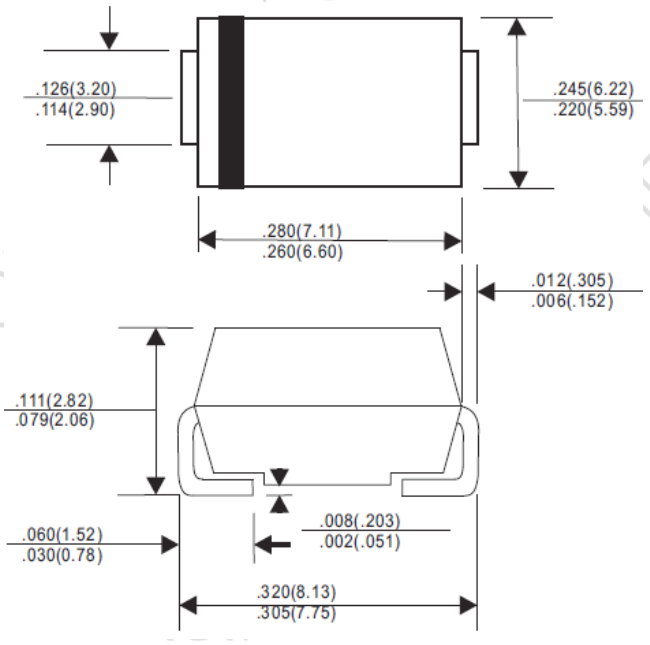
5.0SMCJ11(C)A THRU 5.0SMCJ170(C)A SPECIFICATION

Rev. A

5000W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS, 11V – 170V



POLARITY MARKING OF UNI-DIRECTIONAL DEVICE SHOWN

PRODUCT FEATURES

1. FLAMMABILITY CLASSIFICATION 94V-0
2. LOW PROFILE DESIGN, GLASS PASSIVATED JUNCTION
3. 5000W PEAK PULSE POWER CAPABILITY, 10/1000µS WAVEFORM, DUTY CYCLE 0.01%
4. EXCELLENT CLAMPING CAPABILITY
5. FAST RESPONSE TIME FROM 0V-V_{BR} IN <1pS FOR UNI-DIRECTIONAL AND <5nS FOR BI-DIRECTIONAL TYPES
6. POLARITY: INDI)ATED BY CATHODE BAND
7. MOLDED PLASTIC CASE DO-214AB/SMC-F
8. DIMENSIONS IN INCHES AND (MILLIMETERS)
9. LEADS: SOLDERABILITY PER MIL-STD-750 METHOD 2026
10. WEIGHT: 0.23 GRAMS
11. RoHS COMPLIANT. ADD “-H” FOR HALOGEN FREE PART.
    i.e. 5.0SMCJ11A: RoHS COMPLIANT
    5.0SMCJ11A -H: RoHS COMPLIANT AND HALOGEN FREE

ELECTRI(C)AL CHARACTERISTICS

MAXIMUM RATINGS (T_A =25°C UNLESS OTHERWISE NOTED)

PARAMETER	CONDITIONS	SYMBOL		UNIT
PEAK POWER DISSIPATION	WITH A 10/1000µS WAVEFORM, SEE NOTE 1, 2 & FIG.1	P_{PPM}	5000	W
PEAK PULSE CURRENT	WITH A 10/1000µS WAVEFORM	I_{PPM}	SEE TABLE	A
STEADY STATE POWER DISSIPATION	AT T_L=75°C, NOTE 2	$P_{M(AV)}$	6.5	W
PEAK FORWARD SURGE CURRENT	8.3mS SINGLE HALF SINEWAVE, NOTE 3	I_{FSM}	300	A
MAXIMUM INSTANTANEOUS FORWARD VOLTAGE	AT 100A FOR UNI-DIRECTIONAL TYPES ONLY	V_F	3.5/5.0	V
OPERATING JUNCTION TEMPERATURE RANGE		T_J	-55 TO +150	°C
STORAGE TEMPERATURE RANGE		T_{STG}	-55 TO +150	°C

Note: 1. Non-repetitive current pulse, per Fig. 3 and derated above T =25°C per Fig. 2
2. Mounted on copper pad area of 0.31"x0.31" (8.0x8.0 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
4. V_F < 3.5V for V_{BR} < 200V and V_F< 5V for V_{BR} >201V.

