

SMBFJ*** Series S-SMBFJ*** Series

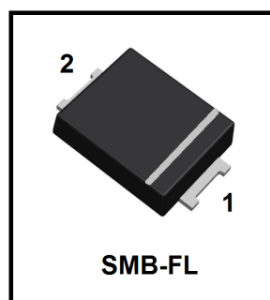
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 5.0 TO 250 Volts

600 Watt Peak Pulse Power

FEATURES

- * Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- * For surface mounted applications in order to optimize board space
- * Low profile package
- * Built-in strain relief
- * Glass passivated junction
- * Low inductance
- * Excellent clamping capability
- * Repetition Rate (duty cycle):0.01%
- * Fast response time: typically less than 1.0ps from 0 Volts to V(BR) for unidirectional types
- * Typical IR less than 1mA above 10V
- * High temperature soldering guaranteed: 260°C/10 seconds,
- * We declare that the material of product compliance with RoHS requirements and Halogen Free.
- * S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



MECHANICAL DATA

Case: JEDEC SMB-FL molded plastic

Terminals: Plated leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denoted cathode except Bipolar

Mounting Position: Any

Weight: 64mg

1.DEVICES FOR BIPOLAR APPLICATIONS

Electrical characteristics apply in both directions.marking code is all type.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 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	UNITS
Peak Power Dissipation at $T_A=25^{\circ}\text{C}$, $T_P=1\text{ms}$ (Note 1)	P_{PPM}	Minimum600	Watts
Steady State Power Dissipation at $T_L=75^{\circ}\text{C}$ (Note 2)	$P_{M(AV)}$	3.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method) (Note 3)	I_{FSM}	100	Amps
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^{\circ}\text{C}$ per Fig. 2.
2. Mounted on Copper Leaf area of 1.57in²(40mm²).
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

