Elektronische Bauelemente

SMBJ Series

Voltage 5V ~ 440V

600W Peak Power Surface Mount TVS

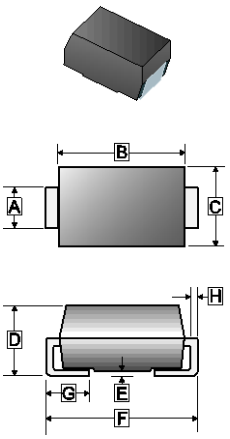
RoHS Compliant Product

A suffix of “-C” specifies halogen-free and lead-free

FEATURES

- 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

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

(Rating 25℃ 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
SMBJ5.0A	-	5	6.4	7.07	10	9.2	65.2	800
-	SMBJ5.0CA	5	6.4	7.25	10	9.2	65.2	800
SMBJ6.0A	SMBJ6.0CA	6	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	7	7.78	8.6	10	12.0	50	200
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.21	1	12.9	46.5	100
SMBJ8.0A	SMBJ8.0CA	8	8.89	9.83	1	13.6	44.1	50
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.4	1	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	9	10.0	11.1	1	15.4	39.0	10
SMBJ10A	SMBJ10CA	10	11.1	12.3	1	17.0	35.3	5
SMBJ11A	SMBJ11CA	11	12.2	13.5	1	18.2	33.0	5
SMBJ12A	SMBJ12CA	12	13.3	14.7	1	19.9	30.2	5
SMBJ13A	SMBJ13CA	13	14.4	15.9	1	21.5	27.9	1
SMBJ14A	SMBJ14CA	14	15.6	17.2	1	23.2	25.9	1
SMBJ15A	SMBJ15CA	15	16.7	18.5	1	24.4	24.6	1
SMBJ16A	SMBJ16CA	16	17.8	19.7	1	26.0	23.1	1
SMBJ17A	SMBJ17CA	17	18.9	20.9	1	27.6	21.7	1
SMBJ18A	SMBJ18CA	18	20	22.1	1	29.2	20.5	1
SMBJ20A	SMBJ20CA	20	22.2	24.5	1	32.4	18.5	1
SMBJ22A	SMBJ22CA	22	24.4	26.9	1	35.5	16.9	1
SMBJ24A	SMBJ24CA	24	26.7	29.5	1	38.9	15.4	1
SMBJ26A	SMBJ26CA	26	28.9	31.9	1	42.1	14.3	1
SMBJ28A	SMBJ28CA	28	31.1	34.4	1	45.4	13.2	1
SMBJ30A	SMBJ30CA	30	33.3	36.8	1	48.4	12.4	1
SMBJ33A	SMBJ33CA	33	36.7	40.6	1	53.3	11.3	1
SMBJ36A	SMBJ36CA	36	40.0	44.2	1	58.1	10.3	1
SMBJ40A	SMBJ40CA	40	44.4	49.1	1	64.5	9.3	1
SMBJ43A	SMBJ43CA	43	47.8	52.8	1	69.4	8.6	1
SMBJ45A	SMBJ45CA	45	50.0	55.3	1	72.7	8.3	1
SMBJ48A	SMBJ48CA	48	53.3	58.9	1	77.4	7.8	1
SMBJ51A	SMBJ51CA	51	56.7	62.7	1	82.4	7.3	1
SMBJ54A	SMBJ54CA	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
SMBJ58A	SMBJ58CA	58	64.4	71.2	1	93.6	6.4	1
SMBJ60A	SMBJ60CA	60	66.7	73.7	1	96.8	6.2	1
SMBJ64A	SMBJ64CA	64	71.1	78.6	1	103	5.8	1
SMBJ70A	SMBJ70CA	70	77.8	86	1	113	5.3	1
SMBJ75A	SMBJ75CA	75	83.3	92.1	1	121	5.0	1
SMBJ78A	SMBJ78CA	78	86.7	95.8	1	126	4.8	1
SMBJ85A	SMBJ85CA	85	94.4	104	1	137	4.4	1
SMBJ90A	SMBJ90CA	90	100	111	1	146	4.1	1
SMBJ100A	SMBJ100CA	100	111	123	1	162	3.7	1
SMBJ110A	SMBJ110CA	110	122	135	1	177	3.4	1
SMBJ120A	SMBJ120CA	120	133	147	1	193	3.1	1
SMBJ130A	SMBJ130CA	130	144	159	1	209	2.9	1
SMBJ150A	SMBJ150CA	150	167	185	1	243	2.5	1
SMBJ160A	SMBJ160CA	160	178	197	1	259	2.3	1
SMBJ170A	SMBJ170CA	170	189	209	1	275	2.2	1
SMBJ180A	SMBJ180CA	180	201	222	1	292	2.1	1
SMBJ200A	SMBJ200CA	200	224	247	1	324	1.9	1
SMBJ220A	SMBJ220CA	220	246	272	1	356	1.7	1
SMBJ250A	SMBJ250CA	250	279	309	1	405	1.5	1
SMBJ300A	SMBJ300CA	300	335	371	1	486	1.3	1
SMBJ350A	SMBJ350CA	350	391	432	1	567	1.1	1
SMBJ400A	SMBJ400CA	400	447	494	1	648	0.9	1
SMBJ440A	SMBJ440CA	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.

