Elektronische Bauelemente

SMBJ Series CR-C

Voltage 5V~440V

600W Peak Power Surface Mount TVS

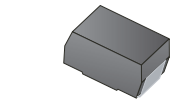
RoHS Compliant Product

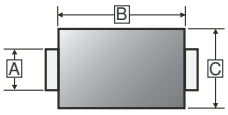
A suffix of "-C" specifies halogen-free and lead-free

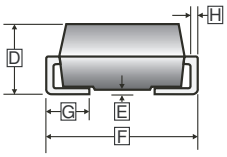
FEATURES

- Qualified to AEC-Q101 standards for high reliability
- Plastic package Underwriters Laboratory Flammability Classification 94V-0
- For surface mount application
- Glass passivated junction
- Low incremental surge resistance, Excellent clamping capability
- 600W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%
- Very fast response time
- High temperature soldering guaranteed: 250°C / 10 seconds at terminals

SMB







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.85	2.20	E	-	0.25
B	4.00	4.85	F	5.07	5.59
C	3.25	3.94	G	0.75	1.52
D	1.99	2.61	H	0.15	0.31

MECHANICAL DATA

- Case: Molded plastic
- Lead: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: For unidirectional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation

PACKAGE INFORMATION

Package	MPQ	Leader Size
SMB	3K	13 inch

ORDER INFORMATION

Part Number	Type
SMBJ 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, derate current by 20%.)

Rating	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation [1] [2] @10/1000us waveform	P_{PP}	600	W
Minimum Peak Pulse Current [1] @10/1000us waveform	I_{PP}	(See next table.)	A
Peak Forward Surge Current [2] @8.3ms single half sine-wave for uni-directional only	I_{FSM}	100	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	100	°C/ W
Thermal Resistance Junction-Case	$R_{\theta JC}$	20	

Notes:

1. Non-repetitive current pulse, on Fig. 3 and derated above T_A=25°C per Fig. 2.
2. Mounted on 0.2 x 0.2" (0.5 x 0.5 mm) copper pads to each terminal.
3. Mounted on minimum recommended pad layout.

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

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage V_{BR} @I_T		Test Current	Maximum Clamping Voltage V_C @I_{PP}	Peak Pulse Current	Reverse Leakage I_R @V_{RWM}
			Min.	Max.				
Directional		V_{RWM}	V_{BR}		I_T	V_C	I_{PP}	I_R
Uni	Bi	V	V	V	mA	V	A	μA
SMBJ5.0ACR-C	-	5	6.4	7.07	10	9.2	65.2	800
-	SMBJ5.0CACR-C	5	6.4	7.25	10	9.2	65.2	800
SMBJ6.0ACR-C	SMBJ6.0CACR-C	6	6.67	7.37	10	10.3	58.3	800
SMBJ6.5ACR-C	SMBJ6.5CACR-C	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0ACR-C	SMBJ7.0CACR-C	7	7.78	8.6	10	12.0	50	200
SMBJ7.5ACR-C	SMBJ7.5CACR-C	7.5	8.33	9.21	1	12.9	46.5	100
SMBJ8.0ACR-C	SMBJ8.0CACR-C	8	8.89	9.83	1	13.6	44.1	50
SMBJ8.5ACR-C	SMBJ8.5CACR-C	8.5	9.44	10.4	1	14.4	41.7	20
SMBJ9.0ACR-C	SMBJ9.0CACR-C	9	10.0	11.1	1	15.4	39.0	10
SMBJ10ACR-C	SMBJ10CACR-C	10	11.1	12.3	1	17.0	35.3	5
SMBJ11ACR-C	SMBJ11CACR-C	11	12.2	13.5	1	18.2	33.0	5
SMBJ12ACR-C	SMBJ12CACR-C	12	13.3	14.7	1	19.9	30.2	5
SMBJ13ACR-C	SMBJ13CACR-C	13	14.4	15.9	1	21.5	27.9	1
SMBJ14ACR-C	SMBJ14CACR-C	14	15.6	17.2	1	23.2	25.9	1
SMBJ15ACR-C	SMBJ15CACR-C	15	16.7	18.5	1	24.4	24.6	1
SMBJ16ACR-C	SMBJ16CACR-C	16	17.8	19.7	1	26.0	23.1	1
SMBJ17ACR-C	SMBJ17CACR-C	17	18.9	20.9	1	27.6	21.7	1
SMBJ18ACR-C	SMBJ18CACR-C	18	20	22.1	1	29.2	20.5	1
SMBJ20ACR-C	SMBJ20CACR-C	20	22.2	24.5	1	32.4	18.5	1
SMBJ22ACR-C	SMBJ22CACR-C	22	24.4	26.9	1	35.5	16.9	1
SMBJ24ACR-C	SMBJ24CACR-C	24	26.7	29.5	1	38.9	15.4	1
SMBJ26ACR-C	SMBJ26CACR-C	26	28.9	31.9	1	42.1	14.3	1
SMBJ28ACR-C	SMBJ28CACR-C	28	31.1	34.4	1	45.4	13.2	1
SMBJ30ACR-C	SMBJ30CACR-C	30	33.3	36.8	1	48.4	12.4	1
SMBJ33ACR-C	SMBJ33CACR-C	33	36.7	40.6	1	53.3	11.3	1
SMBJ36ACR-C	SMBJ36CACR-C	36	40.0	44.2	1	58.1	10.3	1
SMBJ40ACR-C	SMBJ40CACR-C	40	44.4	49.1	1	64.5	9.3	1
SMBJ43ACR-C	SMBJ43CACR-C	43	47.8	52.8	1	69.4	8.6	1
SMBJ45ACR-C	SMBJ45CACR-C	45	50.0	55.3	1	72.7	8.3	1
SMBJ48ACR-C	SMBJ48CACR-C	48	53.3	58.9	1	77.4	7.8	1
SMBJ51ACR-C	SMBJ51CACR-C	51	56.7	62.7	1	82.4	7.3	1
SMBJ54ACR-C	SMBJ54CACR-C	54	60.0	66.3	1	87.1	6.9	1