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Uni- Directional Part Number	Device marking code	Reverse Stand-off Voltage VRWM (V)	Breakdown Voltage VBR (V) Min. @IT	Breakdown Voltage VBR (V) Max. @IT	Test Current IT (mA)	Maximum Clamping Voltage @IPP VC (V)	Peak Pulse Current Ipp (A)	Reverse Leakage @VRWM IR (uA)
S-SMBFJ5.0A/SMBFJ5.0A	SMBFJ5.0A	5.00	6.40	7.00	10.00	9.20	65.30	800
S-SMBFJ6.0A/SMBFJ6.0A	SMBFJ6.0A	6.00	6.67	7.37	10.00	10.30	58.30	800
S-SMBFJ6.5A/SMBFJ6.5A	SMBFJ6.5A	6.50	7.22	7.98	10.00	11.20	53.60	500
S-SMBFJ7.0A/SMBFJ7.0A	SMBFJ7.0A	7.00	7.78	8.60	10.00	12.00	50.00	200
S-SMBFJ7.5A/SMBFJ7.5A	SMBFJ7.5A	7.50	8.33	9.21	1.00	12.90	46.60	100
S-SMBFJ8.0A/SMBFJ8.0A	SMBFJ8.0A	8.00	8.89	9.83	1.00	13.60	44.20	50
S-SMBFJ8.5A/SMBFJ8.5A	SMBFJ8.5A	8.50	9.44	10.40	1.00	14.40	41.70	20
S-SMBFJ9.0A/SMBFJ9.0A	SMBFJ9.0A	9.00	10.00	11.10	1.00	15.40	39.00	10
S-SMBFJ10A/SMBFJ10A	SMBFJ10A	10.00	11.10	12.30	1.00	17.00	35.30	1
S-SMBFJ11A/SMBFJ11A	SMBFJ11A	11.00	12.20	13.50	1.00	18.20	33.00	1
S-SMBFJ12A/SMBFJ12A	SMBFJ12A	12.00	13.30	14.70	1.00	19.90	30.20	1
S-SMBFJ13A/SMBFJ13A	SMBFJ13A	13.00	14.40	15.90	1.00	21.50	28.00	1
S-SMBFJ14A/SMBFJ14A	SMBFJ14A	14.00	15.60	17.20	1.00	23.20	25.90	1
S-SMBFJ15A/SMBFJ15A	SMBFJ15A	15.00	16.70	18.50	1.00	24.40	24.60	1
S-SMBFJ16A/SMBFJ16A	SMBFJ16A	16.00	17.80	19.70	1.00	26.00	23.10	1
S-SMBFJ17A/SMBFJ17A	SMBFJ17A	17.00	18.90	20.90	1.00	27.60	21.80	1
S-SMBFJ18A/SMBFJ18A	SMBFJ18A	18.00	20.00	22.10	1.00	29.20	20.60	1
S-SMBFJ20A/SMBFJ20A	SMBFJ20A	20.00	22.20	24.50	1.00	32.40	18.60	1
S-SMBFJ22A/SMBFJ22A	SMBFJ22A	22.00	24.40	26.90	1.00	35.50	16.90	1
S-SMBFJ24A/SMBFJ24A	SMBFJ24A	24.00	26.70	29.50	1.00	38.90	15.50	1
S-SMBFJ26A/SMBFJ26A	SMBFJ26A	26.00	28.90	31.90	1.00	42.10	14.30	1
S-SMBFJ28A/SMBFJ28A	SMBFJ28A	28.00	31.10	34.40	1.00	45.40	13.30	1
S-SMBFJ30A/SMBFJ30A	SMBFJ30A	30.00	33.30	36.80	1.00	48.40	12.40	1
S-SMBFJ33A/SMBFJ33A	SMBFJ33A	33.00	36.70	40.60	1.00	53.30	11.30	1
S-SMBFJ36A/SMBFJ36A	SMBFJ36A	36.00	40.00	44.20	1.00	58.10	10.40	1
S-SMBFJ40A/SMBFJ40A	SMBFJ40A	40.00	44.40	49.10	1.00	64.50	9.30	1
S-SMBFJ43A/SMBFJ43A	SMBFJ43A	43.00	47.80	52.80	1.00	69.40	8.70	1
S-SMBFJ45A/SMBFJ45A	SMBFJ45A	45.00	50.00	55.30	1.00	72.70	8.30	1
S-SMBFJ48A/SMBFJ48A	SMBFJ48A	48.00	53.30	58.90	1.00	77.40	7.80	1
S-SMBFJ51A/SMBFJ51A	SMBFJ51A	51.00	56.70	62.70	1.00	82.40	7.30	1
S-SMBFJ54A/SMBFJ54A	SMBFJ54A	54.00	60.00	66.30	1.00	87.10	6.90	1
S-SMBFJ58A/SMBFJ58A	SMBFJ58A	58.00	64.40	71.20	1.00	93.60	6.50	1
S-SMBFJ60A/SMBFJ60A	SMBFJ60A	60.00	66.70	73.70	1.00	96.80	6.20	1
S-SMBFJ64A/SMBFJ64A	SMBFJ64A	64.00	71.10	78.60	1.00	103.00	5.90	1
S-SMBFJ70A/SMBFJ70A	SMBFJ70A	70.00	77.80	86.00	1.00	113.00	5.30	1
S-SMBFJ75A/SMBFJ75A	SMBFJ75A	75.00	83.30	92.10	1.00	121.00	5.00	1
S-SMBFJ78A/SMBFJ78A	SMBFJ78A	78.00	86.70	95.80	1.00	126.00	4.80	1
S-SMBFJ85A/SMBFJ85A	SMBFJ85A	85.00	94.40	104.00	1.00	137.00	4.40	1
S-SMBFJ90A/SMBFJ90A	SMBFJ90A	90.00	100.00	111.00	1.00	146.00	4.10	1
S-SMBFJ100A/SMBFJ100A	SMBFJ100A	100.00	111.00	123.00	1.00	162.00	3.70	1
S-SMBFJ110A/SMBFJ110A	SMBFJ110A	110.00	122.00	135.00	1.00	177.00	3.40	1
S-SMBFJ120A/SMBFJ120A	SMBFJ120A	120.00	133.00	147.00	1.00	193.00	3.10	1
S-SMBFJ130A/SMBFJ130A	SMBFJ130A	130.00	144.00	159.00	1.00	209.00	2.90	1
S-SMBFJ150A/SMBFJ150A	SMBFJ150A	150.00	167.00	185.00	1.00	243.00	2.50	1
S-SMBFJ160A/SMBFJ160A	SMBFJ160A	160.00	178.00	197.00	1.00	259.00	2.30	1
S-SMBFJ170A/SMBFJ170A	SMBFJ170A	170.00	189.00	209.00	1.00	275.00	2.20	1
S-SMBFJ180A/SMBFJ180A	SMBFJ180A	180.00	198.00	221.00	1.00	291.00	2.10	1
S-SMBFJ190A/SMBFJ190A	SMBFJ190A	190.00	209.00	233.00	1.00	307.00	2.00	1
S-SMBFJ200A/SMBFJ200A	SMBFJ200A	200.00	220.00	246.00	1.00	324.00	1.90	1
S-SMBFJ220A/SMBFJ220A	SMBFJ220A	220.00	246.00	272.00	1.00	356.00	1.70	1
S-SMBFJ250A/SMBFJ250A	SMBFJ250A	250.00	279.00	309.00	1.00	405.00	1.50	1

