SMBJ Series

600W Transient Voltage Suppressor

Rev.01 - 08 February 2021 Product data sheet

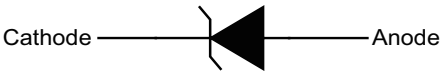
1. General description

SMBJ series, 600W transient voltage suppressor (TVS) in SMB package, designed to protect electronic circuit which induced by lightning surge or other transient voltage situation.

2. Features and benefits

- Peak pulse power 600W @ 10/1000μs waveform
- Excellent clamping capability
- Low incremental surge resistance
- Surface mount package for easy assembly and board space saving
- Typical I_R < 1μA When V_R > 12V
- Fast response time: Typically less than 1.0ps from 0V to BV min
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- High temperature to reflow soldering guaranteed: 260°C/10sec
- Meet UL94V-0 flammability classification which guaranteed by mold compound
- Meet MSL level1, per J-STD-020
- Lead free lead finish
- Halogen free and RoHS compliant

Bi-directional



Uni-directional

3. Applications

- Power supply protection
- Industrial application
- Power management
- I/O interface protection

4. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
SMBJxxxXX	SMB	SMBJxxxXXJ	Tape and reel	3000	SMBJ	18-Oct-2020
eg. SMBJ5.0CA	SMB	SMBJ5.0CAJ	Tape and reel	3000	SMBJ	18-Oct-2020

5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).
T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Values	Unit
Absolute maximum rating				
P_{PPM}	peak pulse power	[1]	600	W
$P_{M(AV)}$	steady state power dissipation	on infinite heatsink at T_a = 50 °C	5	W
I_{FSM}	peak forward surge current	t_p = 8.3 ms; single half sine-wave pulse; duty cycle = 4 pulses per minute maximum; unidirectional units only	100	A
V_F	forward on-state voltage	I_F = 50 A; unidirectional units only	3.5	V
T_{stg}	storage temperature range		-65 to 150	°C
T_j	operating temperature range		-65 to 150	°C

[1] In accordance with IEC 61643-321 (10/1000 μs current waveform).

6. Characteristics

T_j = 25 °C unless otherwise specified.

