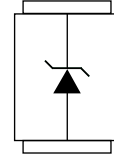


### Description

The SMBF Series are designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Unidirectional



### Feature

- For surface mounted applications in order to optimize board space.
- Low profile package
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability

### Mechanical Characteristics

- Case: SMBF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 57mg/0.002oz

### Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 s waveform ( Note1,Note2, Fig.1).(Note 1,2,4, Fig1)	$P_{PPM}$	Minimum 600	W
Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3, Fig4).	$I_{FSM}$	100	A
Peak Pulse Current on 10/1000 us waveform (Note 1, Fig 2)	$I_{PPM}$	see Table 1	A
Typical Junction capacitance at VR=4V, f=1MHz	$C_J$	390	pF
ESD Voltage per IEC6100-4-2 Contact Air	$V_{ESD1}$ $V_{ESD2}$	±8 to ±15	KV
Typical Thermal Resistance Junction to Ambient(Note 2)	$R_{\theta JA}$	150	°C/W
Operating Junction Temperature and Storage Temperature Range	$T_j, T_{stg}$	-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 FR-4 PCB single-sided copper, mini pad.
3. Peak Forward Surge Current : 8.3ms single half sine-wave Superimposed on rated load (JEDEC method).
4. Peak pulse power waveform is 10/1000µS.

Electrical characteristics per line@25°C( unless otherwise specified)

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage $V_R$ (V)	Breakdown Voltage $V_{BR}@ I_T$ (V)		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)	Maximum Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ ( $\mu$ A)
			MIN	MAX				
P6SMBFJ5.0A	P6SMBFJ5.0CA	5.0	6.40	7.00	10	9.2	65.3	800
P6SMBFJ6.0A	P6SMBFJ6.0CA	6.0	6.67	7.37	10	10.3	58.3	800
P6SMBFJ6.5A	P6SMBFJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
P6SMBFJ6.8A	P6SMBFJ6.8CA	6.8	7.50	8.30	10	11.6	51.8	250
P6SMBFJ7.0A	P6SMBFJ7.0CA	7.0	7.78	8.60	10	12.0	50.0	200
P6SMBFJ7.5A	P6SMBFJ7.5CA	7.5	8.33	9.21	1	12.9	46.6	100
P6SMBFJ8.0A	P6SMBFJ8.0CA	8.0	8.89	9.83	1	13.6	44.2	50
P6SMBFJ8.5A	P6SMBFJ8.5CA	8.5	9.44	10.40	1	14.4	41.7	20
P6SMBFJ9.0A	P6SMBFJ9.0CA	9.0	10.00	11.10	1	15.4	39.0	10
P6SMBFJ10A	P6SMBFJ10CA	10.0	11.10	12.30	1	17.0	35.3	5
P6SMBFJ11A	P6SMBFJ11CA	11.0	12.20	13.50	1	18.2	33.0	1
P6SMBFJ12A	P6SMBFJ12CA	12.0	13.30	14.70	1	19.9	30.2	1
P6SMBFJ13A	P6SMBFJ13CA	13.0	14.40	15.90	1	21.5	28.0	1
P6SMBFJ14A	P6SMBFJ14CA	14.0	15.60	17.20	1	23.2	25.9	1
P6SMBFJ15A	P6SMBFJ15CA	15.0	16.70	18.50	1	24.4	24.6	1
P6SMBFJ16A	P6SMBFJ16CA	16.0	17.80	19.70	1	26.0	23.1	1
P6SMBFJ17A	P6SMBFJ17CA	17.0	18.90	20.90	1	27.6	21.8	1
P6SMBFJ18A	P6SMBFJ18CA	18.0	20.00	22.10	1	29.2	20.6	1
P6SMBFJ20A	P6SMBFJ20CA	20.0	22.20	24.50	1	32.4	18.6	1
P6SMBFJ22A	P6SMBFJ22CA	22.0	24.40	26.90	1	35.5	16.9	1
P6SMBFJ24A	P6SMBFJ24CA	24.0	26.70	29.50	1	38.9	15.5	1
P6SMBFJ26A	P6SMBFJ26CA	26.0	28.90	31.90	1	42.1	14.3	1
P6SMBFJ28A	P6SMBFJ28CA	28.0	31.10	34.40	1	45.4	13.3	1
P6SMBFJ30A	P6SMBFJ30CA	30.0	33.30	36.80	1	48.4	12.4	1
P6SMBFJ33A	P6SMBFJ33CA	33.0	36.70	40.60	1	53.3	11.3	1
P6SMBFJ36A	P6SMBFJ36CA	36.0	40.00	44.20	1	58.1	10.4	1
P6SMBFJ40A	P6SMBFJ40CA	40.0	44.40	49.10	1	64.5	9.3	1

