Expsemi

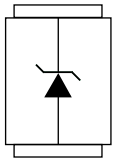
SMBFJ5.0A THRU SMBFJ440CA

Surface mount transient voltage suppressor power 600 watts

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
- AEC-Q101 qualified

Mechanical Characteristics

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

Absolute maximum rating@25℃

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	℃/W
Operating Junction Temperature and Storage Temperature Range	T_j, T_{stg}	-55 to +150	℃

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25℃ 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℃(unless otherwise specified)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @IPP	Peak Pulse Current	Reverse Leakage @VRWM
Unidirectional	Bidirectional	V_{RWM}(V)	V_{BR}(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
SMBFJ5.0A	SMBFJ5.0CA	5	6.40~7.00	10	9.2	65.3	800
SMBFJ6.0A	SMBFJ6.0CA	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
SMBFJ7.0A	SMBFJ7.0CA	7	7.78~8.60	10	12	50	200
SMBFJ7.5A	SMBFJ7.5CA	7.5	8.33~9.21	1	12.9	46.6	100
SMBFJ8.0A	SMBFJ8.0CA	8	8.89~9.83	1	13.6	44.2	50
SMBJ8.5A	SMBJ8.5CA	8.5	9.44~10.40	1	14.4	41.7	20
SMBFJ9.0A	SMBFJ9.0CA	9	10.00~11.10	1	15.4	39	10
SMBFJ10A	SMBFJ10CA	10	11.10~12.30	1	17	35.3	5
SMBFJ11A	SMBFJ11CA	11	12.20~13.50	1	18.2	33	1
SMBFJ12A	SMBFJ12CA	12	13.30~14.70	1	19.9	30.2	1
SMBFJ13A	SMBFJ13CA	13	14.40~15.90	1	21.5	28	1
SMBFJ14A	SMBFJ14CA	14	15.60~17.20	1	23.2	25.9	1
SMBFJ15A	SMBFJ15CA	15	16.70~18.50	1	24.4	24.6	1
SMBFJ16A	SMBFJ16CA	16	17.80~19.70	1	26	23.1	1
SMBFJ17A	SMBFJ17CA	17	18.90~20.90	1	27.6	21.8	1
SMBFJ18A	SMBFJ18CA	18	20.00~22.10	1	29.2	20.6	1
SMBFJ20A	SMBFJ20CA	20	22.20~24.50	1	32.4	18.6	1
SMBFJ22A	SMBFJ22CA	22	24.40~26.90	1	35.5	16.9	1
SMBFJ24A	SMBFJ24CA	24	26.70~29.50	1	38.9	15.5	1
SMBFJ26A	SMBFJ26CA	26	28.90~31.90	1	42.1	14.3	1
SMBFJ28A	SMBFJ28CA	28	31.10~34.40	1	45.4	13.3	1
SMBFJ30A	SMBFJ30CA	30	33.30~36.80	1	48.4	12.4	1
SMBFJ33A	SMBFJ33CA	33	36.70~40.60	1	53.3	11.3	1
SMBFJ36A	SMBFJ36CA	36	40.00~44.20	1	58.1	10.4	1
SMBFJ40A	SMBFJ40CA	40	44.40~49.10	1	64.5	9.3	1
SMBFJ43A	SMBFJ43CA	43	47.80~52.80	1	69.4	8.7	1
SMBFJ45A	SMBFJ45CA	45	50.00~55.30	1	72.7	8.3	1
SMBFJ48A	SMBFJ48CA	48	53.30~58.90	1	77.4	7.8	1
SMBFJ51A	SMBFJ51CA	51	56.70~62.70	1	82.4	7.3	1
SMBFJ54A	SMBFJ54CA	54	60.00~66.30	1	87.1	6.9	1

