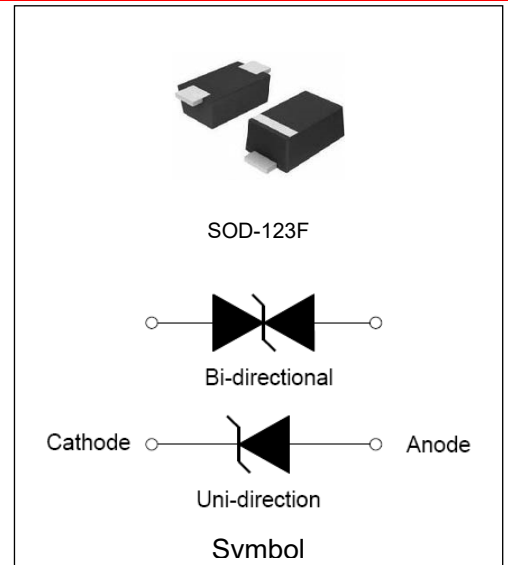


DESCRIPTION:

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



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ C$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +150	$^\circ C$
Operating junction temperature range	T_j	-55 to +150	$^\circ C$
Steady state power dissipation at $T_L=75^\circ C$	$P_{M(AV)}$	2.0	W
Peak pulse power dissipation on 10/1000 μs waveform	P_{PP}	200	W
Maximum Instantaneous Forward Voltage at 30A for Unidirectional	V_F	5.0	V

MARKING



KE : Device Marking Code

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number		Marking		V _R	I _R @ V _R	V _{BR} @I _T		I _T	V _C @I _{PP} ①	I _{PP} ① Surge
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V) _{waveform}	A
SMF5.0A	SMF5.0CA	KE	5C	5.0	150	6.40	7.00	10	9.2	21.7
SMF6.0A	SMF6.0CA	KG	6C	6.0	100	6.67	7.37	10	10.3	19.4
SMF6.5A	SMF6.5CA	KK	6VC	6.5	100	7.22	7.98	10	11.2	17.9
SMF7.0A	SMF7.0CA	KM	7C	7.0	50	7.78	8.60	10	12.0	16.7
SMF7.5A	SMF7.5CA	KP	7VC	7.5	50	8.33	9.21	1	12.9	15.5
SMF8.0A	SMF8.0CA	KR	8C	8.0	20	8.89	9.83	1	13.6	14.7
SMF9.0A	SMF9.0CA	KV	9C	9.0	5	10.00	11.10	1	15.4	13.0
SMF10A	SMF10CA	KX	10C	10.0	2	11.10	12.30	1	17.0	11.8
SMF11A	SMF11CA	KZ	11C	11.0	1	12.20	13.50	1	18.2	11.0
SMF12A	SMF12CA	LE	12C	12.0	1	13.30	14.70	1	19.9	10.1
SMF13A	SMF13CA	LG	13C	13.0	1	14.40	15.90	1	21.5	9.3
SMF14A	SMF14CA	LK	14C	14.0	1	15.60	17.20	1	23.2	8.6
SMF15A	SMF15CA	LM	15C	15.0	1	16.70	18.50	1	24.4	8.2
SMF18A	SMF18CA	LT	18C	18.0	1	20.00	22.10	1	29.2	6.8
SMF20A	SMF20CA	LV	20C	20.0	1	22.20	24.50	1	32.4	6.2
SMF22A	SMF22CA	LX	22C	22.0	1	24.40	26.90	1	35.5	5.6
SMF24A	SMF24CA	LZ	24C	24.0	1	26.70	29.50	1	38.9	5.1
SMF26A	SMF26CA	ME	26C	26.0	1	28.90	31.90	1	42.1	4.8
SMF28A	SMF28CA	MG	28C	28.0	1	31.10	34.40	1	45.4	4.4
SMF30A	SMF30CA	MK	30C	30.0	1	33.30	36.80	1	48.4	4.1
SMF33A	SMF33CA	MM	33C	33.0	1	36.70	40.60	1	53.3	3.8
SMF36A	SMF36CA	MP	36C	36.0	1	40.00	44.20	1	58.1	3.4
SMF48A	SMF48CA	MX	48C	48.0	1	53.30	58.90	1	77.4	2.6
SMF51A	SMF51CA	MZ	51C	51.0	1	56.70	62.70	1	82.4	2.4
SMF58A	SMF58CA	NG	58C	58.0	1	64.40	71.20	1	93.6	2.1

