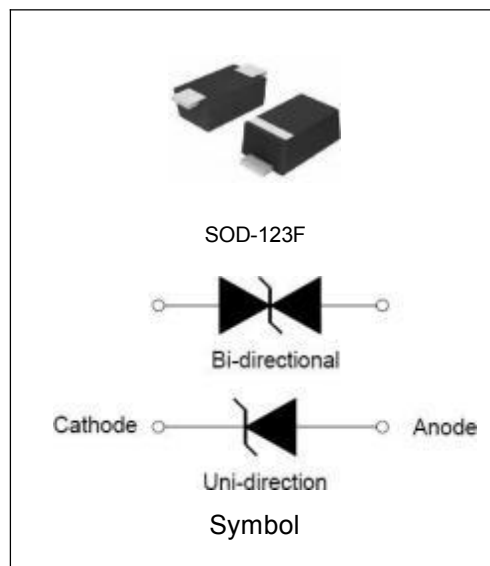


DESCRIPTION:

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

FEATURES:

- ✧ Glass passivated or planar junction.
- ✧ Lower clamping voltage.
- ✧ High temperature soldering: 260°C/10s at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0.
- ✧ Fast response time: typically less than 1.0ps from 0V to VBR min.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).
- ✧ 400W peak pulse power capability at 10× 1000μs waveform.



ABSOLUTE MAXIMUM RATINGS (T_A=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T _{stg}	-55 to +150	°C
Operating junction temperature range	T _j	-55 to +150	°C
Peak pulse power dissipation on 10/1000μs waveform	P _{PP}	400	W

MARKING



Screscreen and model

ELECTRICAL CHARACTERISTICS $T_A=25^{\circ}\text{C}$

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
SMF5.0AL	SMF5.0CAL	5.0	100	6.40	7.00	10	9.2	43.5
SMF6.0AL	SMF6.0CAL	6.0	100	6.67	7.37	10	10.3	38.8
SMF6.5AL	SMF6.5CAL	6.5	30	7.22	7.98	10	11.2	35.7
SMF7.0AL	SMF7.0CAL	7.0	10	7.78	8.60	10	12.0	33.3
SMF7.5AL	SMF7.5CAL	7.5	5	8.33	9.21	1	12.9	31.0
SMF8.0AL	SMF8.0CAL	8.0	2	8.89	9.83	1	13.6	29.4
SMF8.5AL	SMF8.5CAL	8.5	2	9.44	10.40	1	14.4	27.8
SMF9.0AL	SMF9.0CAL	9.0	2	10.00	11.10	1	15.4	26.0
SMF10AL	SMF10CAL	10.0	1	11.10	12.30	1	17.0	23.5
SMF11AL	SMF11CAL	11.0	1	12.20	13.50	1	18.2	22.0
SMF12AL	SMF12CAL	12.0	1	13.30	14.70	1	19.9	20.1
SMF13AL	SMF13CAL	13.0	1	14.40	15.90	1	21.5	18.6
SMF14AL	SMF14CAL	14.0	1	15.60	17.20	1	23.2	17.2
SMF15AL	SMF15CAL	15.0	1	16.70	18.50	1	24.4	16.4
SMF16AL	SMF16CAL	16.0	1	17.80	19.70	1	26.0	15.4
SMF17AL	SMF17CAL	17.0	1	18.90	20.90	1	27.6	14.5
SMF18AL	SMF18CAL	18.0	1	20.00	22.10	1	29.2	13.7
SMF20AL	SMF20CAL	20.0	1	22.20	24.50	1	32.4	12.3
SMF22AL	SMF22CAL	22.0	1	24.40	26.90	1	35.5	11.3
SMF24AL	SMF24CAL	24.0	1	26.70	29.50	1	38.9	10.3
SMF26AL	SMF26CAL	26.0	1	28.90	31.90	1	42.1	9.5
SMF28AL	SMF28CAL	28.0	1	31.10	34.40	1	45.4	8.8
SMF30AL	SMF30CAL	30.0	1	33.30	36.80	1	48.4	8.3
SMF33AL	SMF33CAL	33.0	1	36.70	40.60	1	53.3	7.5
SMF36AL	SMF36CAL	36.0	1	40.00	44.20	1	58.1	6.9
SMF40AL	SMF40CAL	40.0	1	44.40	49.10	1	64.5	6.2
SMF43AL	SMF43CAL	43.0	1	47.80	52.80	1	69.4	5.8
SMF45AL	SMF45CAL	45.0	1	50.00	55.30	1	72.7	5.5
SMF48AL	SMF48CAL	48.0	1	53.30	58.90	1	77.4	5.2
SMF51AL		51.0	1	56.70	62.70	1	82.4	4.9
SMF58AL		58.0	1	64.40	71.20	1	93.6	4.3
SMF60AL		60.0	1	66.70	73.70	1	96.8	4.1
SMF64AL		64.0	1	71.10	78.60	1	103.0	3.9