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

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage V_{BR} @ I_T		Test Current	Maximum Clamping Voltage V_C @I_{PP}	Peak Pulse Current	Reverse Leakage I_R @V_{RWM}
			Min	Max				
Directional		V_{RWM}	V_{BR}		I_T	V_C	I_{PP}	I_R
Uni	Bi	V	V	V	mA	V	A	μA
SMBJ58ACR-C	SMBJ58CACR-C	58	64.4	71.2	1	93.6	6.4	1
SMBJ60ACR-C	SMBJ60CACR-C	60	66.7	73.7	1	96.8	6.2	1
SMBJ64ACR-C	SMBJ64CACR-C	64	71.1	78.6	1	103	5.8	1
SMBJ70ACR-C	SMBJ70CACR-C	70	77.8	86	1	113	5.3	1
SMBJ75ACR-C	SMBJ75CACR-C	75	83.3	92.1	1	121	5.0	1
SMBJ78ACR-C	SMBJ78CACR-C	78	86.7	95.8	1	126	4.8	1
SMBJ85ACR-C	SMBJ85CACR-C	85	94.4	104	1	137	4.4	1
SMBJ90ACR-C	SMBJ90CACR-C	90	100	111	1	146	4.1	1
SMBJ100ACR-C	SMBJ100CACR-C	100	111	123	1	162	3.7	1
SMBJ110ACR-C	SMBJ110CACR-C	110	122	135	1	177	3.4	1
SMBJ120ACR-C	SMBJ120CACR-C	120	133	147	1	193	3.1	1
SMBJ130ACR-C	SMBJ130CACR-C	130	144	159	1	209	2.9	1
SMBJ150ACR-C	SMBJ150CACR-C	150	167	185	1	243	2.5	1
SMBJ160ACR-C	SMBJ160CACR-C	160	178	197	1	259	2.3	1
SMBJ170ACR-C	SMBJ170CACR-C	170	189	209	1	275	2.2	1
SMBJ180ACR-C	SMBJ180CACR-C	180	201	222	1	292	2.1	1
SMBJ200ACR-C	SMBJ200CACR-C	200	224	247	1	324	1.9	1
SMBJ220ACR-C	SMBJ220CACR-C	220	246	272	1	356	1.7	1
SMBJ250ACR-C	SMBJ250CACR-C	250	279	309	1	405	1.5	1
SMBJ300ACR-C	SMBJ300CACR-C	300	335	371	1	486	1.3	1
SMBJ350ACR-C	SMBJ350CACR-C	350	391	432	1	567	1.1	1
SMBJ400ACR-C	SMBJ400CACR-C	400	447	494	1	648	0.9	1
SMBJ440ACR-C	SMBJ440CACR-C	440	492	543	1	713	0.9	1

Notes:

1. $V_{(BR)}$ measured after I_T applied for 300us square wave pulse or equivalent.
2. Surge current waveform per Fig. 3 and derate per Fig. 2.
3. For Bi-directional types having V_{WM} of 10 Volts and less, the I_D limit is doubled.
4. All terms and symbols are consistent with ANSI/IEEE C62.35.

