3.0SMCJ Series

3000W Surface Mount Transient Voltage Suppressors
VOLTAGE : 5.0 TO 170Volts

Features

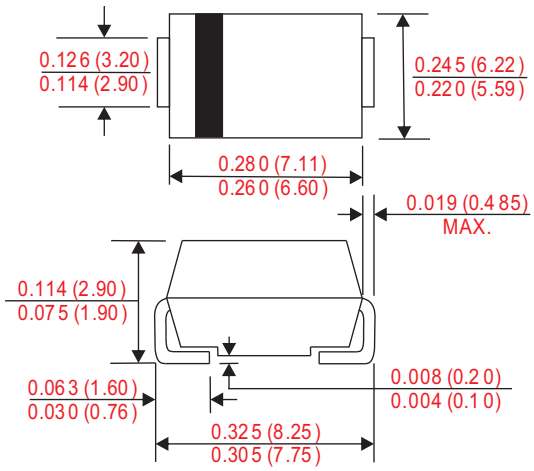
- 3000W peak pulse power capability with a 10/1000uS waveform, repetition rate (duty cycle): 0.01%.
- Excellent clamping capability.
- Low incremental surge resistance.
- Suffix "G" indicates Halogen-free part, ex.3.0SMCJ5.0(C)AG.
- Glass passivated chip junction
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AB / SMC
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Weight : 0.007 ounce, 0.226 gram

Outline

SMC(DO-214AB)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Parameter	Conditions	Symbol	3.0SMCJ Series	UNIT
Peak power dissipation	with a 10/1000 us waveform, Note 1, 2 & Fig. 1	P_{PPM}	3000	W
Peak pulse current	with a 10/1000 us waveform	I_{PPM}	See table 1	A
Steady state power dissipation	at T_L=75°C lead length 0,375" (9,5 mm), note 2	$P_{M(AV)}$	6.5	W
Peak forward surge current	8.3mS single half sine-wave superimposed on rated load (JEDEC method), note 3	I_{FSM}	200	A
Operating and Storage temperature		T_J, T_{STG}	-55 ~ +150	°C

Note 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°C per Fig. 2
2. Mounted on copper pad area of 0.8" X 0.8" (40x40 mm) per Fig 5
3. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum

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Document ID : DS-22T15
Issued Date : 2010/05/05
Revised Date : 2010/10/08
Revision : B

