

RoHS Compliant Product  
A suffix of "-C" specifies halogen-free and lead-free

## FEATURES

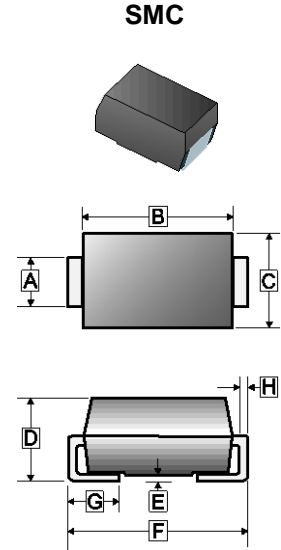
- Qualified to AEC-Q101 standards for high reliability
- Available in uni-directional polarity only
- Excellent clamping capability and Fast response time
- Moisture sensitivity: level 1, per J-STD-020
- 1500W peak pulse power capability with a 10/1000 $\mu$ s waveform
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

## MECHANICAL DATA

- Case: Molded Plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-202, Method 208 Guaranteed
- Polarity: Color band denotes cathode end except Bidirectional

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SMC	3K	13 inch



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

## ORDER INFORMATION

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

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

(Rating 25°C ambient temperature unless otherwise specified. Single phase half wave, 60Hz, resistive or inductive load.  
For capacitive load, de-rate current by 20%.)

Parameter	Symbol	Ratings	Unit
Peak Pulse Power Dissipation <sup>1 2</sup> @10/1000us waveform	P <sub>PP</sub>	1500	W
Peak Pulsed Current <sup>1</sup> @10/1000us waveform	I <sub>PP</sub>	(See next table.)	A
Peak Forward Surge Current <sup>3</sup> @8.3ms single Half Sine-Wave	I <sub>FSM</sub>	200	A
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient <sup>2</sup>	R <sub>θJA</sub>	75	°C/W
Thermal Resistance Junction-Lead <sup>2</sup>	R <sub>θJL</sub>	15	

Notes:

1. Non-repetitive current pulse, on Fig. 3 and derated above T<sub>A</sub>=25°C per Fig. 2.
2. Mounted on copper pad area of 0.31 x 0.31" (8.0 x 8.0mm) to each terminal.
3. Measured on 8.3ms single half sine-wave or equivalent square wave for unidirectional device only.

**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.				
Uni	Bi	$V_{RWM}$	$V_{BR} @ I_T$		$I_T$	$V_C @ I_{PP}$	$I_{PP}$	$I_R @ V_{RWM}$
		V	V		mA	V	A	$\mu\text{A}$
SMCJ5.0ACR-C	-	5	6.4	7.07	10	9.2	163	1000
-	SMCJ5.0CACR-C	5	6.4	7.25	10	9.2	163	1000
SMCJ6.0ACR-C	SMCJ6.0CACR-C	6	6.67	7.37	10	10.3	145.6	1000
SMCJ6.5ACR-C	SMCJ6.5CACR-C	6.5	7.22	7.98	10	11.2	133.9	500
SMCJ7.0ACR-C	SMCJ7.0CACR-C	7	7.78	9.6	10	12	125	200
SMCJ7.5ACR-C	SMCJ7.5CACR-C	7.5	8.33	9.21	1	12.9	116.3	100
SMCJ8.0ACR-C	SMCJ8.0CACR-C	8	8.89	9.83	1	13.6	110.3	50
SMCJ8.5ACR-C	SMCJ8.5CACR-C	8.5	9.44	10.4	1	14.4	104.2	20
SMCJ9.0ACR-C	SMCJ9.0CACR-C	9	10	11.1	1	15.4	97.4	10
SMCJ10ACR-C	SMCJ10CACR-C	10	11.1	12.3	1	17	88.2	5
SMCJ11ACR-C	SMCJ11CACR-C	11	12.2	13.5	1	18.2	82.4	5
SMCJ12ACR-C	SMCJ12CACR-C	12	13.3	14.7	1	19.9	75.4	5
SMCJ13ACR-C	SMCJ13CACR-C	13	14.4	15.9	1	21.5	69.8	1
SMCJ14ACR-C	SMCJ14CACR-C	14	15.6	17.2	1	23.2	64.7	1
SMCJ15ACR-C	SMCJ15CACR-C	15	16.7	18.5	1	24.4	61.5	1
SMCJ16ACR-C	SMCJ16CACR-C	16	17.8	19.7	1	26	57.7	1
SMCJ17ACR-C	SMCJ17CACR-C	17	18.9	20.9	1	27.6	54.3	1
SMCJ18ACR-C	SMCJ18CACR-C	18	20	22.1	1	29.2	51.4	1
SMCJ20ACR-C	SMCJ20CACR-C	20	22.2	24.5	1	32.4	46.3	1
SMCJ22ACR-C	SMCJ22CACR-C	22	24.4	26.9	1	35.5	42.3	1
SMCJ24ACR-C	SMCJ24CACR-C	24	26.7	29.5	1	38.9	38.6	1
SMCJ26ACR-C	SMCJ26CACR-C	26	28.9	31.9	1	42.1	35.6	1
SMCJ28ACR-C	SMCJ28CACR-C	28	31.1	34.4	1	45.4	33	1
SMCJ30ACR-C	SMCJ30CACR-C	30	33.3	36.8	1	48.4	31	1
SMCJ33ACR-C	SMCJ33CACR-C	33	36.7	40.6	1	53.3	28.1	1
SMCJ36ACR-C	SMCJ36CACR-C	36	40	44.4	1	58.1	25.8	1
SMCJ40ACR-C	SMCJ40CACR-C	40	44.4	49.1	1	64.5	23.3	1
SMCJ43ACR-C	SMCJ43CACR-C	43	47.8	52.8	1	69.4	21.6	1
SMCJ45ACR-C	SMCJ45CACR-C	45	50	55.3	1	72.7	20.6	1
SMCJ48ACR-C	SMCJ48CACR-C	48	53.3	58.9	1	77.4	19.4	1
SMCJ51ACR-C	SMCJ51CACR-C	51	56.7	62.7	1	82.4	18.2	1