Elektronische Bauelemente

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Voltage 5V~440V

600W Peak Power Surface Mount TVS

RATINGS AND CHARACTERISTIC CURVES

Fig. 1 – Peak Pulse Power Rating Curve

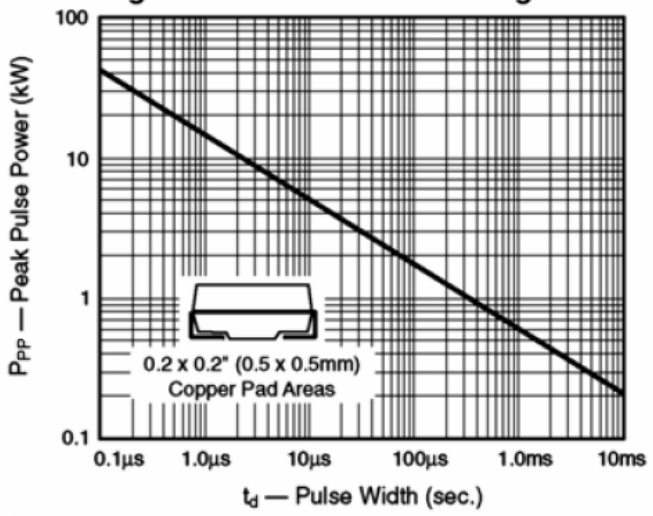

Fig. 2 – Pulse Derating Curve

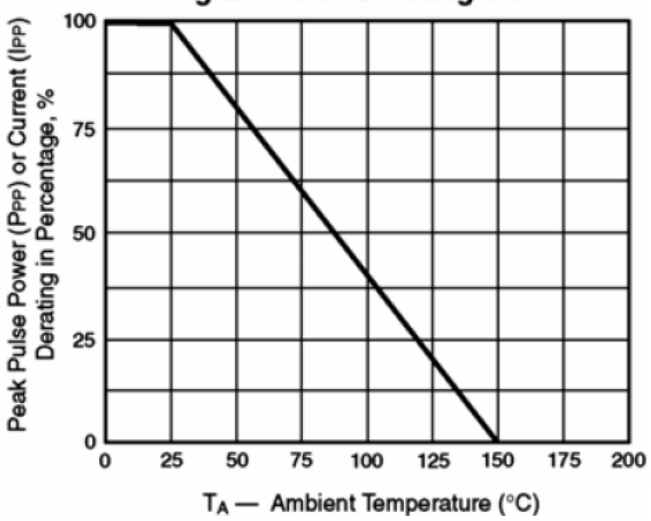

Fig. 3 – Pulse Waveform

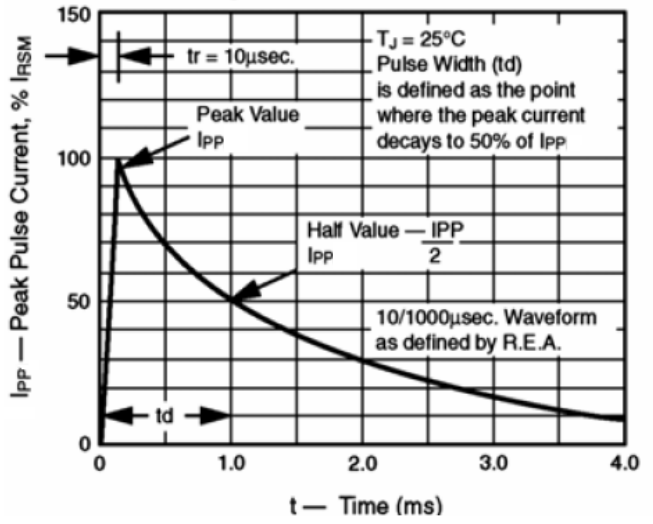

Fig. 4 – Typical Junction Capacitance

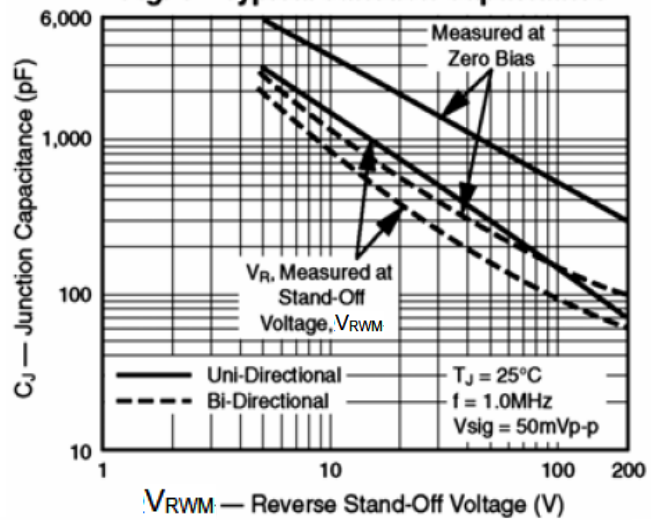

Fig. 5 – Typical Transient Thermal Impedance

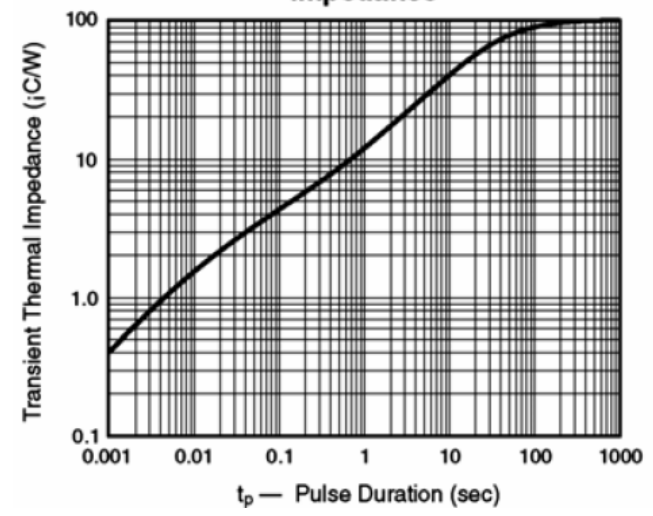

Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current