

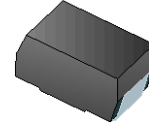
RoHS Compliant Product

A suffix of "-C" specifies halogen-free and lead-free

FEATURES

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260°C/10s at terminals
- Meets MSL level 1

SMC



MECHANICAL DATA

- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types

PACKAGE INFORMATION

Package	MPQ	Leader Size
SMC	3K	13 inch

ORDER INFORMATION

Part Number	Type
SMCJ Series-C	Lead (Pb)-free and Halogen-free

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Maximum Instantaneous Forward Voltage @100A for unidirectional only	V _F	V _{BR} ≤220V	3.5
		V _{BR} >220V	5
Peak Pulse Power Dissipation ^{1 2} @10/1000us waveform	P _{PP}	1500	W
Peak Pulsed Current ¹ @10/1000us waveform	I _{PP}	See next table.	A
Peak Forward Surge Current ³ @8.3ms single Half Sine-Wave	I _{FSM}	200	A
Power Dissipation @T _L =75°C ²	P _D	6.5	W
Operating and Storage Temperature Range	T _J , T _{STG}	-55~150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient ⁴	R _{θJA}	75	°C/W
Thermal Resistance Junction-Lead	R _{θJL}	15	

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.
2. Mounted on 0.31 x 0.31" (8 x 8mm) 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.
4. Mounted on minimum recommended pad layout.

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Maximum Clamping Voltage	Peak Pulse Current	Max. Reverse Leakage Current
			Min.	Max.				
		V _{RWM}	V _{BR} @I _T		I _T ¹	V _C @I _{PP}	I _{PP} ²	I _R ³ @V _{RWM}
Uni	Bi	V	V		mA	V	A	µA
SMCJ5.0A-C	SMCJ5.0CA-C	5	6.4	7.07	10	9.2	163.04	1000
SMCJ6.0A-C	SMCJ6.0CA-C	6	6.67	7.37	10	10.3	145.63	1000
SMCJ6.5A-C	SMCJ6.5CA-C	6.5	7.22	7.98	10	11.2	133.9	500
SMCJ7.0A-C	SMCJ7.0CA-C	7	7.78	8.6	10	12	125	200
SMCJ7.5A-C	SMCJ7.5CA-C	7.5	8.33	9.21	1	12.9	116.28	100
SMCJ8.0A-C	SMCJ8.0CA-C	8	8.89	9.83	1	13.6	110.29	50
SMCJ8.5A-C	SMCJ8.5CA-C	8.5	9.44	10.4	1	14.4	104.17	20
SMCJ9.0A-C	SMCJ9.0CA-C	9	10	11.1	1	15.4	97.4	10
SMCJ10A-C	SMCJ10CA-C	10	11.1	12.3	1	17	88.24	5
SMCJ11A-C	SMCJ11CA-C	11	12.2	13.5	1	18.2	82.42	5
SMCJ12A-C	SMCJ12CA-C	12	13.3	14.7	1	19.9	75.38	5
SMCJ13A-C	SMCJ13CA-C	13	14.4	15.9	1	21.5	69.77	5
SMCJ14A-C	SMCJ14CA-C	14	15.6	17.2	1	23.2	64.66	5
SMCJ15A-C	SMCJ15CA-C	15	16.7	18.5	1	24.4	61.48	5
SMCJ16A-C	SMCJ16CA-C	16	17.8	19.7	1	26	57.69	5
SMCJ17A-C	SMCJ17CA-C	17	18.9	20.9	1	27.6	54.35	5
SMCJ18A-C	SMCJ18CA-C	18	20	22.1	1	29.2	51.37	5
SMCJ19A-C	SMCJ19CA-C	19	21.1	23.3	1	30.8	48.73	5
SMCJ20A-C	SMCJ20CA-C	20	22.2	24.5	1	32.4	46.3	5
SMCJ22A-C	SMCJ22CA-C	22	24.4	26.9	1	35.5	42.25	1
SMCJ24A-C	SMCJ24CA-C	24	26.7	29.5	1	38.9	38.56	1
SMCJ26A-C	SMCJ26CA-C	26	28.9	31.9	1	42.1	35.63	1
SMCJ28A-C	SMCJ28CA-C	28	31.1	34.4	1	45.4	33.04	1
SMCJ30A-C	SMCJ30CA-C	30	33.3	36.8	1	48.4	30.99	1
SMCJ33A-C	SMCJ33CA-C	33	36.7	40.6	1	53.3	28.14	1
SMCJ36A-C	SMCJ36CA-C	36	40	44.2	1	58.1	25.82	1
SMCJ40A-C	SMCJ40CA-C	40	44.4	49.1	1	64.5	23.26	1
SMCJ43A-C	SMCJ43CA-C	43	47.8	52.8	1	69.4	21.61	1
SMCJ45A-C	SMCJ45CA-C	45	50	55.3	1	72.7	20.63	1
SMCJ48A-C	SMCJ48CA-C	48	53.3	58.9	1	77.4	19.38	1
SMCJ51A-C	SMCJ51CA-C	51	56.7	62.7	1	82.4	18.2	1