PN (Uni)	PN (Bi)	Reverse Stand off Voltage V_R (V)	Breakdown Voltage V_{BR} @ I_T (V)		Test current I_T (mA)	Max. Clamping Voltage V_C @ I_{pp} (V)	Max. Peak Pulse Current I_{pp} (A)	Maximum Reverse Leakage I_R @ V_R (µA)	Marking	
			Min	Max					Uni	Bi
SMBJ5.0A	SMBJ5.0CA	5	6.45	6.98	10	9.2	65.3	400	B005AJ	B005CJ
SMBJ6.0A	SMBJ6.0CA	6	6.8	7.32	10	10.3	58.3	400	B006AJ	B006CJ
SMBJ6.5A	SMBJ6.5CA	6.5	7.27	7.92	10	11.2	53.6	250	B06FAJ	B06FCJ
SMBJ7.0A	SMBJ7.0CA	7	7.82	8.57	10	12	50	100	B007AJ	B007CJ
SMBJ8.0A	SMBJ8.0CA	8	8.95	9.76	1	13.6	44.2	50	B008AJ	B008CJ
SMBJ9.0A	SMBJ9.0CA	9	10.1	11	1	15.4	39	10	B009AJ	B009CJ
SMBJ10A	SMBJ10CA	10	11.21	12.19	1	17	35.3	5	B010AJ	B010CJ
SMBJ11A	SMBJ11CA	11	12.32	13.38	1	18.2	33	1	B011AJ	B011CJ
SMBJ12A	SMBJ12CA	12	13.43	14.57	1	19.9	30.2	1	B012AJ	B012CJ
SMBJ13A	SMBJ13CA	13	14.54	15.76	1	21.5	28	1	B013AJ	B013CJ
SMBJ14A	SMBJ14CA	14	15.75	17.04	1	23.2	25.9	1	B014AJ	B014CJ
SMBJ15A	SMBJ15CA	15	16.86	18.34	1	24.4	24.6	1	B015AJ	B015CJ
SMBJ16A	SMBJ16CA	16	17.97	19.52	1	26	23.1	1	B016AJ	B016CJ
SMBJ17A	SMBJ17CA	17	19.08	20.72	1	27.6	21.8	1	B017AJ	B017CJ
SMBJ18A	SMBJ18CA	18	20.19	21.9	1	29.2	20.6	1	B018AJ	B018CJ
SMBJ20A	SMBJ20CA	20	22.41	24.28	1	32.4	18.6	1	B020AJ	B020CJ
SMBJ22A	SMBJ22CA	22	24.63	26.66	1	35.5	16.9	1	B022AJ	B022CJ
SMBJ24A	SMBJ24CA	24	26.95	29.23	1	38.9	15.5	1	B024AJ	B024CJ
SMBJ26A	SMBJ26CA	26	29.12	31.67	1	42.1	14.3	1	B026AJ	B026CJ
SMBJ28A	SMBJ28CA	28	31.33	34.16	1	45.4	13.3	1	B028AJ	B028CJ
SMBJ30A	SMBJ30CA	30	33.55	36.54	1	48.4	12.4	1	B030AJ	B030CJ
SMBJ33A	SMBJ33CA	33	36.98	40.3	1	53.3	11.3	1	B033AJ	B033CJ
SMBJ36A	SMBJ36CA	36	40.3	43.9	1	58.1	10.4	1	B036AJ	B036CJ
SMBJ40A	SMBJ40CA	40	44.7	48.8	1	64.5	9.3	1	B040AJ	B040CJ
SMBJ43A	SMBJ43CA	43	48.2	52.4	1	69.4	8.7	1	B043AJ	B043CJ
SMBJ45A	SMBJ45CA	45	50.4	54.9	1	72.7	8.3	1	B045AJ	B045CJ
SMBJ48A	SMBJ48CA	48	53.7	58.5	1	77.4	7.8	1	B048AJ	B048CJ
SMBJ51A	SMBJ51CA	51	57.1	62.3	1	82.4	7.3	1	B051AJ	B051CJ
SMBJ54A	SMBJ54CA	54	60.5	65.8	1	87.1	6.9	1	B054AJ	B054CJ
SMBJ58A	SMBJ58CA	58	64.9	70.7	1	93.6	6.5	1	B058AJ	B058CJ
SMBJ60A	SMBJ60CA	60	67.2	73.2	1	96.8	6.2	1	B060AJ	B060CJ
SMBJ64A	SMBJ64CA	64	71.6	78	1	103	5.9	1	B064AJ	B064CJ
SMBJ70A	SMBJ70CA	70	78.4	85.4	1	113	5.3	1	B070AJ	B070CJ
SMBJ75A	SMBJ75CA	75	83.9	91.5	1	121	5	1	B075AJ	B075CJ
SMBJ78A	SMBJ78CA	78	87.4	95.1	1	126	4.8	1	B078AJ	B078CJ
SMBJ85A	SMBJ85CA	85	95.1	103.3	1	137	4.4	1	B085AJ	B085CJ

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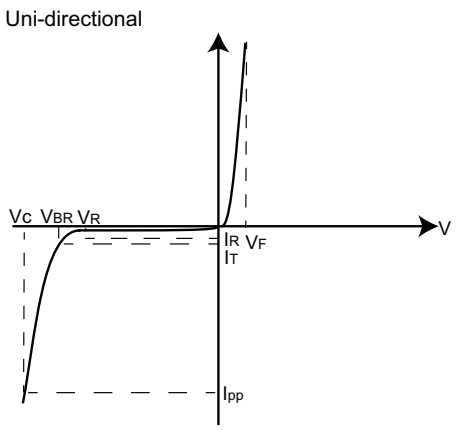

