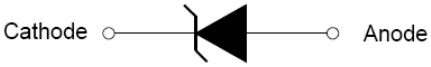
DESCRIPTION:

TVS diodes can be used in a wide range ofapplications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

SOD-123FL

Bi-directional



Uni-direction

FEATURES:

- ✧ Glass passivated or planar junction
- ✧ Excellent clamping capability
- ✧ Repetition rate (duty cycle): 0.01%
- ✧ Typical I_R less than 1μA above 10V.
- ✧ Low profile package and low inductance
- ✧ 200W Peak Pulse power capability at 10×1000μs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature soldering: 260℃/10s at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0.
- ✧ For surface mounted applications in order to optimize board space

ABSOLUTE MAXIMUM RATINGS (T_A=25ºC, RH=45%-75%, unless otherwisenoted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +150	℃
Operating junction temperature range	T_j	-55 to +150	℃
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	2.8	W
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	200	W
Maximum Instantaneous Forward Voltage at 20A for Unidirectional	V_F	5.0	V

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Part Number		V_R	I_R@ V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMFJ5.0A	SMFJ5.0CA	5.0	150	6.40	7.00	10	9.2	21.7
SMFJ6.0A	SMFJ6.0CA	6.0	100	6.67	7.37	10	10.3	19.4
SMFJ6.5A	SMFJ6.5CA	6.5	100	7.22	7.98	10	11.2	17.9
SMFJ7.0A	SMFJ7.0CA	7.0	50	7.78	8.60	10	12.0	16.7
SMFJ7.5A	SMFJ7.5CA	7.5	50	8.33	9.21	1	12.9	15.5
SMFJ8.0A	SMFJ8.0CA	8.0	20	8.89	9.83	1	13.6	14.7
SMFJ9.0A	SMFJ9.0CA	9.0	5	10.00	11.10	1	15.4	13.0
SMFJ10A	SMFJ10CA	10.0	2	11.10	12.30	1	17.0	11.8
SMFJ11A	SMFJ11CA	11.0	1	12.20	13.50	1	18.2	11.0
SMFJ12A	SMFJ12CA	12.0	1	13.30	14.70	1	19.9	10.1
SMFJ13A	SMFJ13CA	13.0	1	14.40	15.90	1	21.5	9.3
SMFJ14A	SMFJ14CA	14.0	1	15.60	17.20	1	23.2	8.6
SMFJ15A	SMFJ15CA	15.0	1	16.70	18.50	1	24.4	8.2
SMFJ18A	SMFJ18CA	18.0	1	20.00	22.10	1	29.2	6.8
SMFJ20A	SMFJ20CA	20.0	1	22.20	24.50	1	32.4	6.2
SMFJ22A	SMFJ22CA	22.0	1	24.40	26.90	1	35.5	5.6
SMFJ24A	SMFJ24CA	24.0	1	26.70	29.50	1	38.9	5.1
SMFJ26A	SMFJ26CA	26.0	1	28.90	31.90	1	42.1	4.8
SMFJ28A	SMFJ28CA	28.0	1	31.10	34.40	1	45.4	4.4
SMFJ30A	SMFJ30CA	30.0	1	33.30	36.80	1	48.4	4.1
SMFJ33A	SMFJ33CA	33.0	1	36.70	40.60	1	53.3	3.8
SMFJ36A	SMFJ36CA	36.0	1	40.00	44.20	1	58.1	3.4
SMFJ48A	SMFJ48CA	48.0	1	53.30	58.90	1	77.4	2.6
SMFJ51A	SMFJ51CA	51.0	1	56.70	62.70	1	82.4	2.4
SMFJ58A	SMFJ58CA	58.0	1	64.40	71.20	1	93.6	2.1

①Surge waveform: 10/1000μs

V_R： Stand-off Voltage -- Maximum voltage that can be applied V_{BR}: Breakdown Voltage

V_C: Clamping Voltage -- Peak voltage measured across the suppressor at a specified Ipp I_R: Reverse Leakage Current

ORDERING INFORMATION

SMFJ xx C A

- SMFJ: 200W SOD Series
- xx: V_R Voltage
- C: Bi-directional
- A: 5% V_{BR} Voltage tolerance

RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25ºC, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

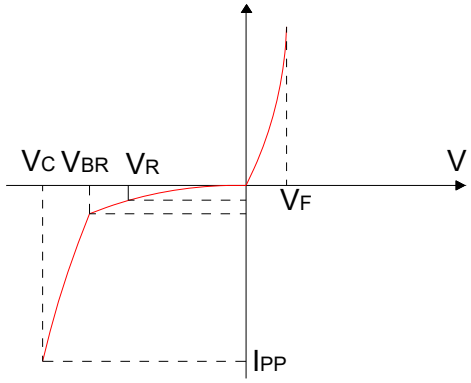


FIG.2:V- I curve characteristics (Bi-directional)