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Maximum Clamping Voltage	Peak Pulse Current	Max. Reverse Leakage Current
			Min.	Max.				
		V_{RWM}	$V_{BR} @ I_T$		I_T^1	$V_C @ I_{PP}$	I_{PP}^2	$I_R^3 @ V_{RWM}$
Uni	Bi	V	V		mA	V	A	μA
SMCJ54A-C	SMCJ54CA-C	54	60	66.3	1	87.1	17.22	1
SMCJ58A-C	SMCJ58CA-C	58	64.4	71.2	1	93.6	16.03	1
SMCJ60A-C	SMCJ60CA-C	60	66.7	73.7	1	96.8	15.5	1
SMCJ64A-C	SMCJ64CA-C	64	71.1	78.6	1	103	14.56	1
SMCJ70A-C	SMCJ70CA-C	70	77.8	86	1	113	13.27	1
SMCJ75A-C	SMCJ75CA-C	75	83.3	92.1	1	121	12.4	1
SMCJ78A-C	SMCJ78CA-C	78	86.7	95.8	1	126	11.9	1
SMCJ80A-C	SMCJ80CA-C	80	88.8	97.6	1	129.6	11.57	1
SMCJ85A-C	SMCJ85CA-C	85	94.4	104	1	137	10.95	1
SMCJ90A-C	SMCJ90CA-C	90	100	111	1	146	10.27	1
SMCJ100A-C	SMCJ100CA-C	100	111	123	1	162	9.26	1
SMCJ110A-C	SMCJ110CA-C	110	122	135	1	177	8.47	1
SMCJ120A-C	SMCJ120CA-C	120	133	147	1	193	7.77	1
SMCJ130A-C	SMCJ130CA-C	130	144	159	1	209	7.18	1
SMCJ140A-C	SMCJ140CA-C	140	155	171	1	226.8	6.61	1
SMCJ150A-C	SMCJ150CA-C	150	167	185	1	243	6.17	1
SMCJ160A-C	SMCJ160CA-C	160	178	197	1	259	5.79	1
SMCJ170A-C	SMCJ170CA-C	170	189	209	1	275	5.45	1
SMCJ180A-C	SMCJ180CA-C	180	200	220	1	291.6	5.14	1
SMCJ190A-C	SMCJ190CA-C	190	211	232	1	307.8	4.87	1
SMCJ200A-C	SMCJ200CA-C	200	224	247	1	324	4.63	1
SMCJ220A-C	SMCJ220CA-C	220	246	272	1	356	4.2	1
SMCJ250A-C	SMCJ250CA-C	250	279	309	1	405	3.7	1
SMCJ300A-C	SMCJ300CA-C	300	335	371	1	486	3.1	1
SMCJ350A-C	SMCJ350CA-C	350	391	432	1	567	2.65	1
SMCJ400A-C	SMCJ400CA-C	400	447	494	1	648	2.31	1
SMCJ440A-C	SMCJ440CA-C	440	492	543	1	713	2.1	1

Notes:

1. Pulse Test: $t_p \leq 50\text{ms}$ Pulse test: $t_p \leq 50\text{ms}$.
2. Surge current waveform per Fig.3 and derated per Fig.2.
3. For bi-directional types having V_{RWM} of 10V and less, the I_R limit is doubled.
4. For the bi-directional SMCJ5.0CA, the maximum V_{BR} is 7.25V

CHARACTERISTIC CURVE

FIG1: Peak Pulse Power Rating Curve

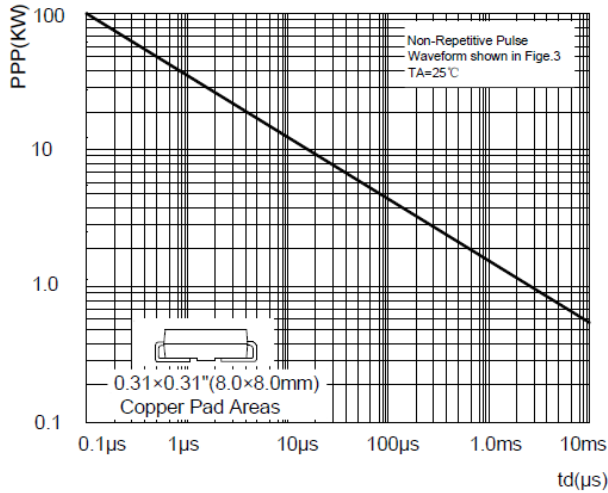


FIG2: Pulse Power or Current vs. Initial Junction Temperature

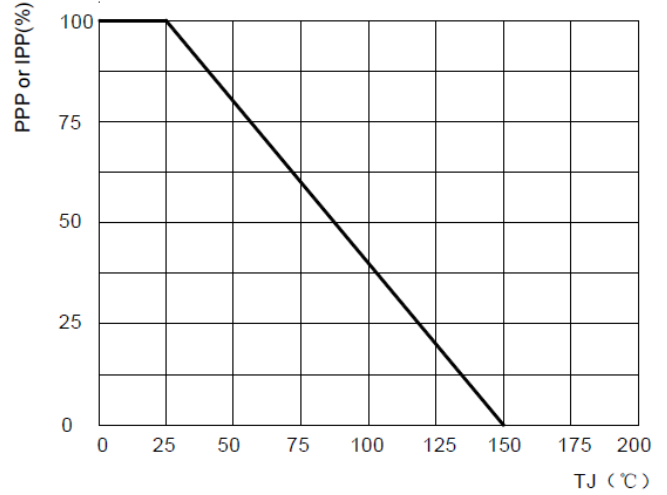


FIG3: Pulse Waveform

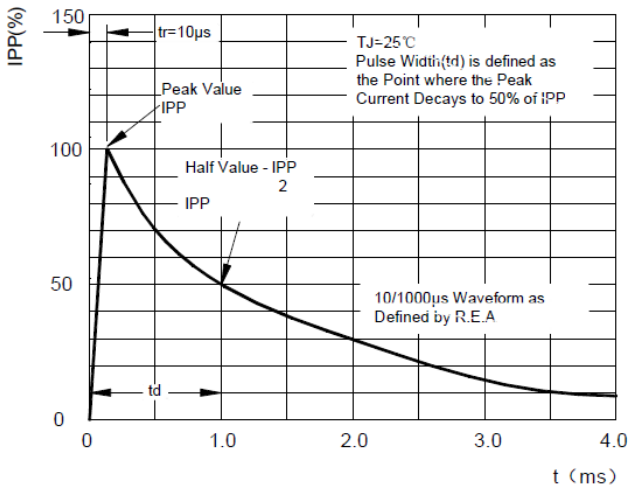