Fig. 1. I-V curve characteristics; Uni-directional

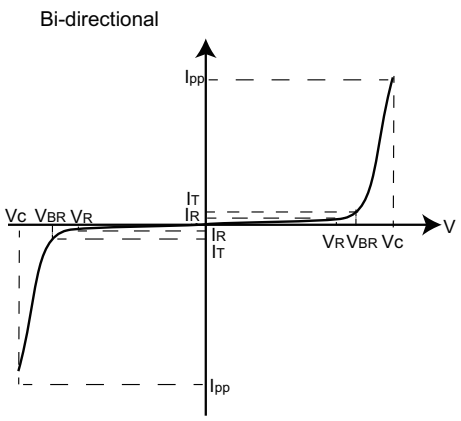

Fig. 2. I-V curve characteristics; Bi-directional

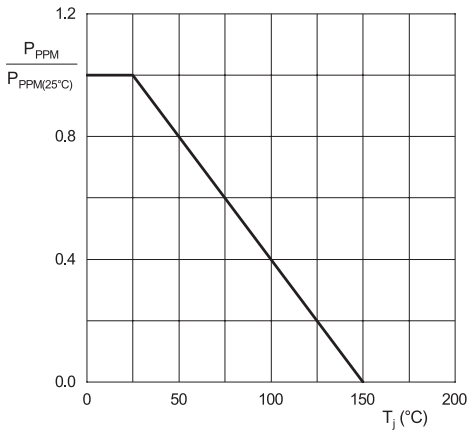

Fig. 3. Peak pulse power derating curve

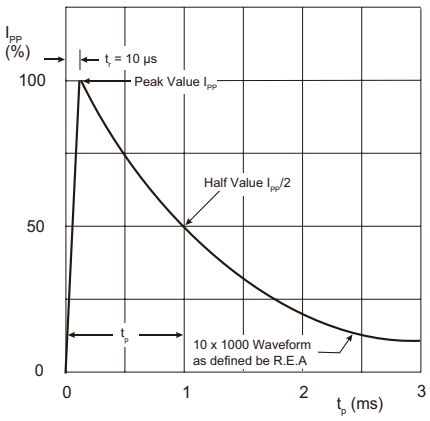

Fig. 4. Pulse waveform

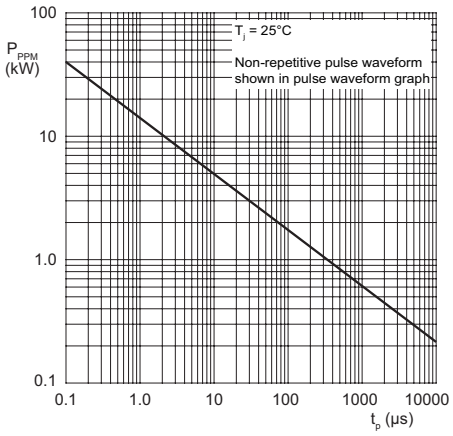

Fig. 5. Peak pulse power rating curve

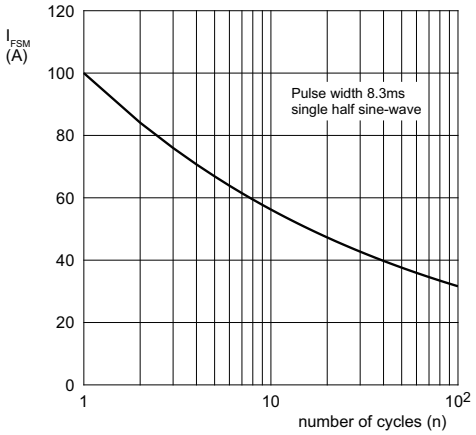

Fig. 6. Maximum non-repetitive surge current

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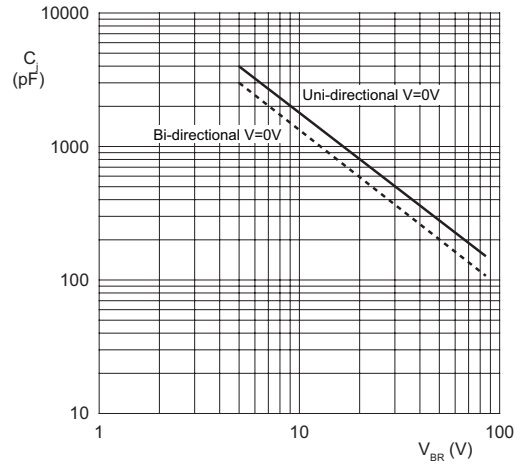

