



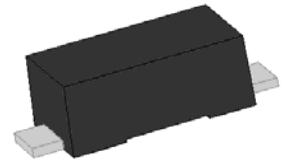
SMFxxCALH Series 400W Transient Voltage Suppressor

Rev.1.2

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.



SOD-123FL



Bi-directional

Symbol

FEATURES:

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 400W peak pulse power capability at 10/1000μs waveform.
- ✧ Typical I_R less than 1μA above 10V.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature reflow soldering: 260°C/40s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).
- ✧ For surface mounted applications in order to optimize board space.
- ✧ High reliability application and automotive grade (AEC-Q101 qualified).

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

Parameter	Symbol	Value	Unit
Storage and operating junction temperature range	T_{STG}/T_J	-55 to +150	°C
Peak pulse power dissipation at 10/1000μs waveform	P_{PP}	400	W
Typical thermal resistance junction to lead	$R_{\theta JL}$	100	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	220	°C/W

MARKING



10CLH : Device Marking Code

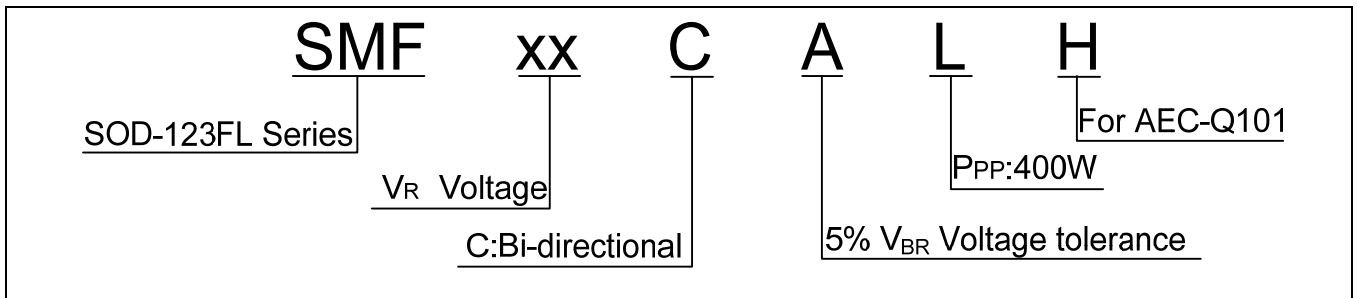
ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number	Marking	V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ^①
				min(V)	max(V)			
Bi-Polar	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
SMF10CALH	10CLH	10.0	2	11.10	12.30	1	17.0	23.5
SMF11CALH	11CLH	11.0	1	12.20	13.50	1	18.2	22.0
SMF12CALH	12CLH	12.0	1	13.30	14.70	1	19.9	20.1
SMF13CALH	13CLH	13.0	1	14.40	15.90	1	21.5	18.6
SMF14CALH	14CLH	14.0	1	15.60	17.20	1	23.2	17.2
SMF15CALH	15CLH	15.0	1	16.70	18.50	1	24.4	16.4
SMF18CALH	18CLH	18.0	1	20.00	22.10	1	29.2	13.7
SMF20CALH	20CLH	20.0	1	22.20	24.50	1	32.4	12.3
SMF22CALH	22CLH	22.0	1	24.40	26.90	1	35.5	11.3
SMF24CALH	24CLH	24.0	1	26.70	29.50	1	38.9	10.3
SMF26CALH	26CLH	26.0	1	28.90	31.90	1	42.1	9.5
SMF28CALH	28CLH	28.0	1	31.10	34.40	1	45.4	8.8
SMF30CALH	30CLH	30.0	1	33.30	36.80	1	48.4	8.3
SMF33CALH	33CLH	33.0	1	36.70	40.60	1	53.3	7.5
SMF36CALH	36CLH	36.0	1	40.00	44.20	1	58.1	6.9
SMF40CALH	40CLH	40.0	1	44.40	49.10	1	64.5	6.2
SMF43CALH	43CLH	43.0	1	47.80	52.80	1	69.4	5.8
SMF45CALH	45CLH	45.0	1	50.00	55.30	1	72.7	5.5
SMF48CALH	48CLH	48.0	1	53.30	58.90	1	77.4	5.2

① Surge waveform: 10/1000μs

V_R: Stand-off voltage -- maximum voltage that can be appliedV_{BR}: Breakdown voltageV_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 ($T_A=25^\circ C$, unless otherwise noted)