For bidirectional type having V_{VRWM} of 10 volts and less, the IR limit is double.
For parts without A , the VBR is + 10%

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2. Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1-Peak Pulse Power Rating Curve

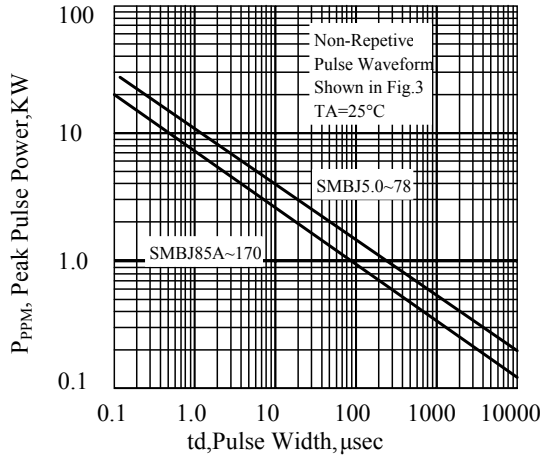


Fig. 2-Pulse Derating Curve

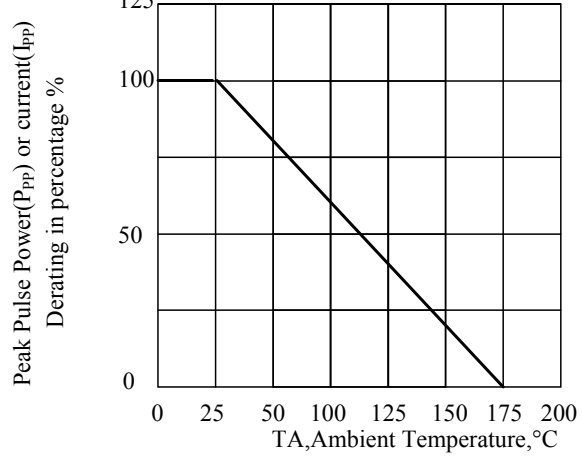


Fig. 3-Pulse Waveform

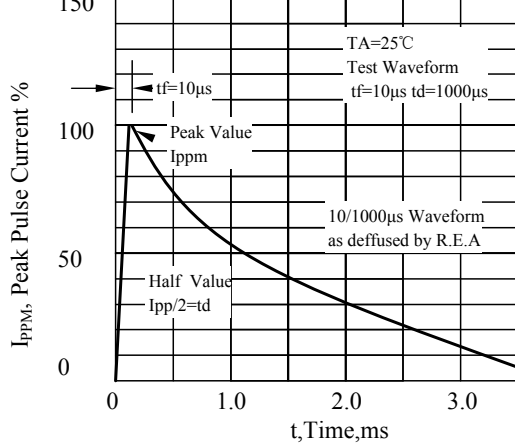


