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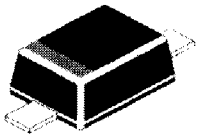
TRANSIENT VOLTAGE SUPRESSOR



SMBF5.0 A/CA to SMBF200A/CA
SMBF (FLAT LEAD)
Surface Mount
PLASTIC PACKAGE

UNIDIRECTIONAL DEVICE MARKED WITH CATHODE LINE
BIDIRECTIONAL DEVICE WITHOUT CATHODE LINE

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

(Ratings at T_A=25ºC unless otherwise specified)

Parameter	Symbol	Value	Units
Peak Power Dissipation (Note1.) @T_L=25°C, Pulse Width=1ms	P_{PK}	600	W
Forward Surge Current (Note2.) @T_A=25°C	I_{FSM}	100	A
Power Dissipation On Infinite Heatsink, @T_A=75°C	$P_{M(AV)}$	5.0	W
Thermal Resistance Junction To Ambient Air (Note3.)	$R_{\theta JA}$	100	ºC/W
Thermal Resistance Junction To Leads	$R_{\theta JL}$	20	ºC/W
Storage Temperature Range	T_{STG}	-55 to 150	ºC
Operating Junction Temperature Range	T_J	-55 to 150	ºC

1) 10 X 1000 us, non–repetitive
2) 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
3) Mounted on minimum recommended pad layout

Electrical Characteristics (Ratings at T_A=25ºC unless otherwise specified)

Part Number	Device Marking Code		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (VOLTS) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (µA)
	UNI	BI		MIN	MAX				
SMBF5.0	KE	AE	5	6.4	7.07	10	9.6	65.2	500
SMBF6.0	KG	AG	6	6.67	7.37	10	10.3	58.3	300
SMBF6.5	KK	AK	6.5	7.22	7.98	10	11.2	53.6	200
SMBF7.0	KM	AM	7	7.78	8.6	10	12	50	100
SMBF7.5	KP	AP	7.5	8.33	9.21	1	12.9	46.6	50
SMBF8.0	KR	AR	8	8.89	9.83	1	13.6	44.2	50
SMBF8.5	KT	AT	8.5	9.44	10.4	1	14.4	41.7	30
SMBF9.0	KV	AV	9	10	11.1	1	15.4	39	30
SMBF10	KX	AX	10	11.1	12.3	1	17	35.3	3
SMBF11	KZ	AZ	11	12.2	13.5	1	18.2	33	1
SMBF12	LE	BE	12	13.3	14.7	1	19.9	30.2	1
SMBF13	LG	BG	13	14.4	15.9	1	21.5	28	1
SMBF14	LK	BK	14	15.6	17.2	1	23.2	25.9	1
SMBF15	LM	BM	15	16.7	18.5	1	24.4	24.6	1
SMBF16	LP	BP	16	17.8	19.7	1	26	23.1	1

Quality Semi-Conductors

Electrical Characteristics (Ratings at T_A=25ºC unless otherwise specified)

Part Number	Device Marking Code		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (VOLTS) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μA)
	UNI	BI		MIN	MAX				
SMBF17	LR	BR	17	18.9	20.9	1	27.6	21.8	1
SMBF18	LT	BT	18	20	22.1	1	29.2	20.6	1
SMBF20	LV	BV	20	22.2	24.5	1	32.4	18.6	1
SMBF22	LX	BX	22	24.4	26.9	1	35.5	16.9	1
SMBF24	LZ	BZ	24	26.7	29.5	1	38.9	15.5	1
SMBF26	ME	CE	26	28.9	31.9	1	42.1	14.3	1
SMBF28	MG	CG	28	31.1	34.4	1	45.4	13.3	1
SMBF30	MK	CK	30	33.3	36.8	1	48.4	12.4	1
SMBF33	MM	CM	33	36.7	40.6	1	53.3	11.3	1
SMBF36	MP	CP	36	40	44.2	1	58.1	10.4	1
SMBF40	MR	CR	40	44.4	49.1	1	64.5	9.3	1
SMBF43	MT	CT	43	47.8	52.8	1	69.4	8.7	1
SMBF45	MV	CV	45	50	55.3	1	72.7	8.3	1
SMBF48	MX	CX	48	53.3	58.9	1	77.4	7.8	1
SMBF51	MZ	CZ	51	56.7	62.7	1	82.4	7.3	1
SMBF54	NE	DE	54	60	66.3	1	87.1	6.9	1
SMBF58	NG	DG	58	64.4	71.2	1	93.6	6.5	1
SMBF60	NK	DK	60	66.7	73.7	1	96.8	6.2	1
SMBF64	NM	DM	64	71.1	78.6	1	103	5.9	1
SMBF70	NP	DP	70	77.8	86	1	113	5.3	1
SMBF75	NR	DR	75	83.3	92.1	1	121	5	1
SMBF78	NT	DT	78	86.7	95.8	1	126	4.8	1
SMBF85	NV	DV	85	94.4	104	1	137	4.4	1
SMBF90	NX	DX	90	100	111	1	146	4.1	1
SMBF100	NZ	DZ	100	111	123	1	162	3.7	1
SMBF110	PE	EE	110	122	135	1	177	3.4	1
SMBF120	PG	EG	120	133	147	1	193	3.1	1
SMBF130	PK	EK	130	144	159	1	209	2.9	1
SMBF150	PM	EM	150	167	185	1	243	2.5	1
SMBF160	PP	EP	160	178	197	1	259	2.3	1
SMBF170	PR	ER	170	189	209	1	275	2.2	1
SMBF180	PT	ET	180	201	222	1	292	2.1	1
SMBF190	PV	EV	190	211	233	1	306	2	1
SMBF200	PX	EX	200	224	247	1	324	1.9	1

※For Bi-directional type having V_{RWM} of 10 Volts and less, the I_R limit is double

1. A transient suppressor is normally selected according to the working peak reverse voltage (V_{RWM}), which should be equal to or greater than the DC or continuous peak operating voltage level.