Fig. 7. Typical junction capacitance

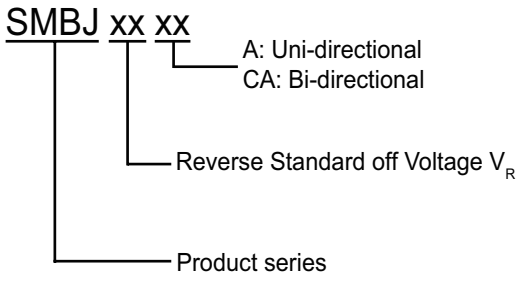

Fig. 8. Part numbering

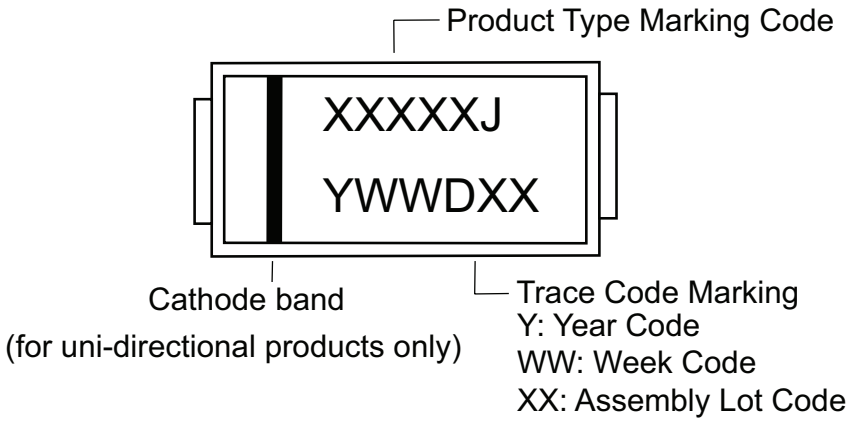

Fig. 9. Part marking

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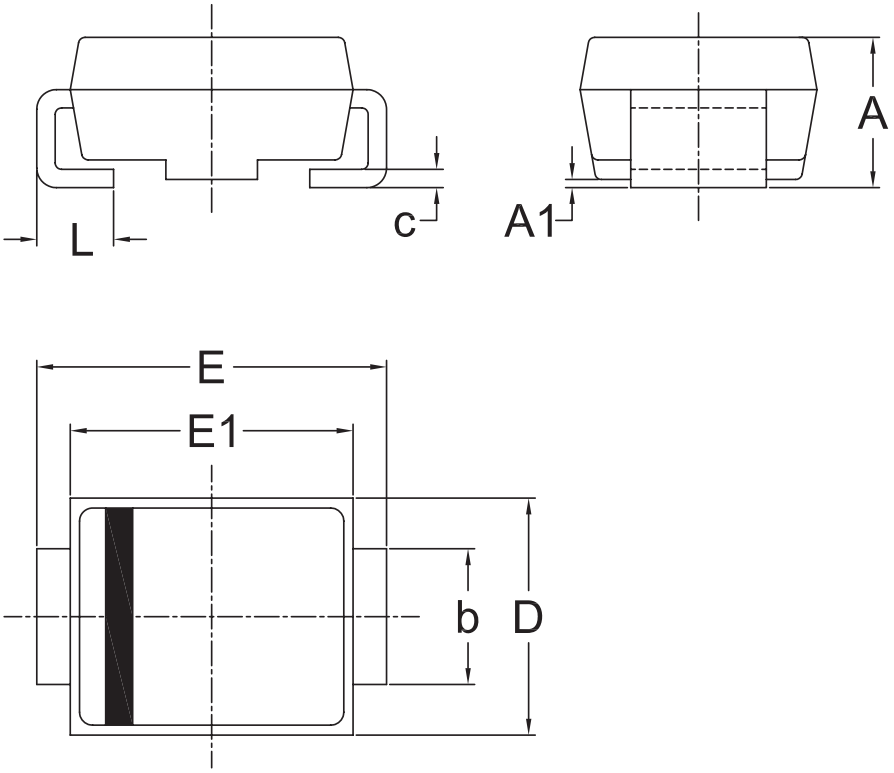
7. Package outline

SMB



UNIT		A	A1	b	c	D	E	E1	L
mm	Max	2.50	0.30	2.15	0.25	3.75	5.54	4.65	1.50
	Min	2.00	0.00	1.85	0.15	3.45	5.04	4.35	0.80

Remark: Dimensions D and E1 do not include mold flash & gate remain.

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Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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