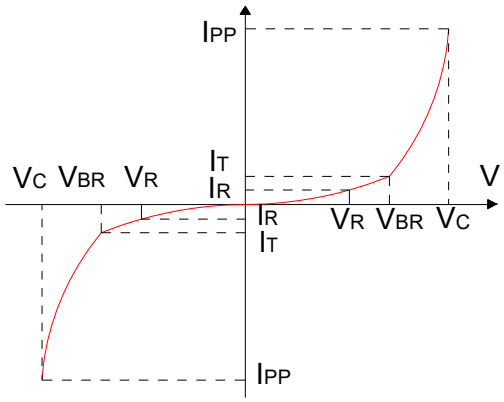


FIG.3: Pulse waveform

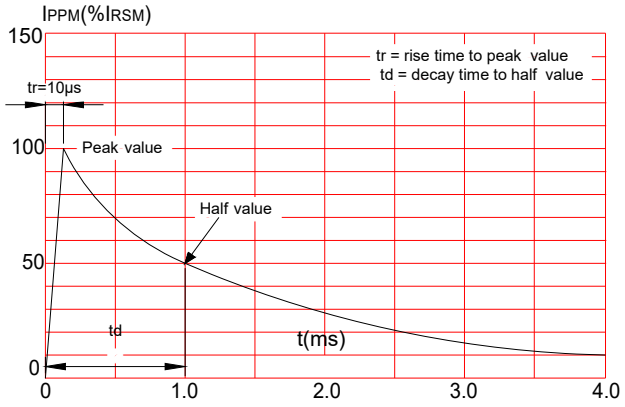
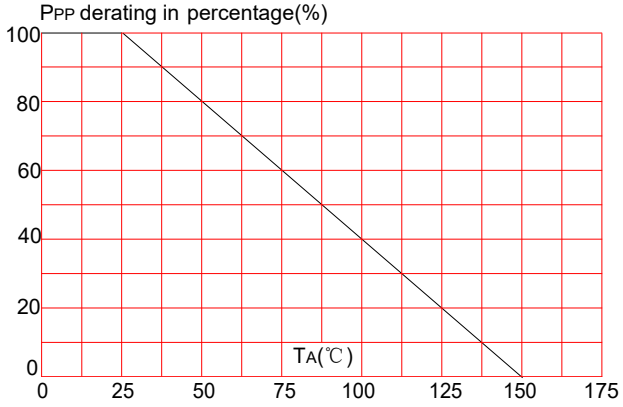


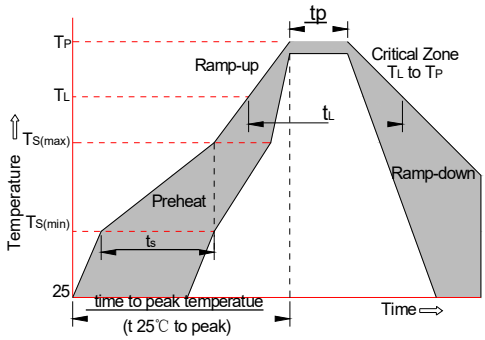
FIG.4: Pulse derating curve



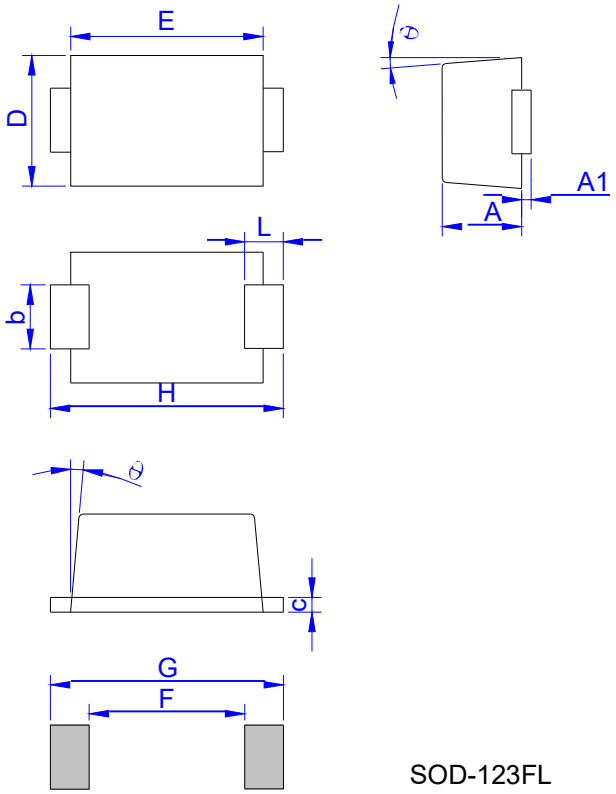
SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
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℃

FIG.5: Reflow condition



PACKAGE MECHANICAL DATA



SOD-123FL

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.00	0.035	0.039
A1	0	0.10	0	0.004
b	0.70	1.10	0.028	0.043
c	0.10	0.20	0.004	0.008
D	1.50	1.80	0.059	0.071
E	2.50	2.90	0.098	0.114
F	2.36	-	0.093	-
G	4.19	-	0.165	-
H	3.40	3.80	0.134	0.150
L	0.55	0.95	0.022	0.037
θ	0	8°	0	8°