10/1000μs

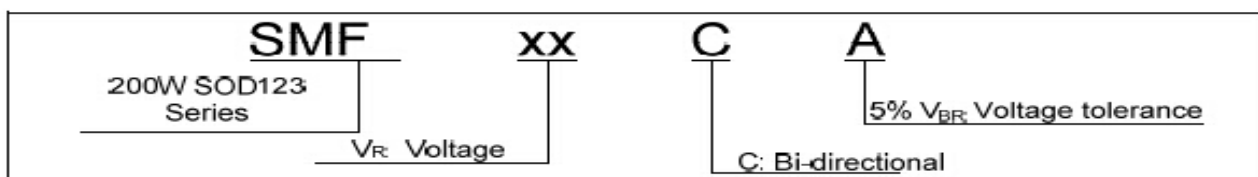
V_R : Stand-off Voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown Voltage

V_C: Clamping Voltage -- Peak voltage measured across the suppressor at a specified 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)

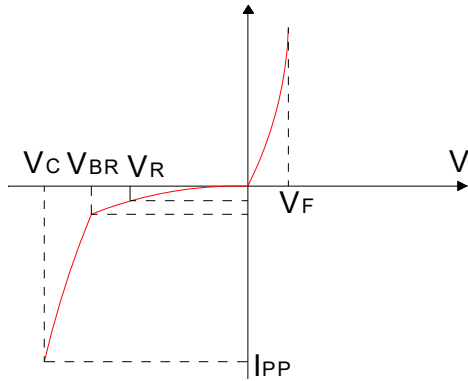


FIG.2: V- I curve characteristics (Bi-directional)

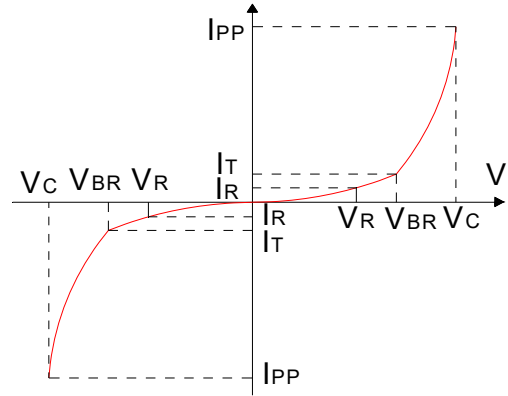


FIG.3: Pulse waveform

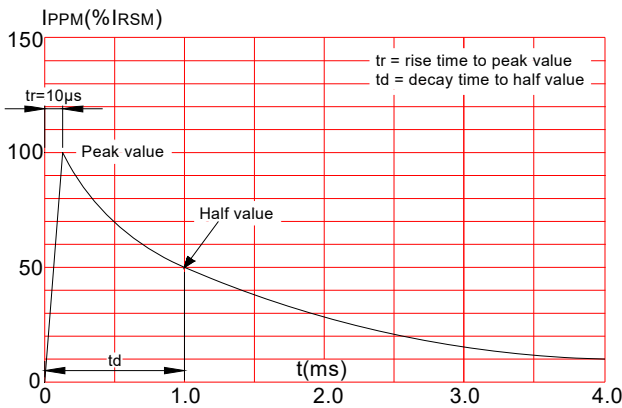
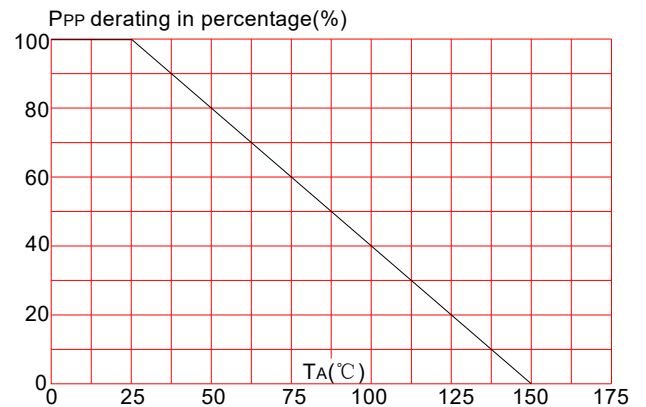
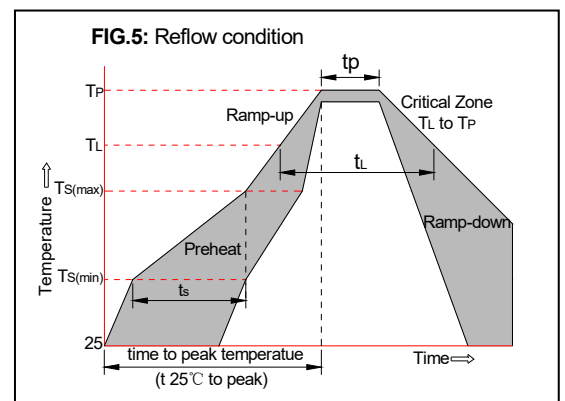