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

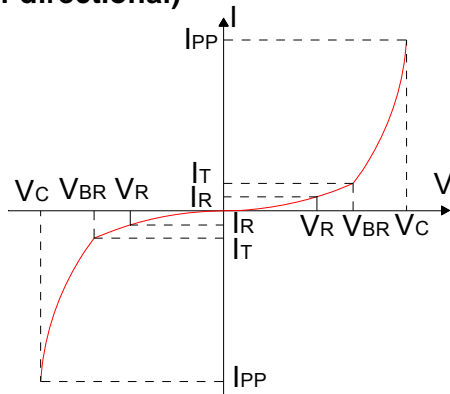


FIG.2: Pulse waveform

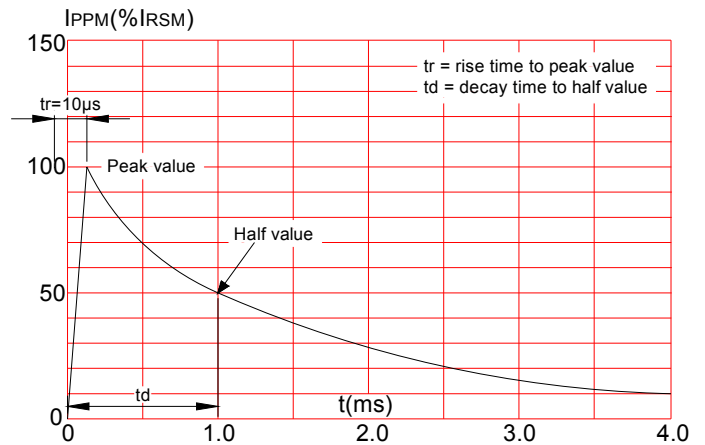
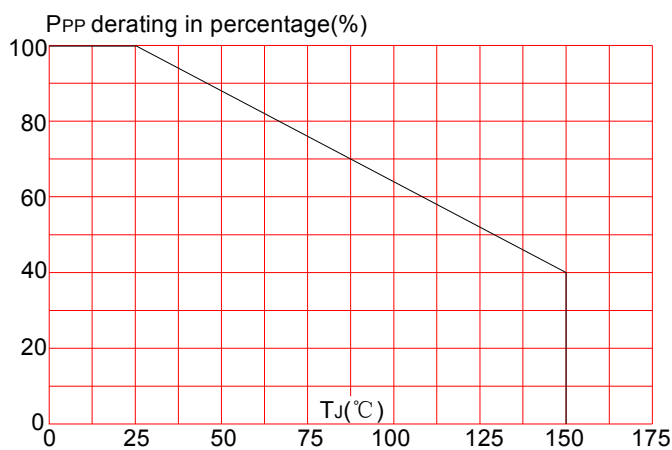
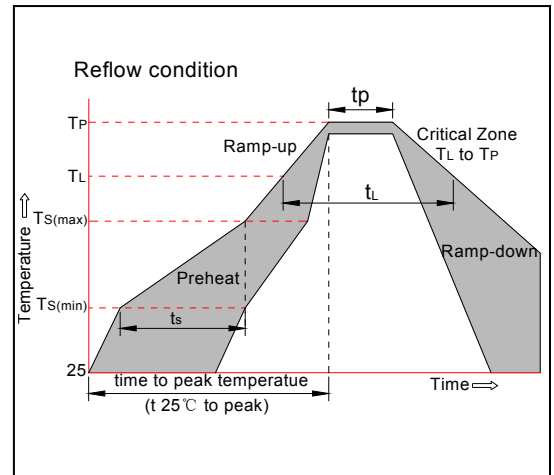


FIG.3: Pulse derating curve

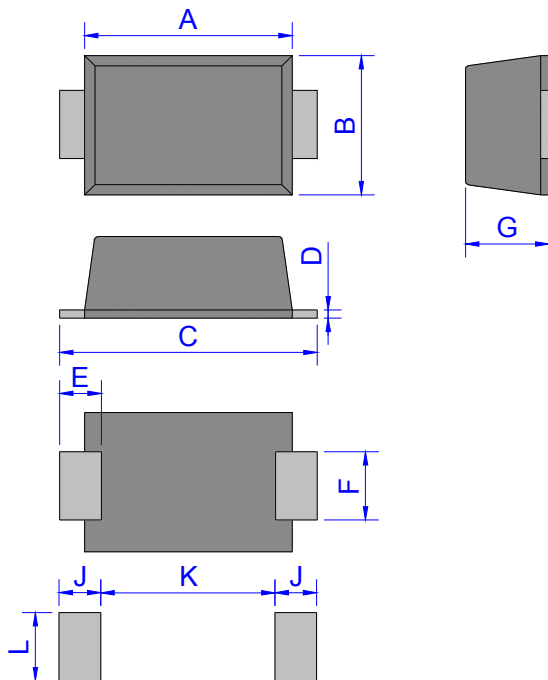


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus 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)(Liquidus)	+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)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



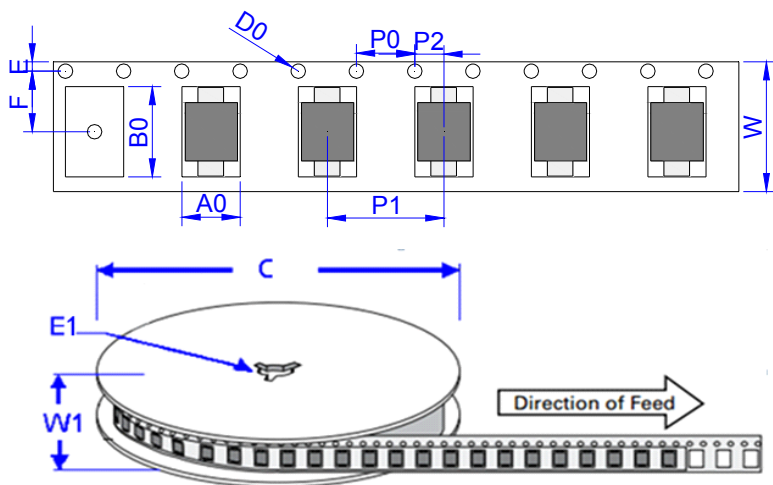
PACKAGE MECHANICAL DATA



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	0.70	1.00	0.028	0.039
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.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SMFxxCALH	0.0144	3000	150,000	7 inch reel pack

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co.,Ltd assumes no responsibility for the consequences of use without consideration for such information nor use beyond it.

Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement.

Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information.

This document is the 1.2nd version which is made in 26-Aug.-2021. This document supersedes and replaces all information previously supplied.

 is a registered trademark of Jiangsu JieJie Microelectronics Co.,Ltd.

Copyright©2021 Jiangsu JieJie Microelectronics Co.,Ltd. Printed All rights reserved.