

## SMBF Plastic-Encapsulate Diodes

### Transient Voltage Suppressor Diodes

#### Features

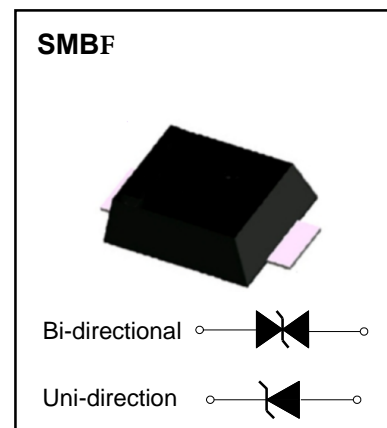
- $P_{PPM}$  600W
- $V_{RWM}$  5.0V- 300V
- Low power loss, high efficiency
- Excellent clamping capability

#### Applications

- Protect sensitive circuit from damage by high voltage transients
- Lighting, ESD transient voltage protection of IC, system
- Inductive switching load protection of IC, system
- Electrical Fast Transient Immunity protection of IC, system

#### Mechical Data

- Case: SMBF molded plastic
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Solder plated, solderable per MIL- STD-202, Method 208
- Polarity: Color band denotes cathode end



Maximum Ratings & Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbols	Value	Unit
Peak power dissipation with a 10/1000 us waveform <sup>(1)</sup>	$P_{PP}$	600	W
Peak pulse current with a 10/1000 us waveform <sup>(1)</sup>	$I_{PP}$	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75\text{ }^\circ\text{C}$	$P_D$	5.0	W
Peak forward surge current, 8.3 ms single half sinewave unidirectional only <sup>(2)</sup>	$I_{FSM}$	100	A
Maximum instantaneous forward voltage at 50 A for unidirectional only <sup>(3)</sup>	$V_F$	3.5/6.5	V
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Note:

- 1) Non-repetitive current pulse per Fig.5 and derated above  $T_A = 25\text{ }^\circ\text{C}$  per Fig.1 ;
- 2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum ;
- 3)  $V_F < 3.5\text{V}$  for devices of  $V_{BR} < 200\text{V}$  and  $V_F < 6.5\text{V}$  for devices of  $V_{BR} > 201\text{V}$ .