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Part No.	Reverse Stand-off Voltage	Breakdown Voltage @I_T		Test Current	Maximum Clamping Voltage @I_{PP}		Maximum Reverse Leakage Current	Marking Code	
	V_{RWM}	V_{BR} Min	V_{BR} Max	I_T	V_C	I_{PP}	I_R@V_{RWM}		
	Volts	Volts	Volts	mA	Volts	A	μA	UNI	BI
5.0SMCJ11(C)A	11	12.2	13.5	10	18.2	274.7	800	5PEN	5BEN
5.0SMCJ12(C)A	12	13.3	14.7	10	19.9	251.2	800	5PEP	5BEP
5.0SMCJ13(C)A	13	14.4	15.9	10	21.5	232.5	500	5PEQ	5BEQ
5.0SMCJ14(C)A	14	15.6	17.2	10	23.2	215.5	200	5PER	5BER
5.0SMCJ15(C)A	15	16.7	18.5	1.0	24.4	204.9	100	5PES	5BES
5.0SMCJ16(C)A	16	17.8	19.7	1.0	26.0	192.9	50	5PET	5BET
5.0SMCJ17(C)A	17	18.9	20.9	1.0	27.6	181.0	20	5PEU	5BEU
5.0SMCJ18(C)A	18	20.0	22.1	1.0	29.2	171.2	10	5PEV	5BEV
5.0SMCJ20(C)A	20	22.2	24.5	1.0	32.4	154.3	5	5PEW	5BEW
5.0SMCJ22(C)A	22	24.4	26.9	1.0	35.5	140.8	5	5PEX	5BEX
5.0SMCJ24(C)A	24	26.7	29.5	1.0	38.9	128.5	5	5PEZ	5BEZ
5.0SMCJ26(C)A	26	28.9	31.9	1.0	42.1	118.7	5	5PFE	5BFE
5.0SMCJ28(C)A	28	31.1	34.4	1.0	45.4	110.0	5	5PFG	5BFG
5.0SMCJ30(C)A	30	33.3	36.8	1.0	48.4	103.0	5	5PFK	5BFK
5.0SMCJ33(C)A	33	36.7	40.6	1.0	53.3	93.8	5	5PFM	5BFM
5.0SMCJ36(C)A	36	40.0	44.2	1.0	58.1	86.0	5	5PFP	5BFP
5.0SMCJ40(C)A	40	44.4	49.1	1.0	64.5	77.5	5	5PFR	5BFR
5.0SMCJ43(C)A	43	47.8	52.8	1.0	69.4	72.0	5	5PFT	5BFT
5.0SMCJ45(C)A	45	50.0	55.3	1.0	72.7	68.7	5	5PFV	5BFV
5.0SMCJ48(C)A	48	53.3	58.9	1.0	77.4	64.5	5	5PFX	5BFX
5.0SMCJ51(C)A	51	56.7	62.7	1.0	82.4	60.6	5	5PFZ	5BFZ
5.0SMCJ54(C)A	54	60.0	66.3	1.0	87.1	57.4	5	5PGE	5BGE
5.0SMCJ58(C)A	58	64.4	71.2	1.0	93.6	53.4	5	5PGG	5BGG
5.0SMCJ60(C)A	60	66.7	73.7	1.0	96.8	51.6	5	5PGK	5BGK
5.0SMCJ64(C)A	64	71.1	78.6	1.0	103.0	48.5	5	5PGM	5BGM
5.0SMCJ70(C)A	70	77.8	86.6	1.0	113.0	44.2	5	5PGP	5BGP
5.0SMCJ75(C)A	75	83.3	92.1	1.0	121.0	41.3	5	5PGR	5BGR
5.0SMCJ78(C)A	78	86.7	95.8	1.0	126.0	39.6	5	5PGT	5BGT
5.0SMCJ85(C)A	85	94.4	104	1.0	137.0	36.4	5	5PGV	5BGV
5.0SMCJ90(C)A	90	100	111	1.0	146.0	34.2	5	5PGX	5BGX
5.0SMCJ100(C)A	100	111	123	1.0	162.0	30.8	5	5PGZ	5BGZ
5.0SMCJ110(C)A	110	122	135	1.0	177.0	28.2	5	5PHE	5BHE
5.0SMCJ120(C)A	120	133	147	1.0	193.0	25.9	5	5PHG	5BHG
5.0SMCJ130(C)A	130	144	159	1.0	209.0	23.9	5	5PHK	5BHK
5.0SMCJ150(C)A	150	167	185	1.0	243.0	20.5	5	5PHM	5BHM
5.0SMCJ160(C)A	160	178	197	1.0	259.0	19.3	5	5PHP	5BHP
5.0SMCJ170(C)A	170	189	209	1.0	275.0	18.1	5	5PHR	5BHR