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ELECTRICAL CHARACTERISTICS

table 1

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @I_{PP}		Maximum Leakage Current	Marking Code	
	V_{RWM}	$V_{BR\ Min}$	$V_{BR\ Max}$	I_T	I_{FSM}	V_C	I_{PP}	I_R@V_{RWM}		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
3.0SMCJ5.0(C)A	5.0	6.40	7.00	10	200	9.2	326.1	1000	RDE	DDE
3.0SMCJ6.0(C)A	6.0	6.67	7.37	10	200	10.3	291.3	1000	RDG	DDG
3.0SMCJ6.5(C)A	6.5	7.22	7.98	10	200	11.2	267.9	500	RDK	DDK
3.0SMCJ7.0(C)A	7.0	7.78	8.60	10	200	12.0	250.0	200	PDM	DDM
3.0SMCJ7.5(C)A	7.5	8.33	9.21	1.0	200	12.9	232.6	100	PDP	DDP
3.0SMCJ8.0(C)A	8.0	8.89	9.83	1.0	200	13.6	220.6	50	PDR	DDR
3.0SMCJ8.5(C)A	8.5	9.44	10.4	1.0	200	14.4	208.3	25	PDT	DDT
3.0SMCJ9.0(C)A	9.0	10.0	11.1	1.0	200	15.4	194.8	10	PDV	DDV
3.0SMCJ10(C)A	10	11.1	12.3	1.0	200	17.0	176.5	3	PDX	DDX
3.0SMCJ11(C)A	11	12.2	13.5	1.0	200	18.2	164.8	3	PDZ	DDZ
3.0SMCJ12(C)A	12	13.3	14.7	1.0	200	19.9	150.8	3	PEE	DEE
3.0SMCJ13(C)A	13	14.4	15.9	1.0	200	21.5	139.5	3	PEG	DEG
3.0SMCJ14(C)A	14	15.6	17.2	1.0	200	23.2	129.3	3	PEK	DEK
3.0SMCJ15(C)A	15	16.7	18.5	1.0	200	24.4	123.0	3	PEM	DEM
3.0SMCJ16(C)A	16	17.8	19.7	1.0	200	26.0	115.4	3	PEP	DEP
3.0SMCJ17(C)A	17	18.9	20.9	1.0	200	27.6	108.7	3	PER	DER
3.0SMCJ18(C)A	18	20.0	22.1	1.0	200	29.2	102.7	3	PET	DET
3.0SMCJ20(C)A	20	22.2	24.5	1.0	200	32.4	92.6	3	PEV	DEV
3.0SMCJ22(C)A	22	24.4	26.9	1.0	200	35.5	84.5	3	PEX	DEX
3.0SMCJ24(C)A	24	26.7	29.5	1.0	200	38.9	77.1	3	PEZ	DEZ
3.0SMCJ26(C)A	26	28.9	31.9	1.0	200	42.1	71.3	3	PFE	DFE
3.0SMCJ28(C)A	28	31.1	34.4	1.0	200	45.4	66.1	3	PFG	DFG
3.0SMCJ30(C)A	30	33.3	36.8	1.0	200	48.4	62.0	3	PFK	DFK
3.0SMCJ33(C)A	33	36.7	40.6	1.0	200	53.3	56.3	3	PFM	DFM
3.0SMCJ36(C)A	36	40.0	44.2	1.0	200	58.1	51.6	3	PFP	DFP
3.0SMCJ40(C)A	40	44.4	49.1	1.0	200	64.5	46.5	3	PFR	DFR
3.0SMCJ43(C)A	43	47.8	52.8	1.0	200	69.4	43.2	3	PFT	DFT
3.0SMCJ45(C)A	45	50.0	55.3	1.0	200	72.7	41.3	3	PFV	DFV
3.0SMCJ48(C)A	48	53.3	58.9	1.0	200	77.4	38.8	3	PFX	DFX
3.0SMCJ51(C)A	51	56.7	62.7	1.0	200	82.4	36.4	3	PFZ	DFZ
3.0SMCJ54(C)A	54	60.0	66.3	1.0	200	87.1	34.4	3	PGE	DGE
3.0SMCJ58(C)A	58	64.4	71.2	1.0	200	93.6	32.1	3	PGG	DGG
3.0SMCJ60(C)A	60	66.7	73.7	1.0	200	96.8	31.0	3	PGK	DGK
3.0SMCJ64(C)A	64	71.1	78.6	1.0	200	103.0	29.1	3	PGM	DGM

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Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @I_{PP}		Maximum Leakage Current	Marking Code	
	V_{RWM}	$V_{BR\ Min}$	$V_{BR\ Max}$	I_T	I_{FSM}	V_C	I_{PP}	I_R@V_{RWM}		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
3.0SMCJ70(C)A	70	77.8	86.0	1.0	200	113.0	26.5	3	PGP	DGP
3.0SMCJ75(C)A	75	83.3	92.1	1.0	200	121.0	24.8	3	PGR	DGR
3.0SMCJ78(C)A	78	86.7	95.8	1.0	200	126.0	23.8	3	PGT	DGT
3.0SMCJ85(C)A	85	94.4	104.0	1.0	200	137.0	21.9	3	PGV	DGV
3.0SMCJ90(C)A	90.0	100.0	111.0	1.0	200	146.0	20.5	3	PGX	DGX
3.0SMCJ100(C)A	100.0	111.0	123.0	1.0	200	162.0	18.5	3	PGZ	DGZ
3.0SMCJ110(C)A	110.0	122.0	135.0	1.0	200	177.0	16.9	3	PHE	DHE
3.0SMCJ120(C)A	120.0	133.0	147.0	1.0	200	193.0	15.5	3	PHG	DHG
3.0SMCJ130(C)A	130.0	144.0	159.0	1.0	200	209.0	14.4	3	PHK	DHK
3.0SMCJ150(C)A	150.0	167.0	185.0	1.0	200	243.0	12.3	3	PHM	DHM
3.0SMCJ160(C)A	160.0	178.0	197.0	1.0	200	259.0	11.6	3	PHP	DHP
3.0SMCJ170(C)A	170.0	189.0	209.0	1.0	200	275.0	10.9	3	PHR	DHR