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Number		Reverse Stand-off Voltage V <sub>RWM</sub> (V)	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Max. Clamping Voltage @ I <sub>PP</sub> V <sub>C MAX.</sub> (V)	Max. Peak Pulse Current I <sub>PP</sub> (A)	Max. Reverse Leakage @ V <sub>RWM</sub> I <sub>R</sub> (uA)
			Min.(V)	Max.(V)				
UNI-POLAR	BI-POLAR							
SMBFJ5.0A	SMBFJ5.0CA	5.0	6.40	7.00	10	9.2	65.3	800
SMBFJ6.0A	SMBFJ6.0CA	6.0	6.67	7.37	10	10.3	58.3	800
SMBFJ6.5A	SMBFJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
SMBFJ7.0A	SMBFJ7.0CA	7.0	7.78	8.60	10	12.0	50.0	200
SMBFJ7.5A	SMBFJ7.5CA	7.5	8.33	9.21	1	12.9	46.6	100
SMBFJ8.0A	SMBFJ8.0CA	8.0	8.89	9.83	1	13.6	44.2	50
SMBFJ8.5A	SMBFJ8.5CA	8.5	9.44	10.40	1	14.4	41.7	20
SMBFJ9.0A	SMBFJ9.0CA	9.0	10.00	11.10	1	15.4	39.0	10
SMBFJ10A	SMBFJ10CA	10.0	11.10	12.30	1	17.0	35.3	5
SMBFJ11A	SMBFJ11CA	11.0	12.20	13.50	1	18.2	33.0	1
SMBFJ12A	SMBFJ12CA	12.0	13.30	14.70	1	19.9	30.2	1
SMBFJ13A	SMBFJ13CA	13.0	14.40	15.90	1	21.5	28.0	1
SMBFJ14A	SMBFJ14CA	14.0	15.60	17.20	1	23.2	25.9	1
SMBFJ15A	SMBFJ15CA	15.0	16.70	18.50	1	24.4	24.6	1
SMBFJ16A	SMBFJ16CA	16.0	17.80	19.70	1	26.0	23.1	1
SMBFJ17A	SMBFJ17CA	17.0	18.90	20.90	1	27.6	21.8	1
SMBFJ18A	SMBFJ18CA	18.0	20.00	22.10	1	29.2	20.6	1
SMBFJ20A	SMBFJ20CA	20.0	22.20	24.50	1	32.4	18.6	1
SMBFJ22A	SMBFJ22CA	22.0	24.40	26.90	1	35.5	16.9	1
SMBFJ24A	SMBFJ24CA	24.0	26.70	29.50	1	38.9	15.5	1
SMBFJ26A	SMBFJ26CA	26.0	28.90	31.90	1	42.1	14.3	1
SMBFJ28A	SMBFJ28CA	28.0	31.10	34.40	1	45.4	13.3	1
SMBFJ30A	SMBFJ30CA	30.0	33.50	36.80	1	48.4	12.4	1
SMBFJ33A	SMBFJ33CA	33.0	36.70	40.60	1	53.3	11.3	1
SMBFJ36A	SMBFJ36CA	36.0	40.00	44.20	1	58.1	10.4	1
SMBFJ40A	SMBFJ40CA	40.0	44.40	49.10	1	64.5	9.3	1
SMBFJ43A	SMBFJ43CA	43.0	47.80	52.80	1	69.4	8.7	1
SMBFJ45A	SMBFJ45CA	45.0	50.00	55.30	1	72.7	8.3	1
SMBFJ48A	SMBFJ48CA	48.0	53.30	58.90	1	77.4	7.8	1
SMBFJ51A	SMBFJ51CA	51.0	56.70	62.70	1	82.4	7.3	1
SMBFJ54A	SMBFJ54CA	54.0	60.00	66.30	1	87.1	6.9	1
SMBFJ58A	SMBFJ58CA	58.0	64.40	71.20	1	93.6	6.5	1
SMBFJ60A	SMBFJ60CA	60.0	66.70	73.70	1	96.8	6.2	1
SMBFJ64A	SMBFJ64CA	64.0	71.10	78.60	1	103.0	5.9	1
SMBFJ70A	SMBFJ70CA	70.0	77.80	86.00	1	113.0	5.3	1
SMBFJ75A	SMBFJ75CA	75.0	83.30	92.10	1	121.0	5.0	1
SMBFJ78A	SMBFJ78CA	78.0	86.70	95.80	1	126.0	4.8	1
SMBFJ85A	SMBFJ85CA	85.0	94.4	104.0	1	137.0	4.4	1
SMBFJ90A	SMBFJ90CA	90.0	100.0	111.0	1	146.0	4.1	1
SMBFJ100A	SMBFJ100CA	100.0	111.0	123.0	1	162.0	3.7	1
SMBFJ110A	SMBFJ110CA	110.0	122.0	135.0	1	177.0	3.4	1
SMBFJ120A	SMBFJ120CA	120.0	133.0	147.0	1	193.0	3.1	1
SMBFJ130A	SMBFJ130CA	130.0	144.0	159.0	1	209.0	2.9	1
SMBFJ150A	SMBFJ150CA	150.0	167.0	185.0	1	243.0	2.5	1
SMBFJ160A	SMBFJ160CA	160.0	178.0	197.0	1	259.0	2.3	1
SMBFJ170A	SMBFJ170CA	170.0	189.0	209.0	1	275.0	2.2	1
SMBFJ180A	SMBFJ180CA	180.0	201.0	222.0	1	292.0	2.1	1
SMBFJ190A	SMBFJ190CA	190.0	209.0	243.0	1	308.0	2.0	1
SMBFJ200A	SMBFJ200CA	200.0	224.0	247.0	1	324.0	1.9	1
SMBFJ210A	SMBFJ210CA	210.0	231.0	268.0	1	340.0	1.8	1
SMBFJ220A	SMBFJ220CA	220.0	246.0	272.0	1	356.0	1.7	1
SMBFJ250A	SMBFJ250CA	250.0	279.0	309.0	1	405.0	1.5	1
SMBFJ300A	SMBFJ300CA	300.0	335.0	371.0	1	486.0	1.3	1