Note 1. V_{BR} measured after I_T applied for 300us, I_T=square wave pulse or equivalent

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2. Surge current waveform per Fig. 3 and derated per Fig. 2
3. For bi-directional types having V_{RWM} of 20 volts and less, the I_R 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 electri(C)Al overstress such as that (C)Aused 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. 7 & Fig. 8

RATINGS AND CHARACTERISTIC CURVES

Fig.1 - Pealk Pulse Power Rating Curve

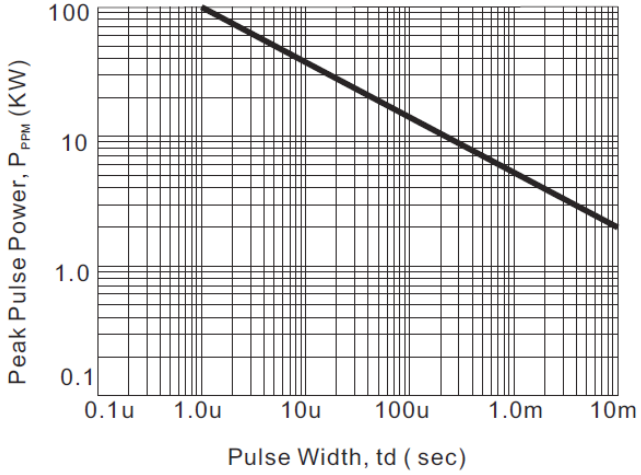

Fig.2 - Pulse Derating Curve

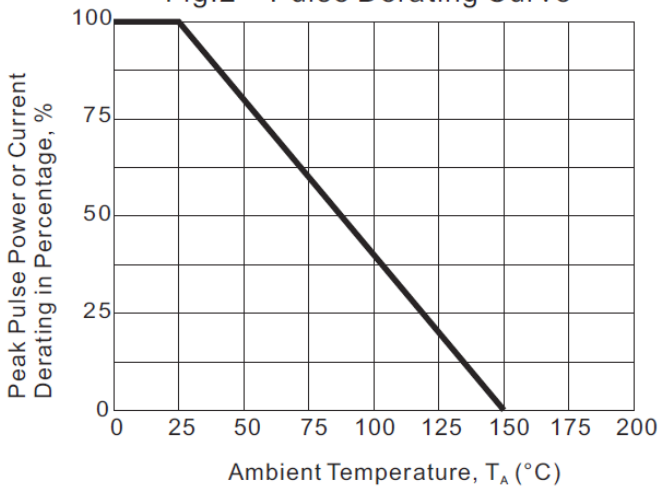