SMF70AL		70.0	1	77.80	86.00	1	113.0	3.5
SMF75AL		75.0	1	83.30	92.10	1	121.0	3.3
SMF78AL		78.0	1	86.70	95.80	1	126.0	3.2
SMF85AL		85.0	1	94.40	104.00	1	137.0	2.9

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

① Surge waveform: 10/1000 μs

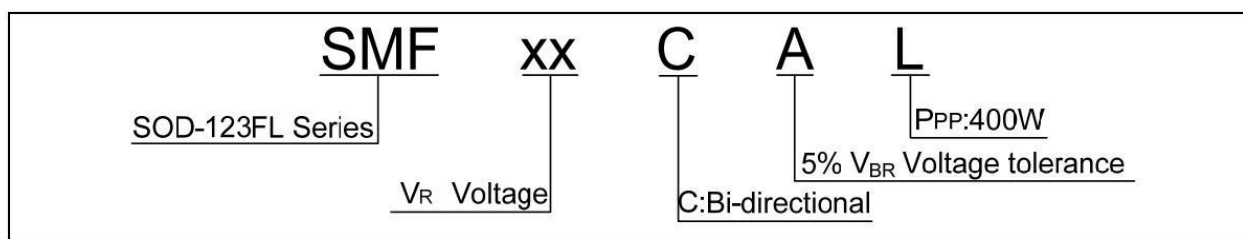
V_R : Stand-off Voltage -- Maximum voltage that can be applied

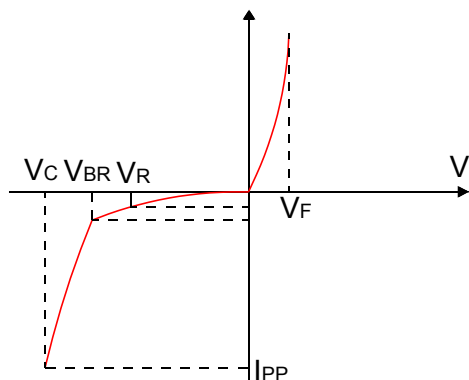
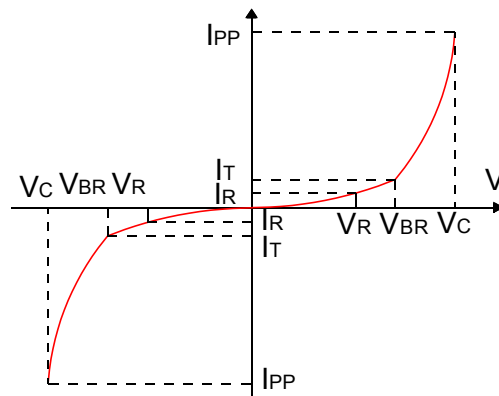
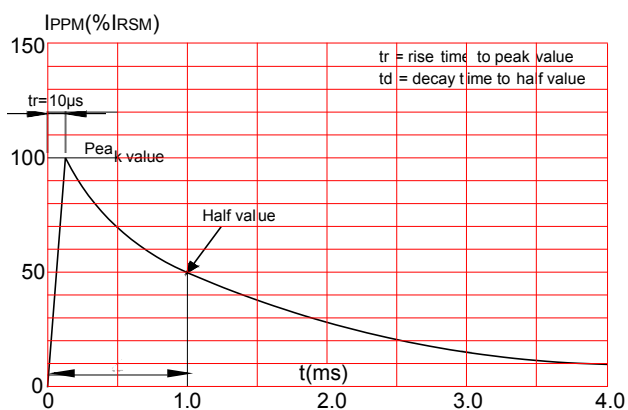
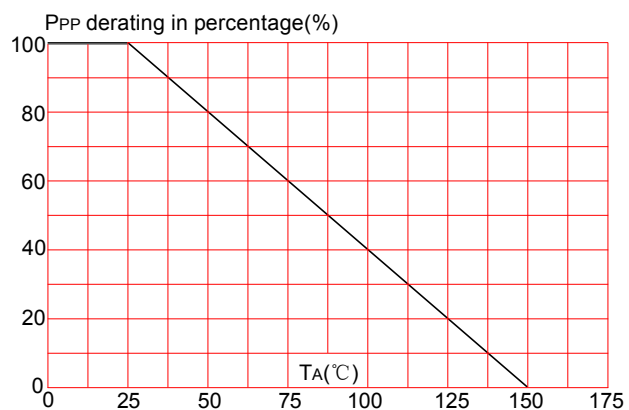
V_{BR} : Breakdown Voltage

V_C : Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

I_R : Reverse Leakage Current.