Fig. 4-Typical Junction Capacitance Unidirectional

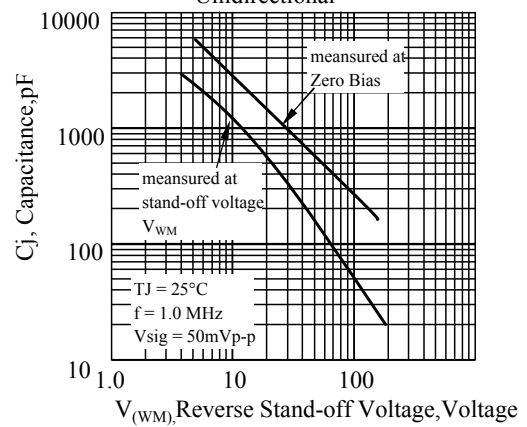


Fig 5. - typical transient thermal impedance

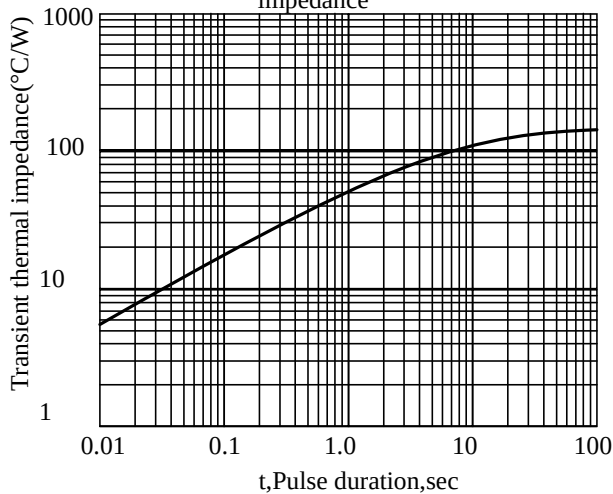
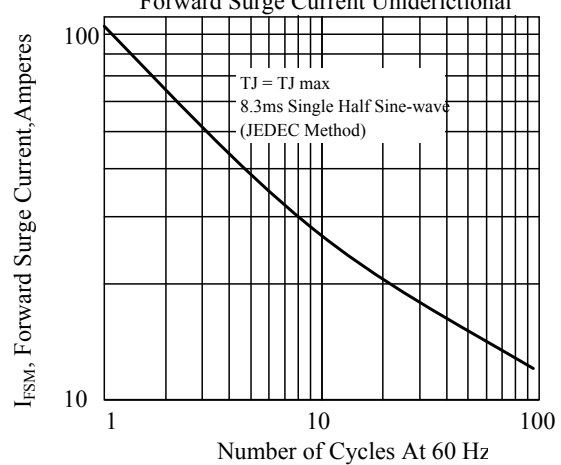
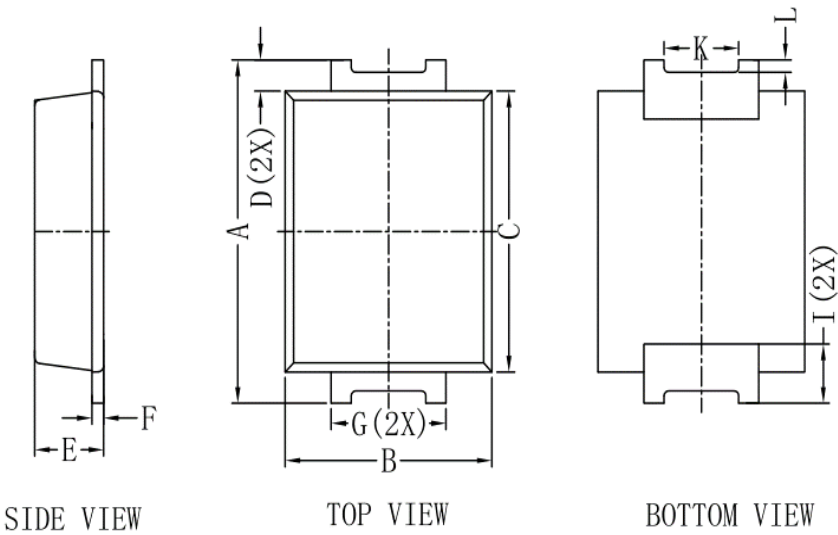


Fig. 6-Maximum Non-Repetitive Peak Forward Surge Current Unidirectional



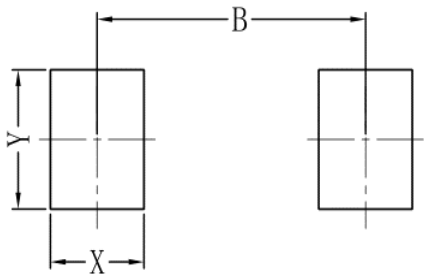
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3.OUTLINE AND DIMENSIONS