2. VBR measured at pulse test current IT at an ambient temperature of 25°C.

3. Surge current waveform per Figure 1 and derate per Figure 3.

PART NO	MARKING CODE	DESCRIPTION
SMBFXXXA	XXXA	Zenner Voltage Reference
SMBFXXXCA	YYWW	Date Code:
		YY = Year Code
		WW = Week Code
		A = Unidirectional
		CA = Bidirectional

CHARACTERISTIC CURVES

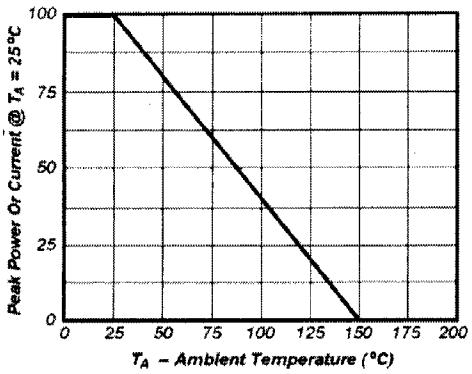


Fig1. Pulse Dearting Curve

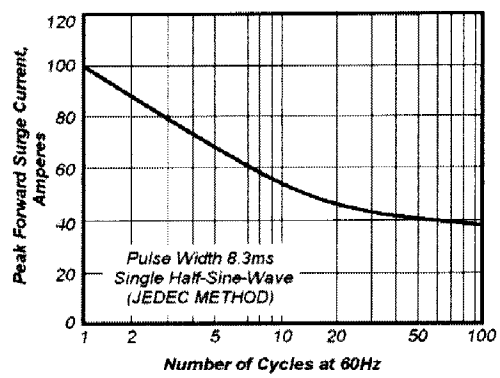


Fig2. Maximum Non-Repetitive Peak Forward Surge Current

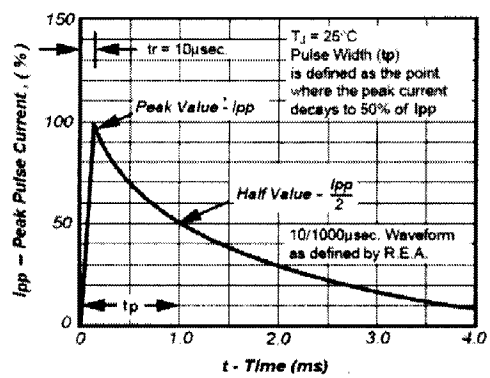


Fig3. Pulse Waveform

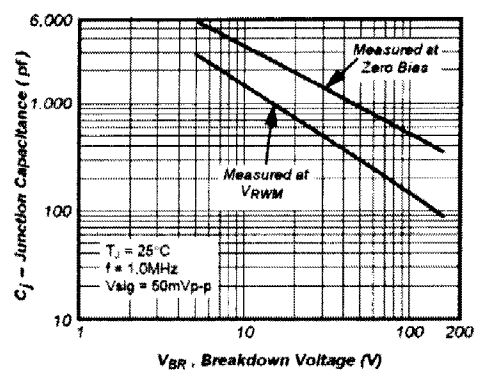


Fig4. Typical Junction Capacitance

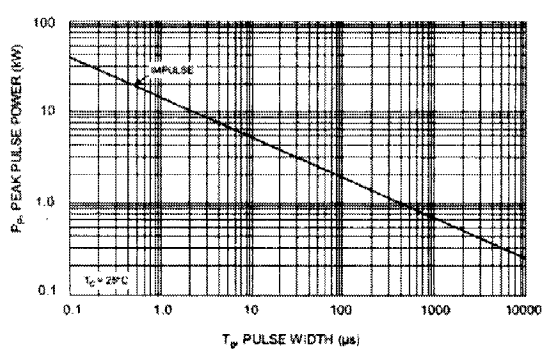


Fig5. Peak Pulse Power Rating curve

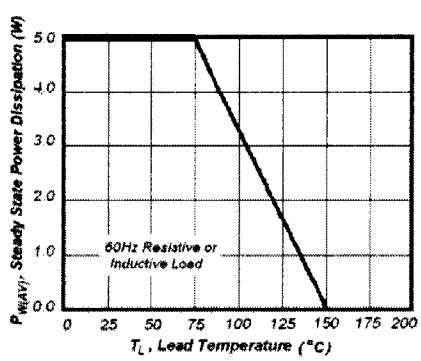
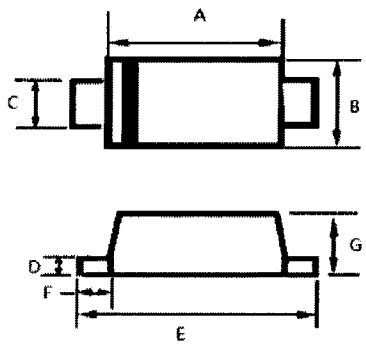


Fig6. Steady State Power Derating curve

SMBF PACKAGE OUTLINE AND DIMENSIONS



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	4.3	4.7	0.169	0.185
B	3.4	3.8	0.134	0.15
C	1.8	2.2	0.071	0.086
D	0.15	0.25	0.06	0.01
E	5.1	5.5	0.217	0.5
F	0.25	0.55	0.01	0.022
G	1.25	1.45	0.049	0.057