Note 1. V_{BR} measured after I_T applied for 300uS, I_T=square wave pulse or equivalent
2. Surge current waveform per Fig. 3 and derated per Fig. 2
3. For bi-directional types having V_{WM} of 10 volts and less, the I_D limit is doubled
4. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
5. All terms and symbols are consistent with ANS/IEEE C62.35
6. Transient Voltage Suppressors (TVS) are devices used to protect vulnerable circuits from electrical overstress such as that caused by electrostatic discharge, inductive load switching and induced lightning. Within the TVS, damaging voltage spikes are limited by clamping or avalanche action of a rugged silicon pn junction which reduces the amplitude of the transient to a nondestructive level. See Fig. A & Fig. B

Fig. A - Transients of several thousand volts can be clamped to a safe level by the TVS

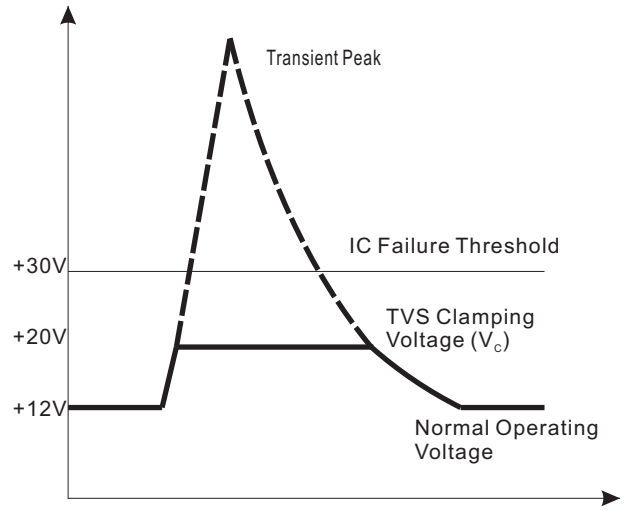

Fig. B - Transient current is divered to ground thru TVS; the voltage seen by the protected load is limited to the clamping voltage level

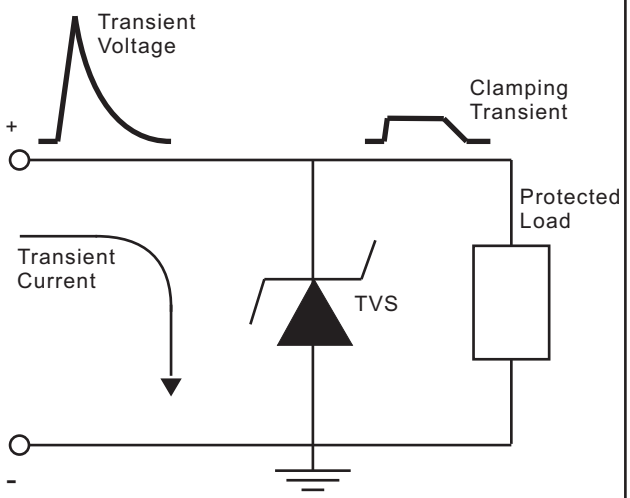

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Fig.1 - Pealk Pulse Power Rating Curve

