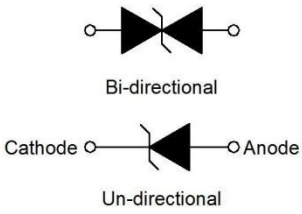
200W Transient Voltage Suppressor SMF Series

Parameter	Value	Unit
P_{PP}	200	W
T_j	-55 to +125	°C



SMF/SOD-123FL

FEATURES

- Excellent clamping capability
- 200W peak pulse power capability with a 10/1000μs waveform.
- VRWM: 3.3-190V
- Low profile package and low inductance
- Typical IR less than 1uA above 12V
- Fast response time: typically less than 1.0ps from 0V to VBR min.

APPLICATIONS

- For surface mounted applications
- Computer system
- Domestic appliance
- Video input

MAXIMUM RATED VALUES (at TJ = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000μs waveform	PPP	200	W
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	1.0	W
Operating junction temperature range	T_j	-55 to +125	℃
Storage temperature range	T_{stg}	-55 to +150	℃

ELECTRICAL CHARACTERISTICS (at TJ = 25°C unless otherwise specified)

Part Number		VR	IR@VR	VBR@IT		IT	VC@IPP	IPP①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMF3.3A	/	3.3	200	5.2	6	10	8.0	25.00
SMF5.0A	SMF5.0CA	5.0	400	6.40	7.00	10	9.2	21.74
SMF6.0A	SMF6.0CA	6.0	400	6.67	7.37	10	10.3	19.42
SMF6.5A	SMF6.5CA	6.5	250	7.22	7.98	10	11.2	17.86
SMF7.0A	SMF7.0CA	7.0	100	7.78	8.60	10	12.0	16.67
SMF7.5A	SMF7.5CA	7.5	50	8.33	9.21	1	12.9	15.51
SMF8.0A	SMF8.0CA	8.0	25	8.89	9.83	1	13.6	14.71
SMF8.5A	SMF8.5CA	8.5	10	9.44	10.40	1	14.4	13.89
SMF9.0A	SMF9.0CA	9.0	5	10.00	11.10	1	15.4	12.99
SMF10A	SMF10CA	10.0	2.5	11.10	12.30	1	17.0	11.77

SMF11A	SMF11CA	11.0	2.5	12.20	13.50	1	18.2	10.99
SMF12A	SMF12CA	12.0	2.5	13.30	14.70	1	19.9	10.06
SMF13A	SMF13CA	13.0	1	14.40	15.90	1	21.5	9.31
SMF14A	SMF14CA	14.0	1	15.60	17.20	1	23.2	8.63
SMF15A	SMF15CA	15.0	1	16.70	18.50	1	24.4	8.20
SMF16A	SMF16CA	16.0	1	17.80	19.70	1	26.0	7.70
SMF17A	SMF17CA	17.0	1	18.90	20.90	1	27.6	7.25
SMF18A	SMF18CA	18.0	1	20.00	22.10	1	29.2	6.85
SMF20A	SMF20CA	20.0	1	22.20	24.50	1	32.4	6.18
SMF22A	SMF22CA	22.0	1	24.40	26.90	1	35.5	5.64
SMF24A	SMF24CA	24.0	1	26.70	29.50	1	38.9	5.15
SMF26A	SMF26CA	26.0	1	28.90	31.90	1	42.1	4.76
SMF28A	SMF28CA	28.0	1	31.10	34.40	1	45.4	4.41
SMF30A	SMF30CA	30.0	1	33.30	36.80	1	48.4	4.14
SMF33A	SMF33CA	33.0	1	36.70	40.60	1	53.3	3.76
SMF36A	SMF36CA	36.0	1	40.00	44.20	1	58.1	3.45
SMF40A	SMF40CA	40.0	1	44.40	49.10	1	64.5	3.11
SMF43A	SMF43CA	43.0	1	47.8	52.80	1	69.4	2.89
SMF45A	SMF45CA	45.0	1	50.00	55.30	1	72.7	2.76
SMF48A	SMF48CA	48.0	1	53.30	58.90	1	77.4	2.59
SMF51A	SMF51CA	51.0	1	56.70	62.70	1	82.4	2.43
SMF54A	SMF54CA	54.0	1	60.00	66.30	1	87.1	2.30
SMF58A	SMF58CA	58.0	1	64.4	71.20	1	93.6	2.14
SMF60A	SMF60CA	60.0	1	66.7	73.70	1	96.8	2.07
SMF64A	SMF64CA	64.0	1	71.10	78.60	1	103.0	1.95
SMF70A	SMF70CA	70.0	1	77.8	86.00	1	113.0	1.77
SMF75A	SMF75CA	75.0	1	83.3	92.10	1	121.0	1.66
SMF78A	SMF78CA	78.0	1	86.70	95.8	1	126.0	1.59
SMF85A	SMF85CA	85.0	1	94.40	104.0	1	137.0	1.46
SMF90A	SMF90CA	90.0	1	100.0	111.0	1	146.0	1.37
SMF100A	SMF100CA	100.0	1	111.0	123.0	1	162.0	1.24
SMF110A	SMF110CA	110.0	1	122.0	135.0	1	177.0	1.13
SMF120A	SMF120CA	120.0	1	133.0	147.0	1	193.0	1.04
SMF130A	SMF130CA	130.0	1	144.0	159.0	1	209.0	0.96
SMF150A	SMF150CA	150.0	1	167.0	185.0	1	243.0	0.83
SMF160A	SMF160CA	160.0	1	178.0	197.0	1	259.0	0.78