FIG.4: Pulse derating curve

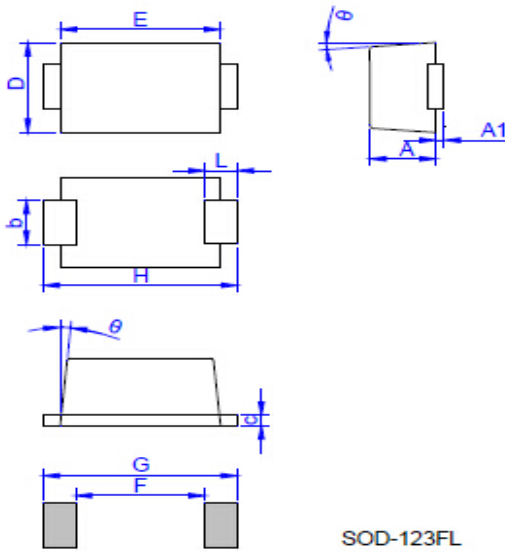


SOLDERING PARAMETERS

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

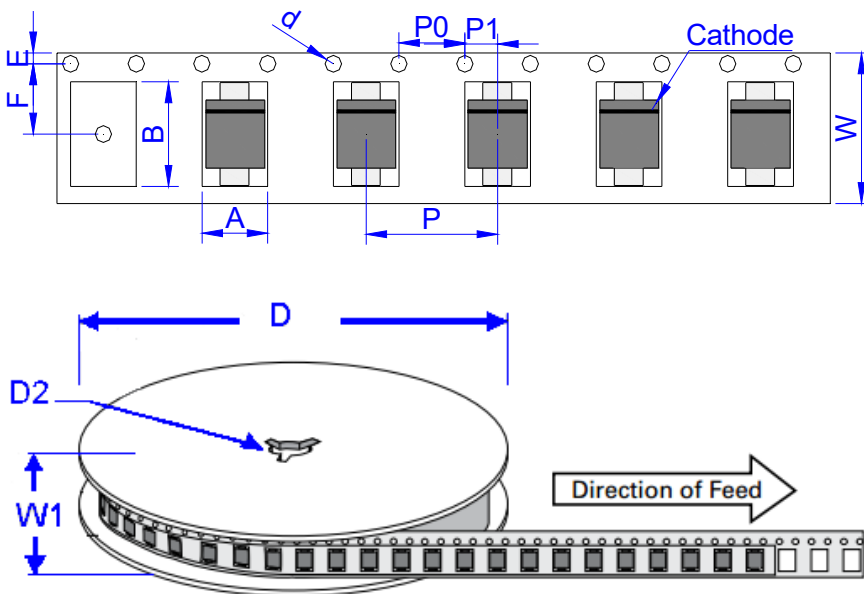


PACKAGE MECHANICAL DATA



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
e	0	8°	0	8°

TAPE AND REEL SPECIFICATION-SMF



Ref.	Dimensions	
	Millimeters	Inches
	A	2.79 ± 0.3
B	5.33 ± 0.3	0.210 ± 0.012
d	1.5 ± 0.1	0.059 ± 0.004
D	330.0	13.0
D2	13 ± 1	0.512 ± 0.039
E	1.5 ± 0.2	0.059 ± 0.008
F	5.65 ± 0.2	0.222 ± 0.008
P	4.0 ± 0.2	0.157 ± 0.008
P0	4.0 ± 0.2	0.157 ± 0.008
P1	2.0 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.2	0.472 ± 0.008
W1	16.8 ± 2.0	0.661 ± 0.079

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)
TAPING	3,000	60,000	330

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