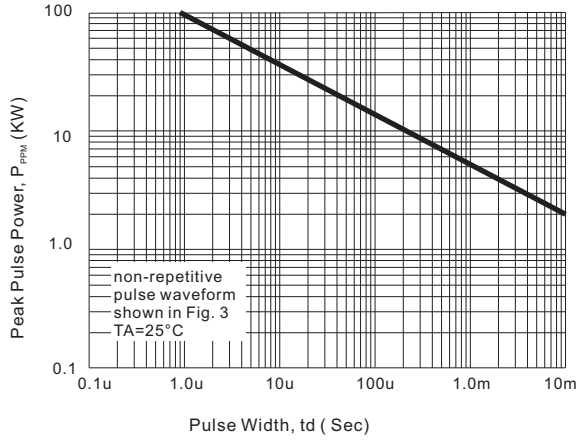

Fig.2 - Pulse Derating Curve

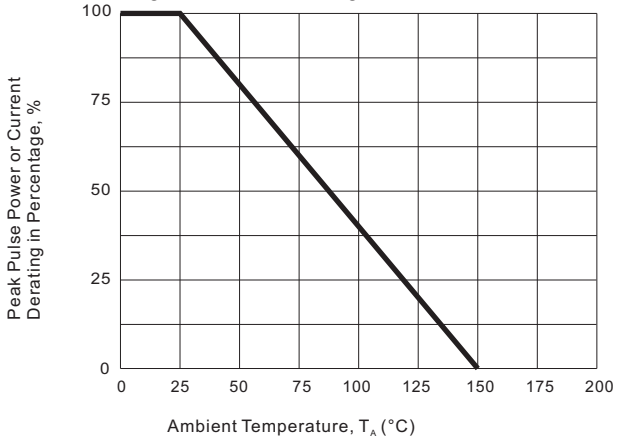

Fig.3 - Pulse Waveform

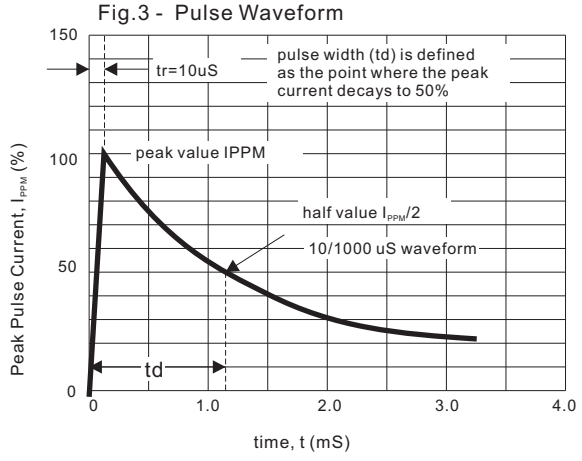

Fig.4 - Typical Junction Capacitance

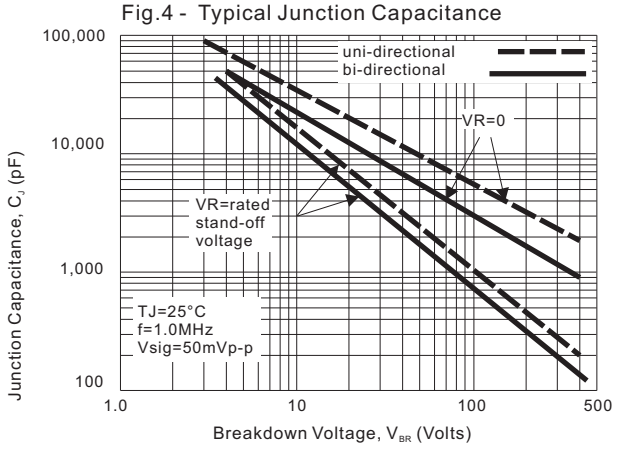

Fig.5 - Steady State Power Derating Curve

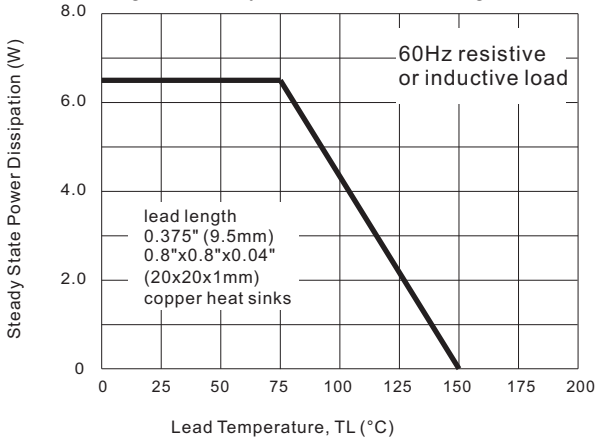

Fig.6 - Maximum Non-Repetitive
Forward Surge Current