Electrical characteristics per line@25℃(unless otherwise specified)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @IPP	Peak Pulse Current	Reverse Leakage @VRWM
Unidirectional	Bidirectional	V_{RWM}(V)	V_{BR}(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
SMBFJ58A	SMBFJ58CA	58	64.40~71.20	1	93.6	6.5	1
SMBFJ60A	SMBFJ60CA	60	66.70~73.70	1	96.8	6.2	1
SMBFJ64A	SMBFJ64CA	64	71.10~78.60	1	103	5.9	1
SMBFJ70A	SMBFJ70CA	70	77.80~86.00	1	113	5.3	1
SMBFJ75A	SMBFJ75CA	75	83.30~92.10	1	121	5	1
SMBFJ78A	SMBFJ78CA	78	86.70~95.80	1	126	4.8	1
SMBFJ85A	SMBFJ85CA	85	94.40~104.00	1	137	4.4	1
SMBFJ90A	SMBFJ90CA	90	100.00~111.00	1	146	4.1	1
SMBFJ100A	SMBFJ100CA	100	111.00~123.00	1	162	3.7	1
SMBFJ110A	SMBFJ110CA	110	122.00~135.00	1	177	3.4	1
SMBFJ120A	SMBFJ120CA	120	133.00~147.00	1	193	3.1	1
SMBFJ130A	SMBFJ130CA	130	144.00~159.00	1	209	2.9	1
SMBFJ150A	SMBFJ150CA	150	167.00~185.00	1	243	2.5	1
SMBFJ160A	SMBFJ160CA	160	178.00~197.00	1	259	2.3	1
SMBFJ170A	SMBFJ170CA	170	189.00~209.00	1	275	2.2	1
SMBFJ180A	SMBFJ180CA	180	201.00~222.00	1	292	2.1	1
SMBFJ190A	SMBFJ190CA	190	211.00~233.00	1	308	2	1
SMBFJ200A	SMBFJ200CA	200	224.00~247.00	1	324	1.9	1
SMBFJ210A	SMBFJ210CA	210	237.00~263.00	1	340	1.8	1
SMBFJ220A	SMBFJ220CA	220	246.00~272.00	1	356	1.7	1
SMBFJ250A	SMBFJ250CA	250	279.00~309.00	1	405	1.5	1
SMBFJ300A	SMBFJ300CA	300	335.00~371.00	1	486	1.3	1
SMBFJ350A	SMBFJ350CA	350	391.00~432.00	1	567	1.1	1
SMBFJ400A	SMBFJ400CA	400	447.00~494.00	1	648	0.9	1
SMBFJ440A	SMBFJ440CA	440	492.00~543.00	1	713	0.9	1