## P6SMBFJ5.0A THRU P6SMBFJ440CA

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage $V_R$ (V)	Breakdown Voltage $V_{BR}@I_T$ (V)		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)	Maximum Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ ( $\mu$ A)
			MIN	MAX				
P6SMBFJ43A	P6SMBFJ43CA	43.0	47.80	52.80	1	69.40	8.7	1
P6SMBFJ45A	P6SMBFJ45CA	45.0	50.00	55.30	1	72.7	8.3	1
P6SMBFJ48A	P6SMBFJ48CA	48.0	53.30	58.90	1	77.4	7.8	1
P6SMBFJ51A	P6SMBFJ51CA	51.0	56.70	62.70	1	82.4	7.3	1
P6SMBFJ54A	P6SMBFJ54CA	54.0	60.00	66.30	1	87.1	6.9	1
P6SMBFJ58A	P6SMBFJ58CA	58.0	64.40	71.20	1	93.6	6.5	1
P6SMBFJ60A	P6SMBFJ60CA	60.0	66.70	73.70	1	96.8	6.2	1
P6SMBFJ64A	P6SMBFJ64CA	64.0	71.10	78.60	1	103.0	5.9	1
P6SMBFJ70A	P6SMBFJ70CA	70.0	77.80	86.00	1	113.0	5.3	1
P6SMBFJ75A	P6SMBFJ75CA	75.0	83.30	92.10	1	121.0	5.0	1
P6SMBFJ78A	P6SMBFJ78CA	78.0	86.70	95.80	1	126.0	4.8	1
P6SMBFJ85A	P6SMBFJ85CA	85.0	94.40	104.00	1	137.0	4.4	1
P6SMBFJ90A	P6SMBFJ90CA	90.0	100.00	111.00	1	146.0	4.1	1
P6SMBFJ100A	P6SMBFJ100CA	100.0	111.00	123.00	1	162.0	3.7	1
P6SMBFJ110A	P6SMBFJ110CA	110.0	122.00	135.00	1	177.0	3.4	1
P6SMBFJ120A	P6SMBFJ120CA	120.0	133.00	147.00	1	193.0	3.1	1
P6SMBFJ130A	P6SMBFJ130CA	130.0	144.00	159.00	1	209.0	2.9	1
P6SMBFJ150A	P6SMBFJ150CA	150.0	167.00	185.00	1	243.0	2.5	1
P6SMBFJ160A	P6SMBFJ160CA	160.0	178.00	197.00	1	259.0	2.3	1
P6SMBFJ170A	P6SMBFJ170CA	170.0	189.00	209.00	1	275.0	2.2	1
P6SMBFJ180A	P6SMBFJ180CA	180.0	201.00	222.00	1	292.0	2.1	1
P6SMBFJ200A	P6SMBFJ200CA	200.0	224.00	247.00	1	324.0	1.9	1
P6SMBFJ220A	P6SMBFJ220CA	220.0	246.00	272.00	1	356.0	1.7	1
P6SMBFJ250A	P6SMBFJ250CA	250.0	279.00	309.00	1	405.0	1.5	1
P6SMBFJ300A	P6SMBFJ300CA	300.0	335.00	371.00	1	486.0	1.3	1
P6SMBFJ350A	P6SMBFJ350CA	350.0	391.00	432.00	1	567.0	1.1	1
P6SMBFJ400A	P6SMBFJ400CA	400.0	447.00	494.00	1	648.0	0.9	1
P6SMBFJ440A	P6SMBFJ440CA	440.0	492.00	543.00	1	713.0	0.9	1

