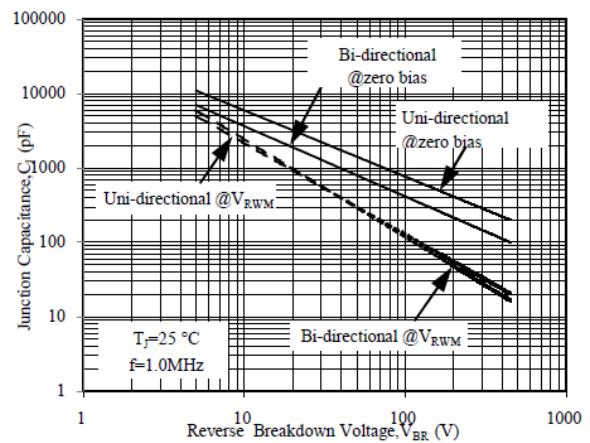


Fig. 6 - Typical Junction Capacitance