SMB-FL			
DIM	Min	Max	Typ.
A	5.30	5.70	5.50
B	3.40	3.80	3.60
C	4.30	4.70	4.50
D	-	-	0.45
E	1.05	1.40	1.20
F	0.18	0.30	0.22
G	1.90	2.10	2.00
I	-	-	0.95
K	-	-	1.30
L	-	-	0.20
All Dimensions in mm			

4.SOLDERING FOOTPRINT



SMB-FL	
DIM	(mm)
X	1.60
Y	2.20
B	4.60



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Document Number: APS-QA-QS-009

Revision C

Page 3 of 6



8.1.2 Label position and QA stamp position.(Empty area) 标签张贴位置及QA印章位置。(印章盖在标签空白区)



7英寸卷盘标签张贴及QA印章位置



13英寸卷盘标签张贴及QA印章位置

8.1.3 Ensure direction In the same reel. The same steel coil plate direction, With antistatic bubble to package reel. Refer to the below picture.

同一箱内的卷盘方向一致,用防静电泡沫对卷盘进行包裹。



7英寸卷盘防静电泡沫包裹



13英寸卷盘防静电泡沫包裹

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Document Number: APS-QA-QS-009

Revision C

Page 4 of 6

8.1.4 Put in the antistatic packing box after packaged reels. And QA stamp on the box label .

将包装好的卷盘放入防静电纸箱中，并在盒标签上盖章。



7 英寸卷盘内盒及标签



13 英寸卷盘内盒及标签

8.1.5 Product use printing inner box. 产品使用LRC印字内箱。



7英寸卷盘内箱印字（侧面）



13英寸卷盘内箱印字（正面）

8.1.6 Inner box packing quantity requirement. 内盒包装数量要求。

Product Description	QTY
SOD123-FL	1-10Reels
SOD323-HE	1-10Reels
SMA-FL	1-7Reels
SMB-FL	1-4Reels

8.1.7 With transparent tape sealing. 透明胶带封箱。



Proprietary Information

Title: Power Packages Product Packing Specification

功率产品包装规范

Document Number: APS-QA-QS-009

Revision C

Page 5 of 6



7英寸内箱封盒



13英寸内箱封盒

8.1.8 Outer box size and packing quantity requirement, 外箱尺寸及包装数量要求。

Product Description	卷盘尺寸	Height (H)	Width (W)	Length (L)	Max. Qty
Power Device	7 英寸	410mm	400mm	445mm	12
Power Device	13 英寸	410mm	400mm	445mm	5



7 英寸卷盘产品装箱



13 英寸卷盘产品装箱

统一方向



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Title: Power Packages Marking & Taping Specification

功率封装字模和编带规范

Document Number:APS-QA-QS-010

Revision C

Page 6 of 9

8.2 Standard Products Taping Specification

标准产品编带规范

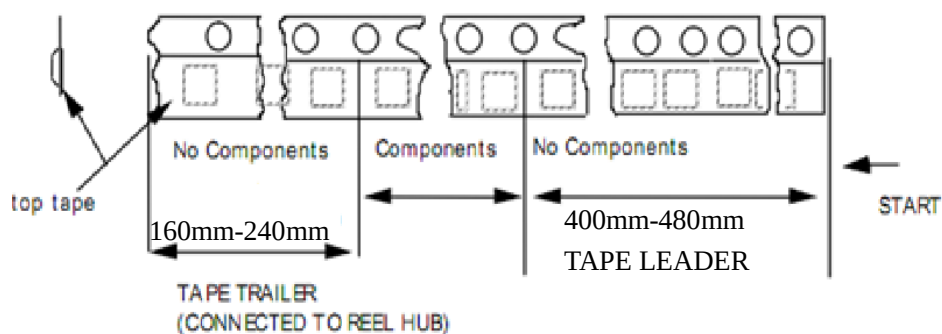
8.2.1 Tape length of no component

空带长度说明

Taping leader length 引导部分: $440\text{mm} \pm 40\text{mm}$, Tape trailer 尾部: $200\text{mm} \pm 40\text{mm}$

Figure 4

Tape Ends For Finished Goods Reel



8.2.2 Component packaging orientation: The cathode lead is close to the carrier tape's index hole.

产品放置方向: 印阴极带引脚邻近载带索引孔





Proprietary Information

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功率封装字模和编带规范

Document Number:APS-QA-QS-010

Revision C

Page 7 of 9

8.2.3 Tape enwind orientation

编带缠绕方向要求