RATINGS AND CHARACTERISTIC CURVES

Fig. 1 – Peak Pulse Power Rating Curve

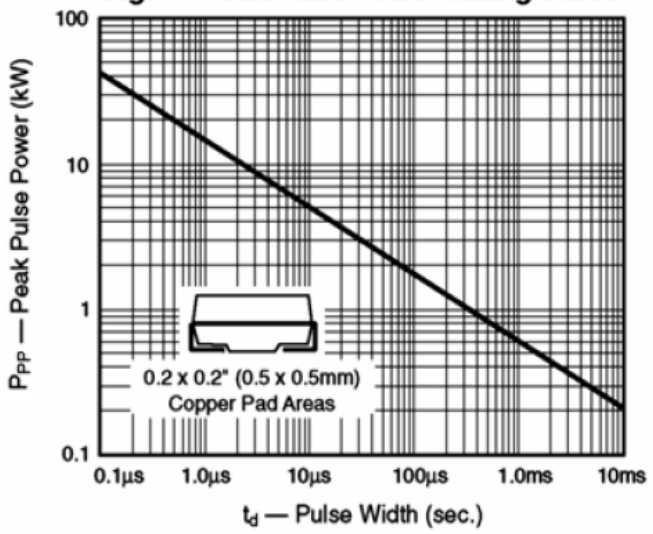


Fig. 2 – Pulse Derating Curve

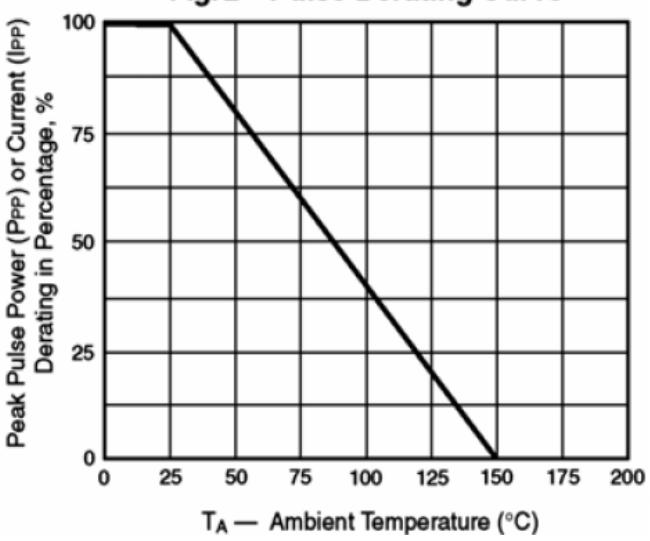


Fig. 3 – Pulse Waveform

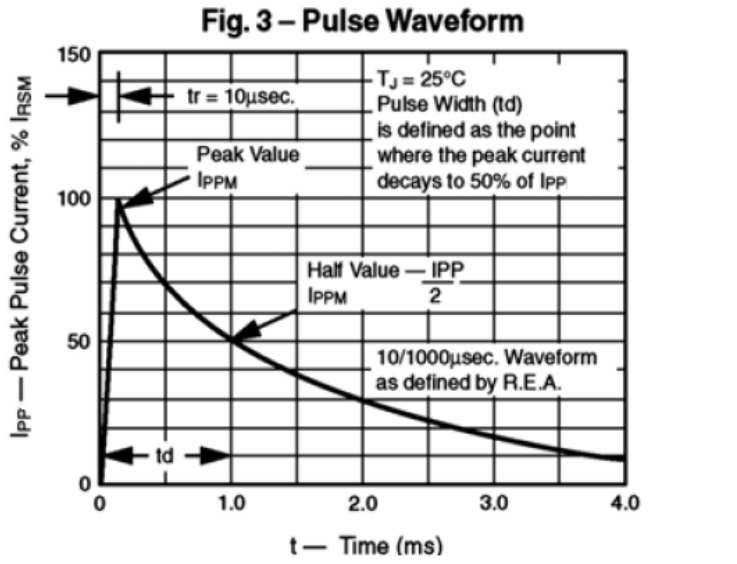