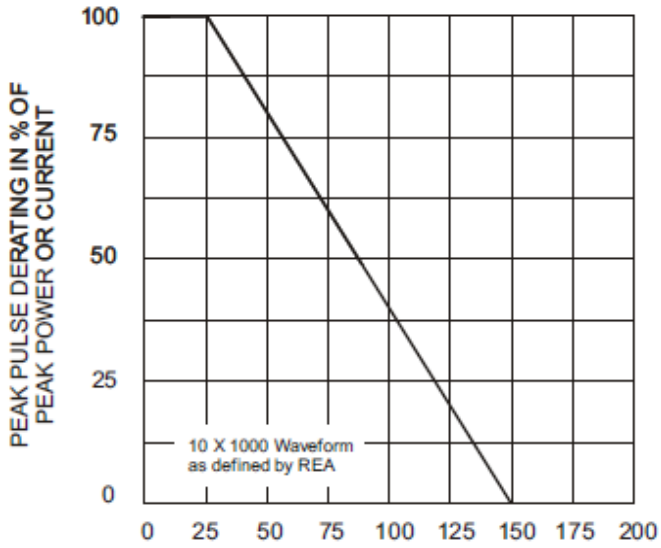


Fig. 1 - Pulse Derating Curve

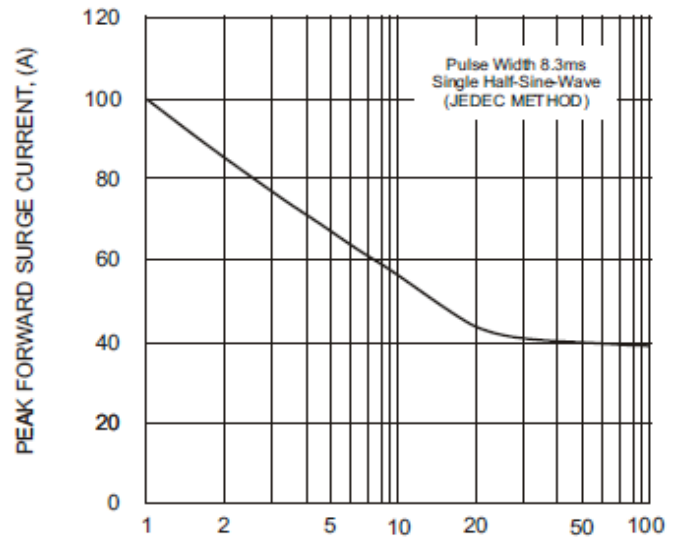


Fig. 2 - Maximum Non-Repetitive Surge Current

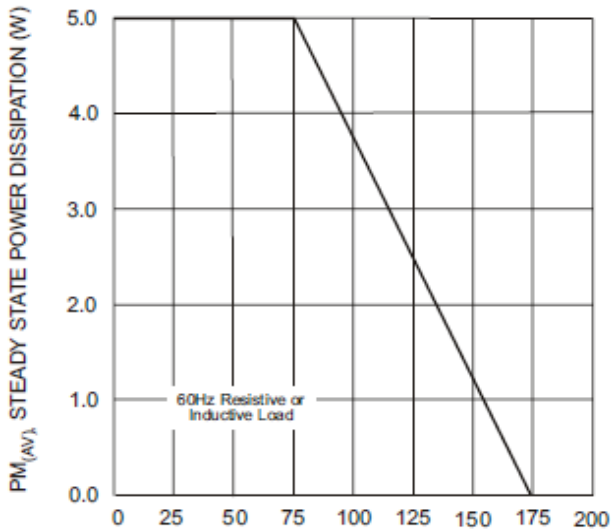


Fig. 3 - Steady State Power Derating Curve