SMF170A	SMF170CA	170.0	1	189.0	209.0	1	275.0	0.73
SMF180A	SMF180CA	180.0	1	201.1	222.0	1	292.0	0.69
SMF190A	SMF190CA	190.0	1	211.0	243.0	1	308.0	0.65

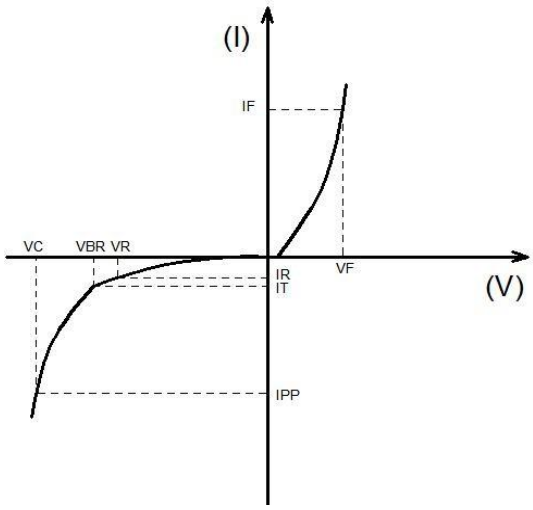
Notes：

① Surge waveform: 10/1000μs
VR: Stand-off Voltage -- Maximum voltage that can be applied
VBR: Breakdown Voltage
VC: Clamping Voltage -- Peak voltage measured across the suppressor at a specified Ipp
IR: Reverse Leakage Current

Symbol	Parameter
I_F	Mean Forward Current
V_F	Maximum Forward Voltage @IF
V_R	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ VR
V_{BR}	Breakdown Voltage @ IT
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ IPP