Fig. 4 – Typical Junction Capacitance

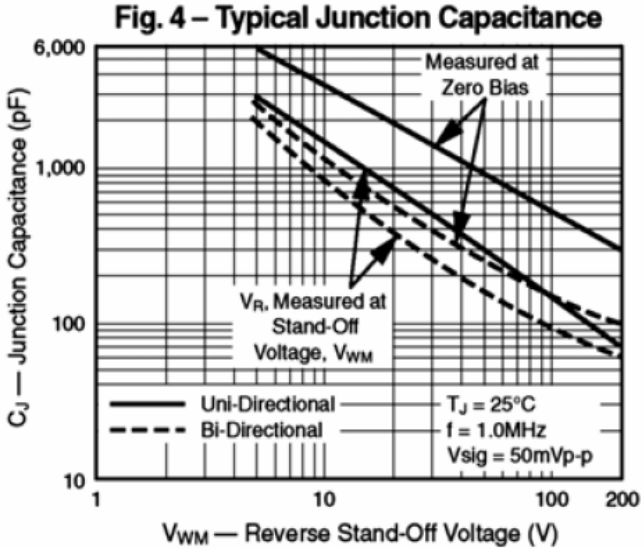


Fig. 5 – Typical Transient Thermal Impedance

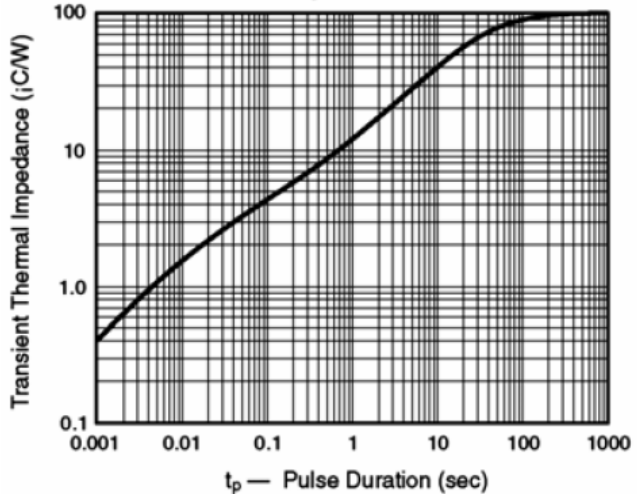


Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current