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

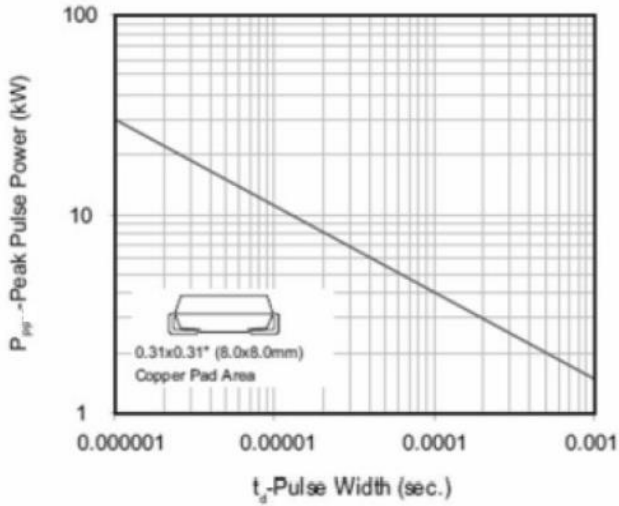
Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Maximum Clamping Voltage	Peak Pulse Current	Max. Reverse Leakage Current
			Min.	Max.				
		$V_{RWM}$	$V_{BR} @ I_T$		$I_T$	$V_C @ I_{PP}$	$I_{PP}$	$I_R @ V_{RWM}$
Uni-direction	Bi-direction	V	V		mA	V	A	$\mu\text{A}$
SMCJ54ACR-C	SMCJ54CACR-C	54	60	66.3	1	87.1	17.2	1
SMCJ58ACR-C	SMCJ58CACR-C	58	64.4	71.2	1	93	16	1
SMCJ60ACR-C	SMCJ60CACR-C	60	66.7	73.7	1	96	15.5	1
SMCJ64ACR-C	SMCJ64CACR-C	64	71.1	78.6	1	103	14.6	1
SMCJ70ACR-C	SMCJ70CACR-C	70	77.8	96	1	113	13.3	1
SMCJ75ACR-C	SMCJ75CACR-C	75	83.3	92.1	1	121	12.4	1
SMCJ78ACR-C	SMCJ78CACR-C	78	86.7	95.8	1	126	11.9	1
SMCJ85ACR-C	SMCJ85CACR-C	85	94.4	104	1	137	10.9	1
SMCJ90ACR-C	SMCJ90CACR-C	90	100	111	1	146	10.3	1
SMCJ100ACR-C	SMCJ100CACR-C	100	111	123	1	162	9.3	1
SMCJ110ACR-C	SMCJ110CACR-C	110	122	135	1	177	8.5	1
SMCJ120ACR-C	SMCJ120CACR-C	120	133	147	1	193	7.8	1
SMCJ130ACR-C	SMCJ130CACR-C	130	144	159	1	209	7.2	1
SMCJ150ACR-C	SMCJ150CACR-C	150	167	185	1	243	6.2	1
SMCJ160ACR-C	SMCJ160CACR-C	160	178	197	1	259	5.8	1
SMCJ170ACR-C	SMCJ170CACR-C	170	189	209	1	275	5.5	1
SMCJ180ACR-C	SMCJ180CACR-C	180	201	222	1	292	5	1
SMCJ200ACR-C	SMCJ200CACR-C	200	224	247	1	324	4.6	1
SMCJ220ACR-C	SMCJ220CACR-C	220	246	272	1	356	4.2	1
SMCJ250ACR-C	SMCJ250CACR-C	250	279	309	1	405	3.7	1
SMCJ300ACR-C	SMCJ300CACR-C	300	335	371	1	486	3.1	1
SMCJ350ACR-C	SMCJ350CACR-C	350	391	432	1	567	2.6	1
SMCJ400ACR-C	SMCJ400CACR-C	400	447	494	1	648	2.3	1
SMCJ440ACR-C	SMCJ440CACR-C	440	492	543	1	713	2.1	1