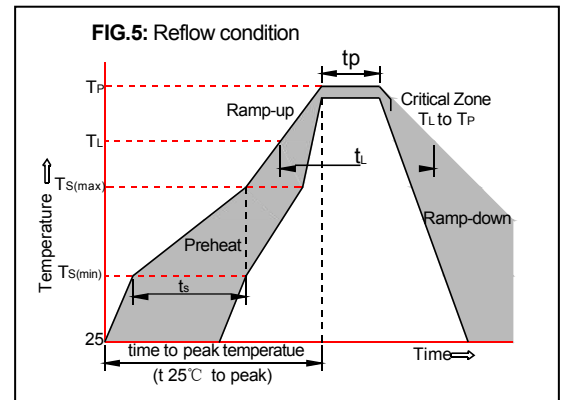
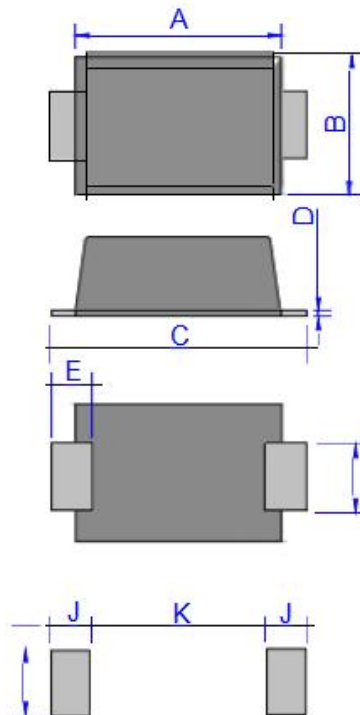
ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$, 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


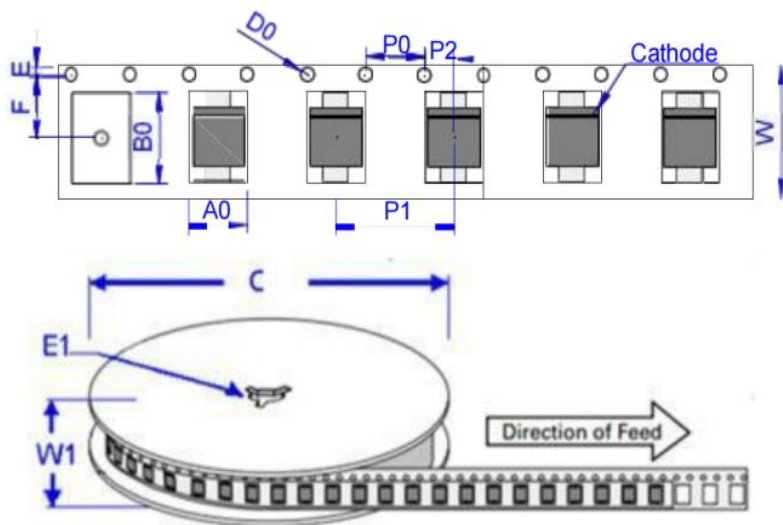
SOLDERING PARAMETERS

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


PACKAGE MECHANICAL DATA


SOD-123FL

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	1.60	2.00	0.063	0.079
C	3.45	3.95	0.136	0.156
D	0.10	0.25	0.004	0.01
E	0.3	0.9	0.012	0.035
F	0.80	1.20	0.031	0.047
G	0.95	1.35	0.037	0.053
J	1.30		0.051	
K		1.70		0.067
L	1.30		0.051	

TAPE AND REEL SPECIFICATION-SOD-123FL


Ref.	Dimensions	
	Millimeters	Inches
A0	1.95 ± 0.3	0.077 ± 0.012
B0	3.95 ± 0.3	0.156 ± 0.012
C	178	7.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	3.50 ± 0.2	0.138 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	4.00 ± 0.2	0.157 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	8.0 ± 0.2	0.315 ± 0.008
W1	11.5 ± 1.0	0.453 ± 0.039

PART No.	UNIT WEIGHT (g/PCS) typ	PACKAGE	REEL (PCS)	DESCRIPTION
SMFxxAL-CAL	0.0144	SOD123FL	3000	7 inch reel pack

Revised Record list

REV	Revised CONTENT	DATE
1.0	新修订规格书	2025-6-18