Typical Characteristics

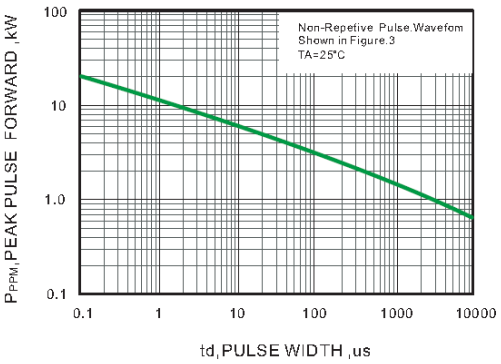


Fig.1 Peak Pulse Power Rating Curve

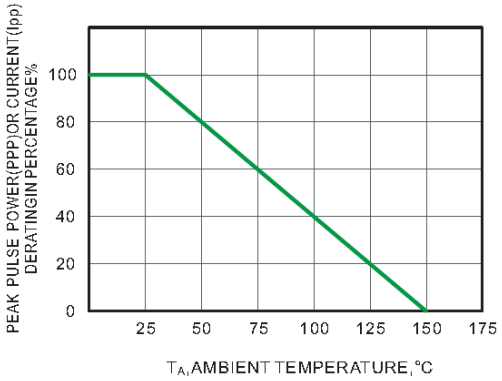


Fig.2 Forward Current Derating Curve

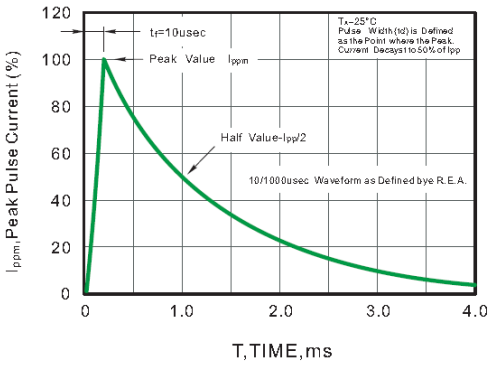


Fig.3 Pulse Waveform

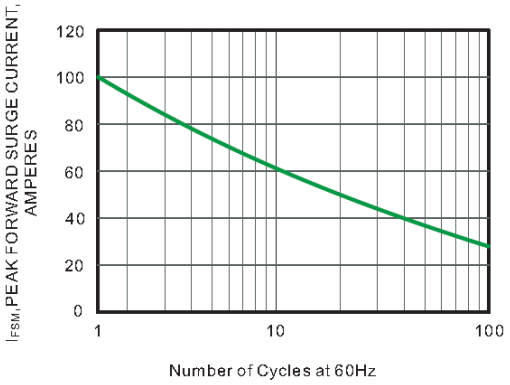
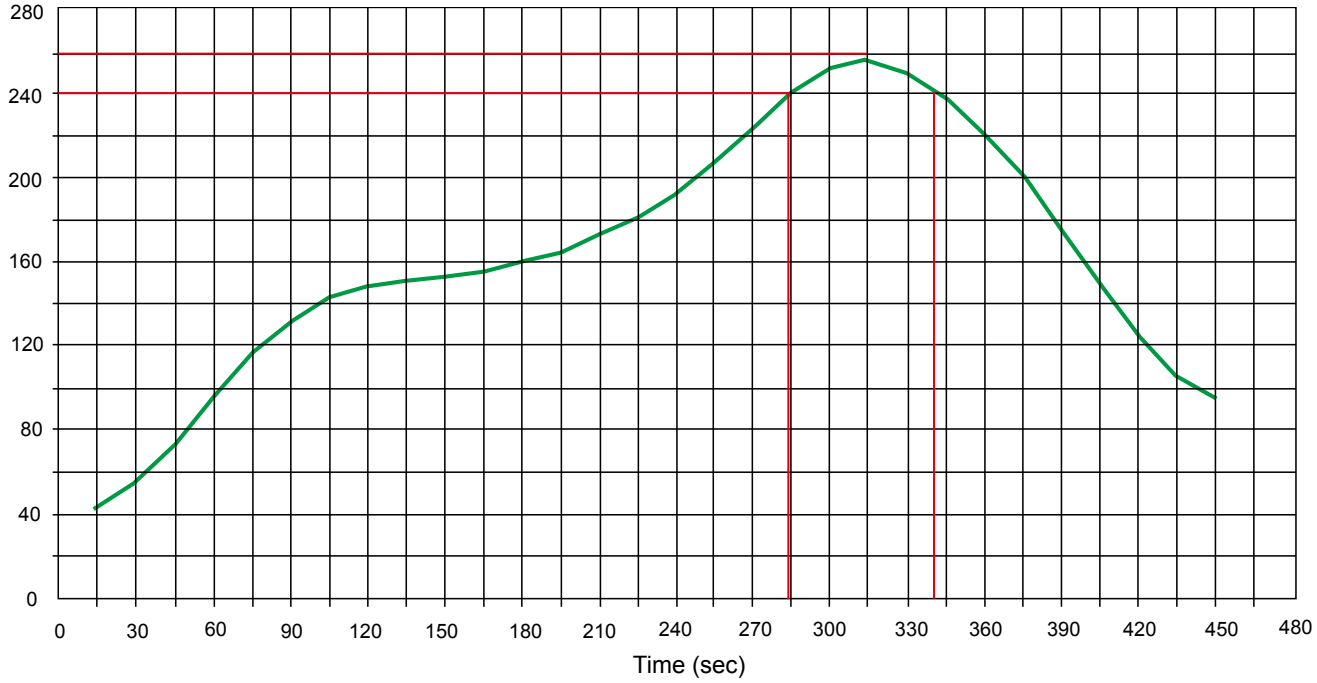


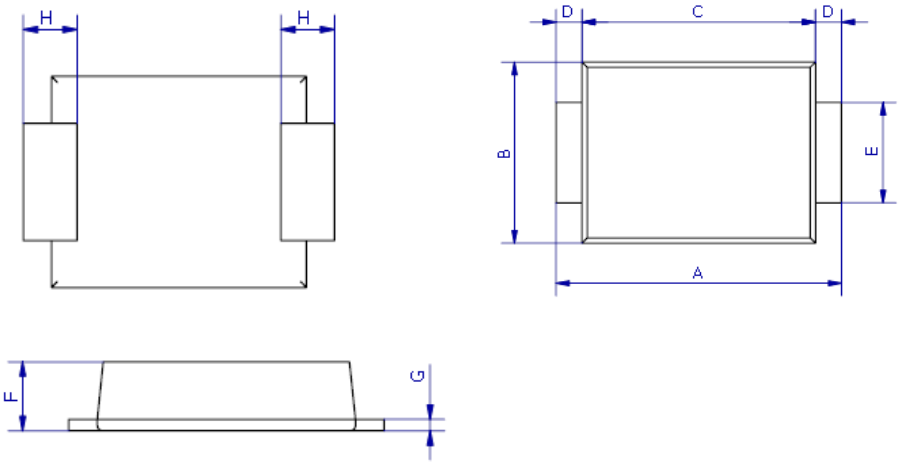
Fig.4 Maximum Non-Repetitive Peak Forward Surge Current

Solder Reflow Recommendation

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

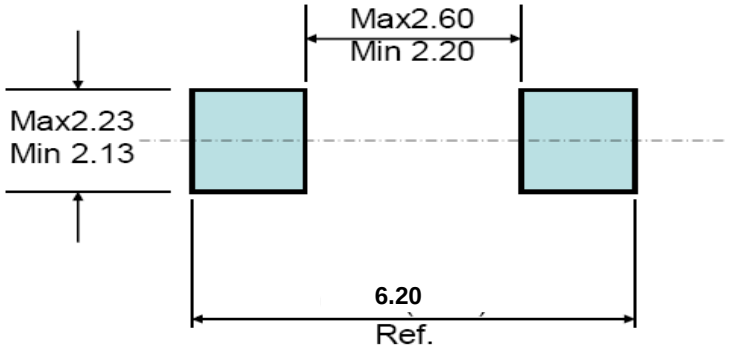


Product dimension (SMBF)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.3	5.7	0.209	0.224
B	3.4	3.8	0.134	0.150
C	4.3	4.7	0.169	0.185
D	0.45Typ		0.018Typ	
E	1.9	2.1	0.0748	0.08268
F	1.05	1.40	0.04134	0.05512
G	0.2	0.3	0.00591	0.00984
H	0.95Typ		0.037Typ	

Mounting Pad Layout



Ordering information

Device	Package	Shipping
SMBFJ5.0A - SMBFJ440CA	SMBF (Pb-Free)	5000/ Tape & Reel