Notes:

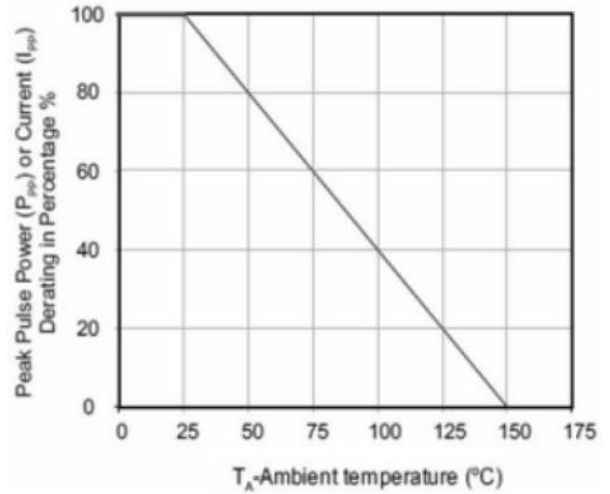
- $V_{BR}$  measure after  $I_T$  applied for 10-50ms square wave pulse or equivalent.
- Surge current waveform per Fig. 3 and de-rate per Fig. 2.

**CHARACTERISTIC CURVE**

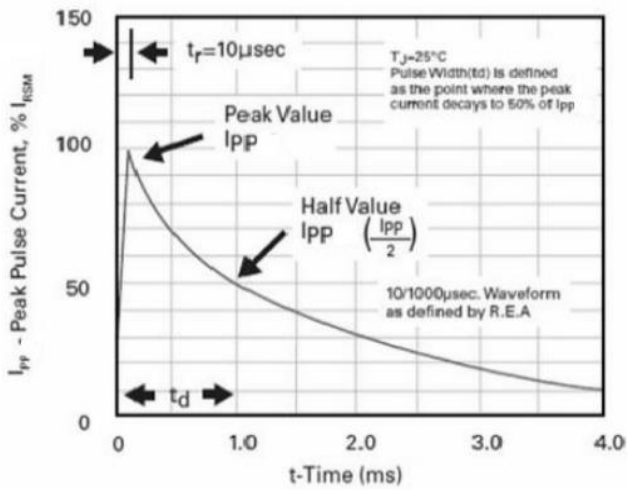
**Figure 1 - Peak Pulse Power Rating**



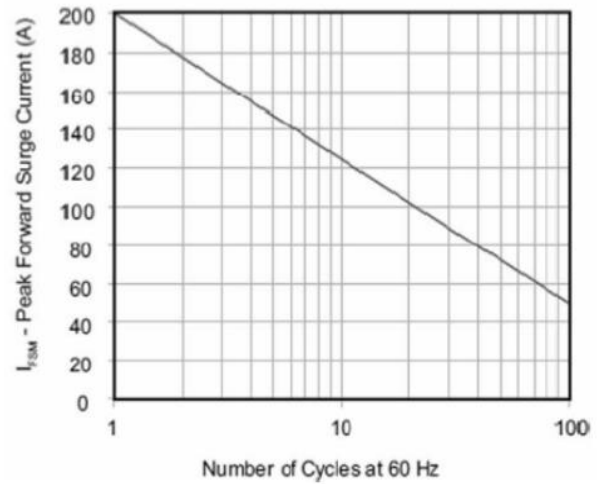
**Figure 2 - Pulse Derating Curve**



**Figure 3 - Pulse Waveform**



**Figure 4 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only**



**Figure 5 - Mounting Pad Layout**