FIG4: Typical Transient Thermal Impedance

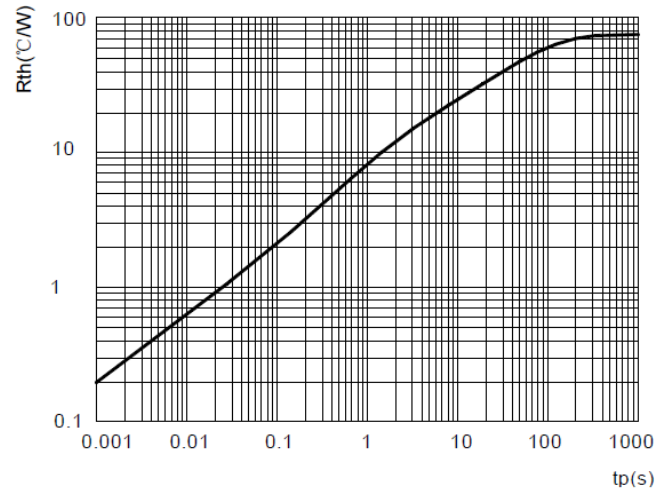


FIG5: Maximum Non-Repetitive Surge Current

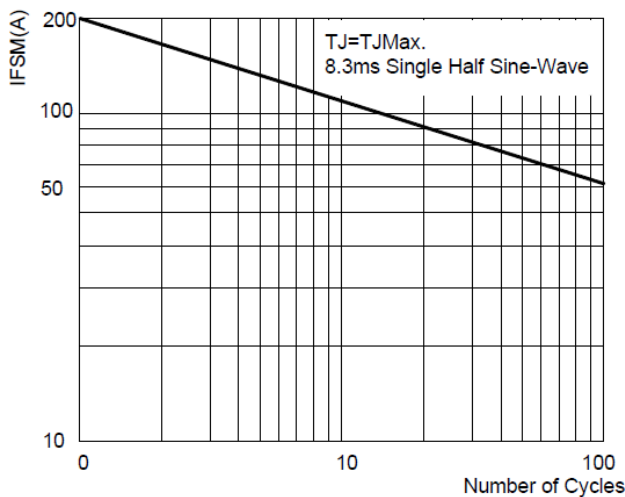
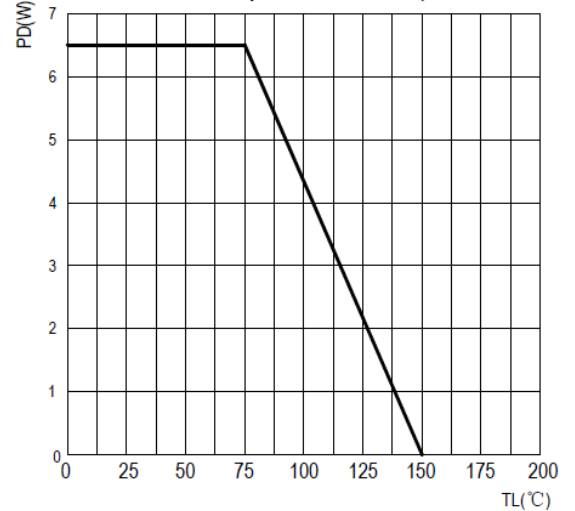
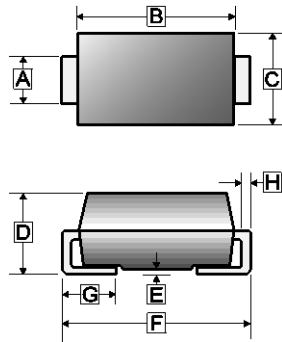


FIG6: Steady State Power Dissipation



PACKAGE OUTLINE DIMENSIONS

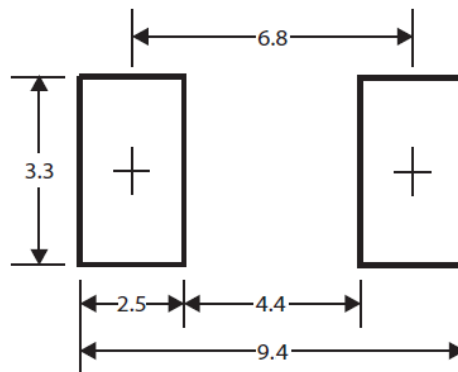
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REF.	Millimeter	
	Min.	Max.
A	2.75	3.27
B	6.52	7.11
C	5.50	6.22
D	1.98	2.62
E	-	0.203
F	7.64	8.17
G	0.75	1.60
H	0.23 TYP.	

MOUNTING PAD LAYOUT

SMC



*Dimensions in millimeters