TYPICAL CHARACTERISTICS CURVES

Fig1：V-i cure characteristics



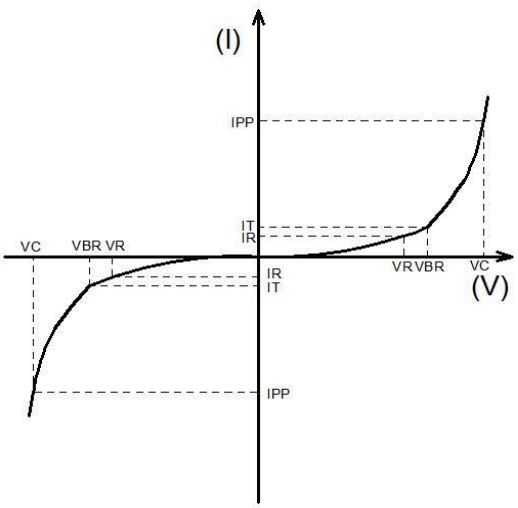


Fig2:Pulse derating curve

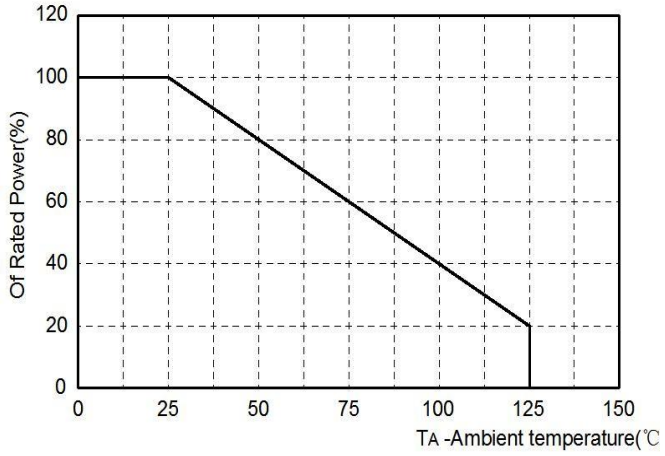


Fig3：Pulse waveform

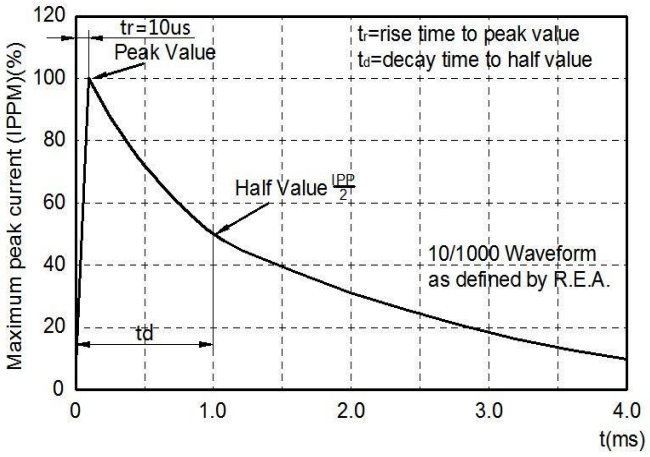


Fig4:Peak Pulse Power Rating Curve

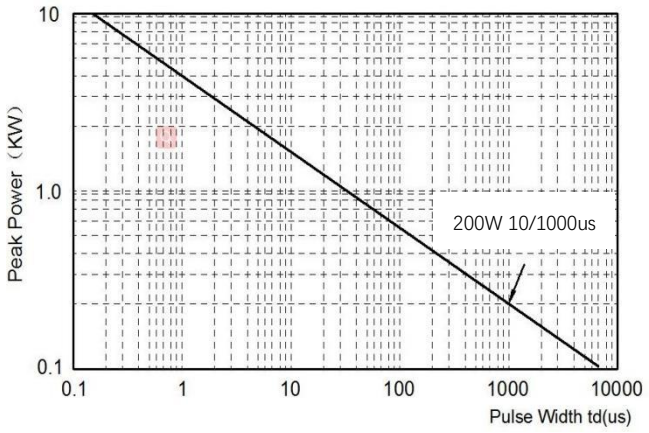
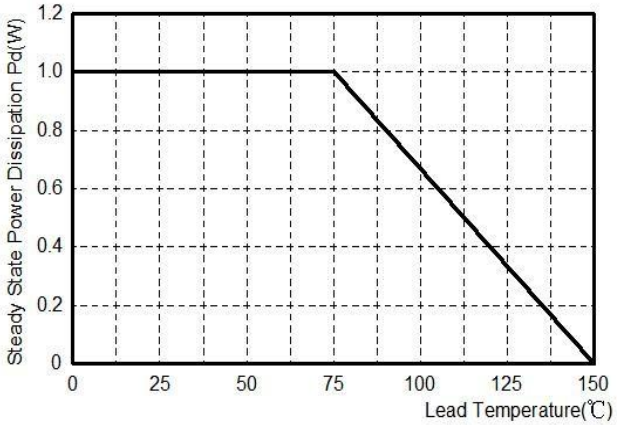
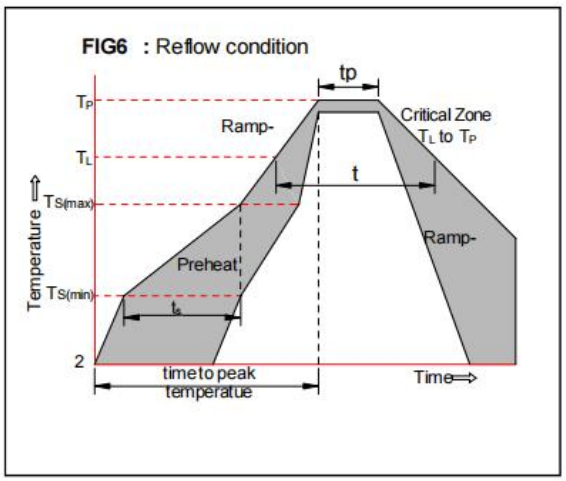


Fig5: Steady State Power Dissipation

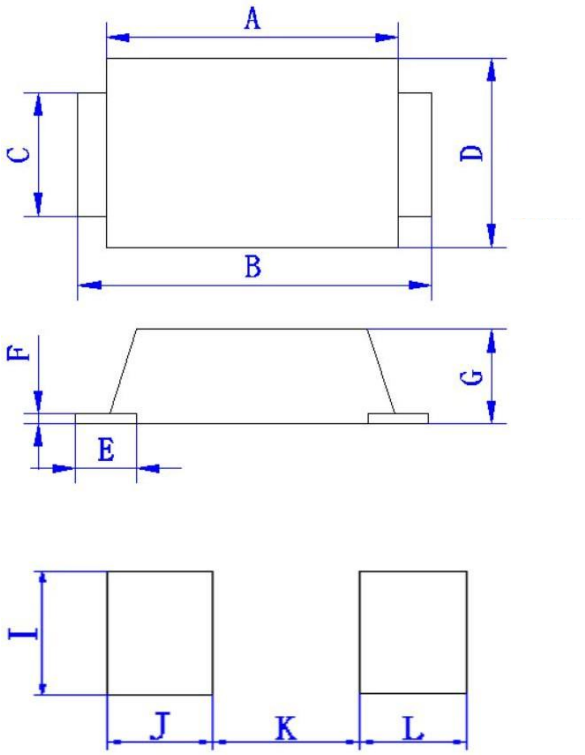


Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	Temperature Min ($T_{s(min)}$)	+150℃
	Temperature Max($T_{s(max)}$)	+200℃
	Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217℃
	Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃



PACKAGE OUTLINES



Ref.(mm)	Millimeters	
	Min.	Max.
A	2.5	3.0
B	3.4	4.0
C	0.7	1.1
D	1.5	1.9
E	0.45	0.95
F	0.05	0.26
G	0.9	1.1
I	1.2	
J	0.85	
K		2.3
L	0.85	

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