Typical Characteristics

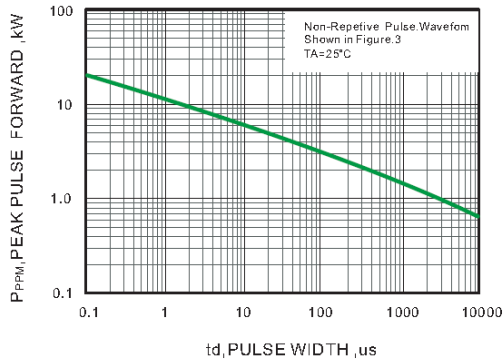


Fig. 1 Peak Pulse Power Rating Curve

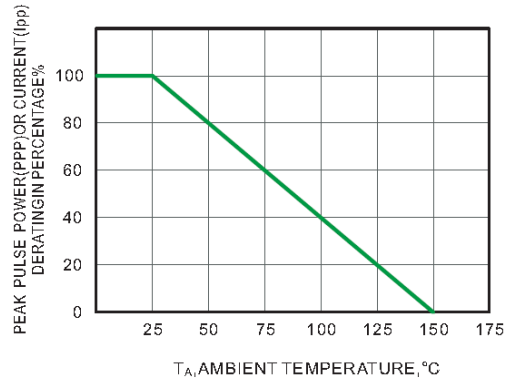


Fig. 2 Forward Current Derating Curve

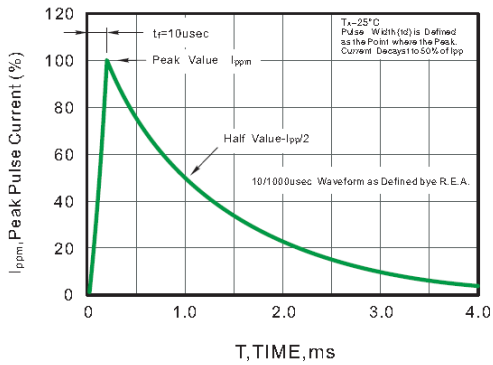


Fig. 3 Pulse Waveform

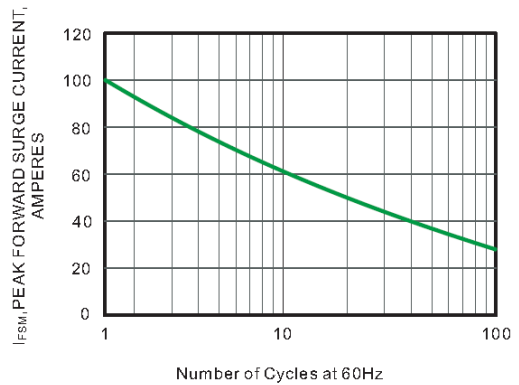
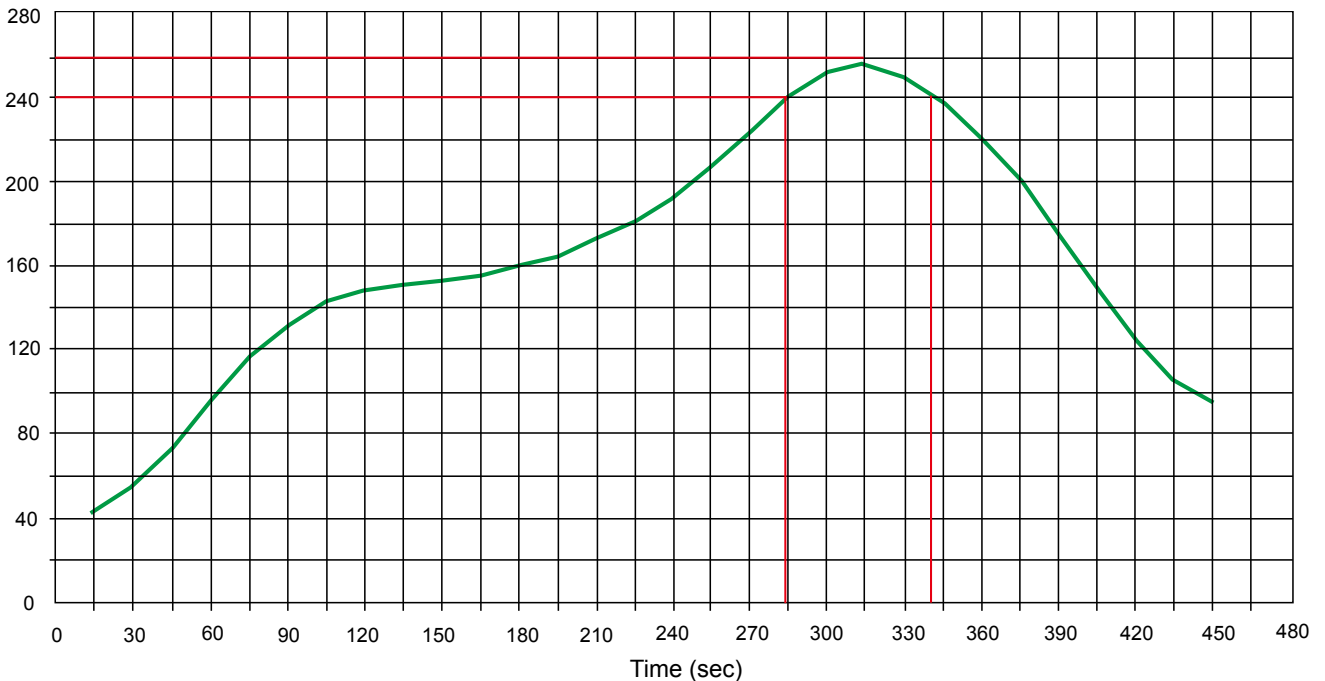