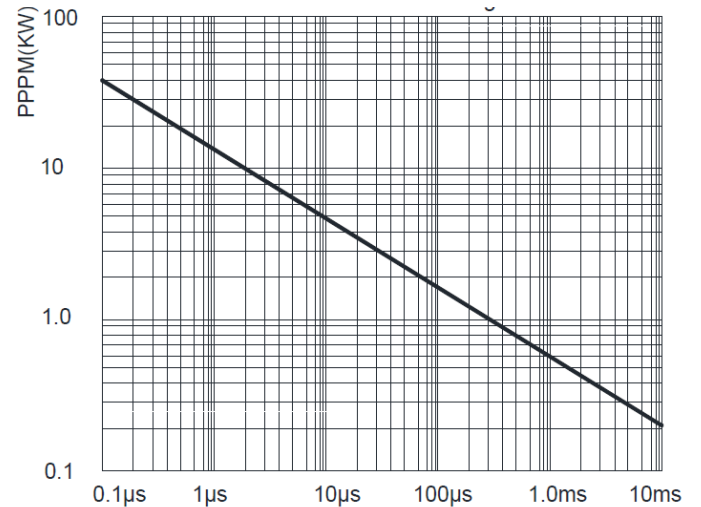


Fig. 4 - Peak Pulse Power Rating Curve

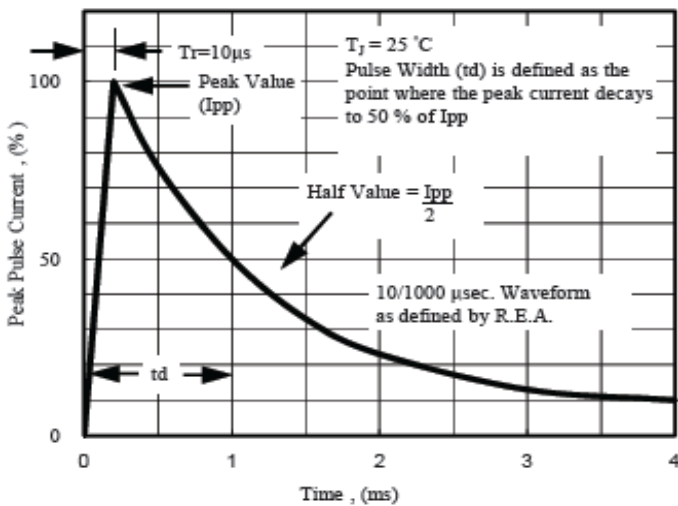


Fig. 5 - Pulse Waveform

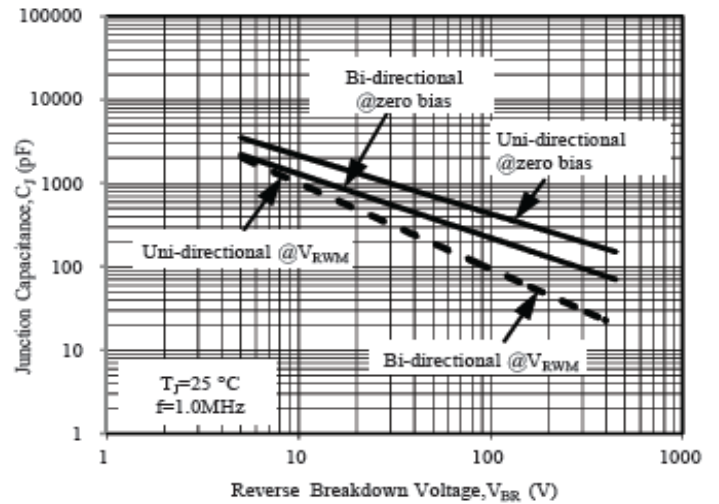


Fig. 6 - Typical Junction Capacitance

# SMBF Package Outline Dimensions