Fig.3 - Pulse Waveform

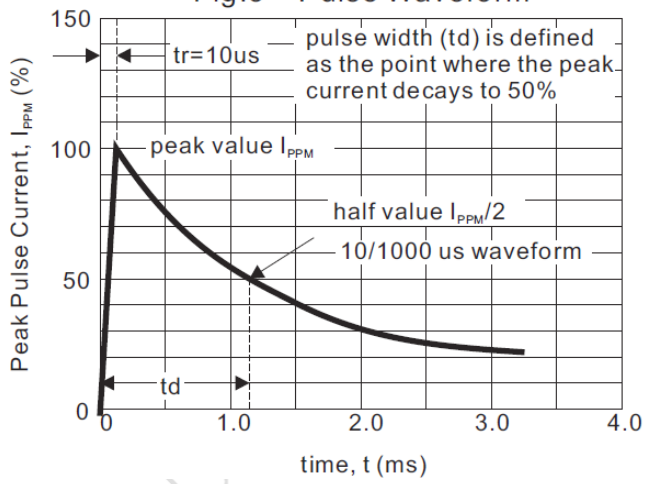

Fig.4 - Typical Junction Capacitance

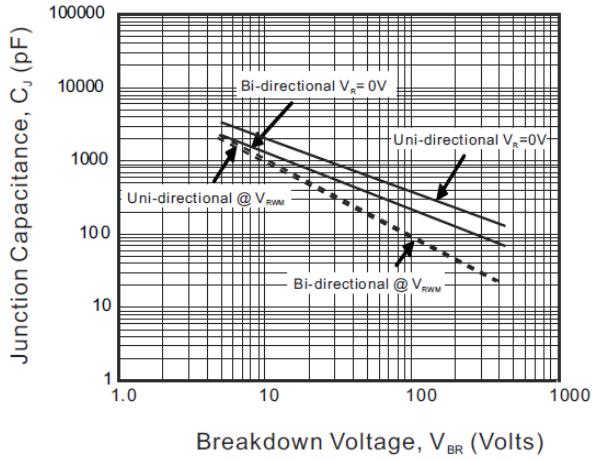

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Fig.5 - Steady State Power Derating Curve

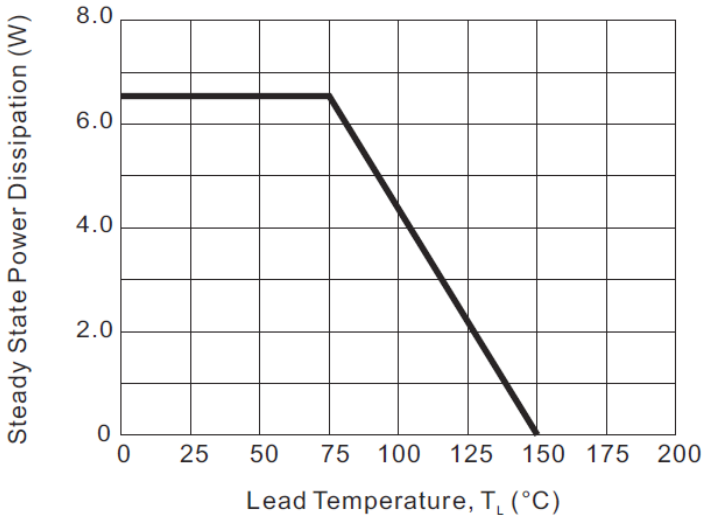

Fig.6 - Maximum Non-Repetitive Forward Surge Current

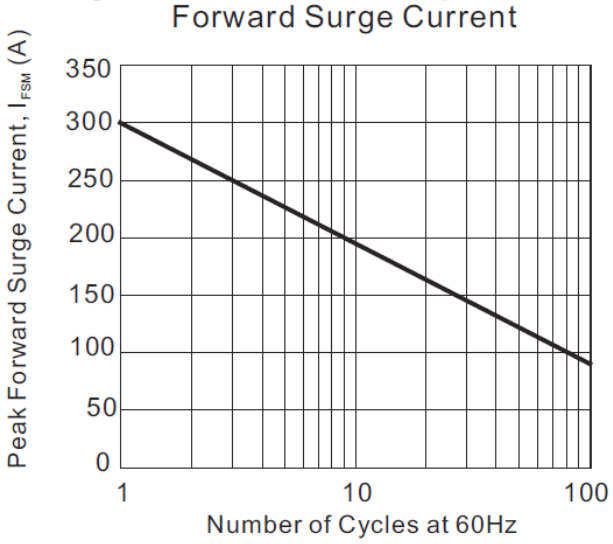

Fig. 7 - Transients of several thousand volts can be clamped to a safe level by the TVS

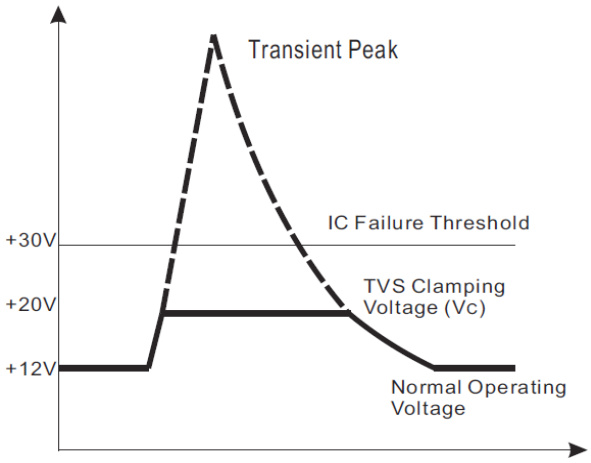

Fig. 8 - Transient current is divered to ground thru TVS; the voltage seen by the protected load is limited to the clamping voltage level