Fig. 4 Maximum Non-Repetitive Peak Forward Surge Current

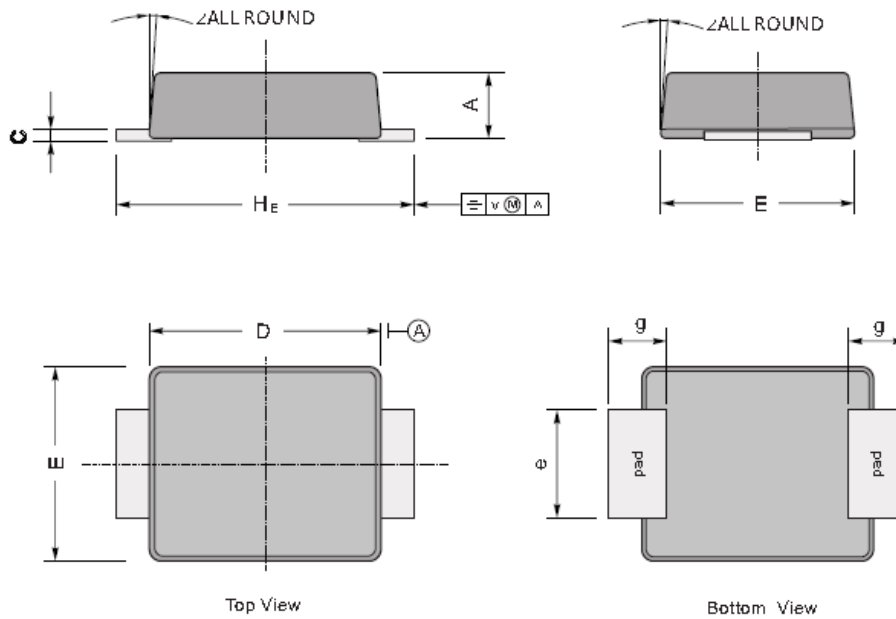
Tj=Tjmax  
8.3ms Single Half Sinepulse  
JEDEC Method

Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec

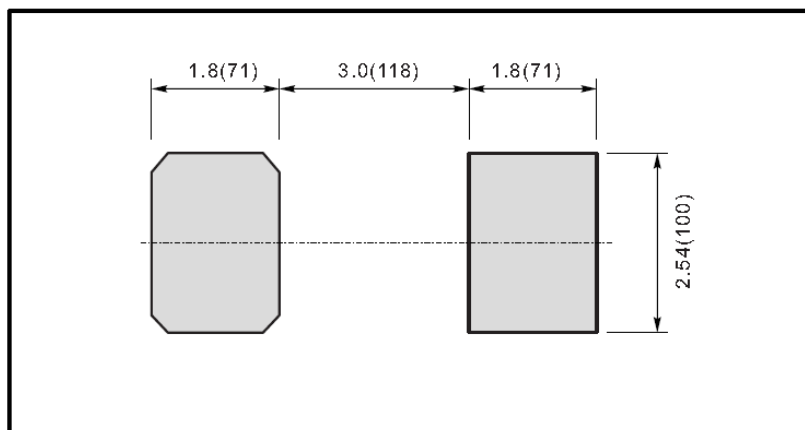


Product dimension (SMBF)



UNIT		A	C	D	E	$H_E$	$e$	$g$	$\angle$
mm	max	1.3	0.26	4.4	3.7	5.5	2.2	1.0	9°
	min	1.1	0.18	4.2	3.5	5.1	1.9		
mil	max	51	10	173	146	216	86	40	
	min	43	7	165	138	200	75		

The recommended mounting pad size




Unit:  $\frac{\text{mm}}{\text{mil}}$

Ordering information

Device	Package	Shipping
P6SMBFJ5.0A - P6SMBFJ440CA	SMBF (Pb-Free)	5000/ Tape & Reel


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