

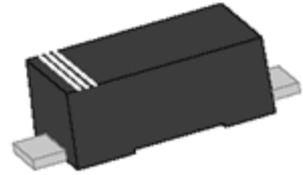


SMFxxALH Series 400W Transient Voltage Suppressor

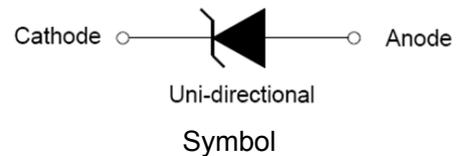
Rev.1.2

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



FEATURES:

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 400W peak pulse power capability at 10/1000 μ s waveform.
- ✧ Typical I_R less than 1 μ A above 10V.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature reflow soldering: 260 $^{\circ}$ C/40s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ Meets MSL level 1, per J-STD020, LF maximum peak of 260 $^{\circ}$ C.
- ✧ 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	$^{\circ}$ C
Steady state power dissipation at $T_L=75^{\circ}$ C	$P_{M(AV)}$	2.8	W
Peak pulse power dissipation on 10/1000 μ s waveform	P_{PP}	400	W
Maximum instantaneous forward voltage at 20A for unidirectional	V_F	5.0	V
Typical thermal resistance junction to lead	$R_{\theta JL}$	100	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	220	$^{\circ}$ C/W

MARKING



AXH : 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)			
Uni-Polar	Uni	V	μA			mA	max(V)	A
SMF10ALH	AXH	10.0	2	11.10	12.30	1	17.0	23.5
SMF11ALH	AZH	11.0	1	12.20	13.50	1	18.2	22.0
SMF12ALH	BEH	12.0	1	13.30	14.70	1	19.9	20.1
SMF13ALH	BGH	13.0	1	14.40	15.90	1	21.5	18.6
SMF14ALH	BKH	14.0	1	15.60	17.20	1	23.2	17.2
SMF15ALH	BMH	15.0	1	16.70	18.50	1	24.4	16.4
SMF17ALH	BRH	17.0	1	18.90	20.90	1	27.6	14.5
SMF18ALH	BTH	18.0	1	20.00	22.10	1	29.2	13.7
SMF20ALH	BVH	20.0	1	22.20	24.50	1	32.4	12.3
SMF22ALH	BXH	22.0	1	24.40	26.90	1	35.5	11.3
SMF24ALH	BZH	24.0	1	26.70	29.50	1	38.9	10.3
SMF26ALH	CEH	26.0	1	28.90	31.90	1	42.1	9.5
SMF28ALH	CGH	28.0	1	31.10	34.40	1	45.4	8.8
SMF30ALH	CKH	30.0	1	33.30	36.80	1	48.4	8.3
SMF33ALH	CMH	33.0	1	36.70	40.60	1	53.3	7.5
SMF36ALH	CPH	36.0	1	40.00	44.20	1	58.1	6.9
SMF40ALH	CRH	40.0	1	44.40	49.10	1	64.5	6.2
SMF43ALH	CTH	43.0	1	47.80	52.80	1	69.4	5.8
SMF45ALH	CVH	45.0	1	50.00	55.30	1	72.7	5.5
SMF48ALH	CXH	48.0	1	53.30	58.90	1	77.4	5.2
SMF51ALH	CZH	51.0	1	56.70	62.70	1	82.4	4.9
SMF58ALH	DEH	58.0	1	64.40	71.20	1	93.6	4.3
SMF60ALH	DGH	60.0	1	66.70	73.70	1	96.8	4.1
SMF64ALH	DMH	64.0	1	71.10	78.60	1	103.0	3.9

ELECTRICAL CHARACTERISTICS (T_A=25°C, continued)

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)			
Uni-Polar	Uni	V	μA			mA	max(V)	A
SMF70ALH	DPH	70.0	1	77.80	86.00	1	113.0	3.5
SMF75ALH	DRH	75.0	1	83.30	92.10	1	121.0	3.3
SMF78ALH	DTH	78.0	1	86.70	95.80	1	126.0	3.2
SMF85ALH	DVH	85.0	1	94.40	104.00	1	137.0	2.9

① Surge waveform: 10/1000μs

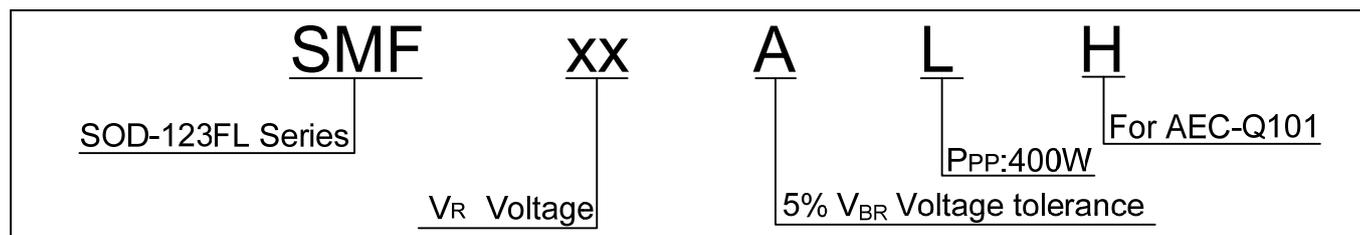
V_R: Stand-off voltage -- maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: Clamping voltage -- peak voltage measured across the suppressor at a specified I_{PP}

I_R: Reverse leakage current

ORDERING INFORMATION



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

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

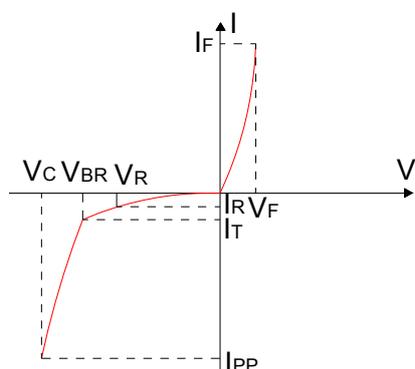


FIG.2: Pulse waveform

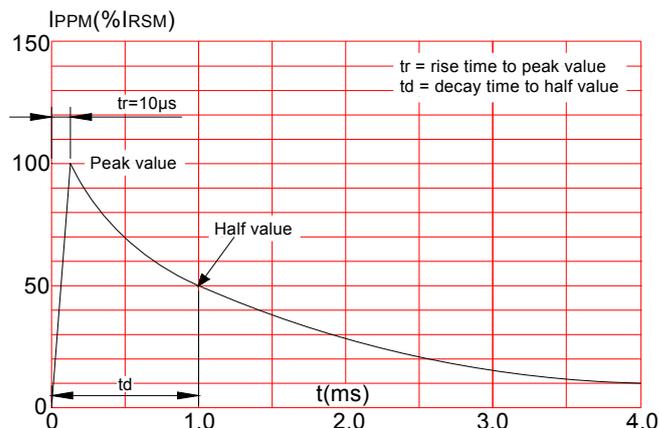
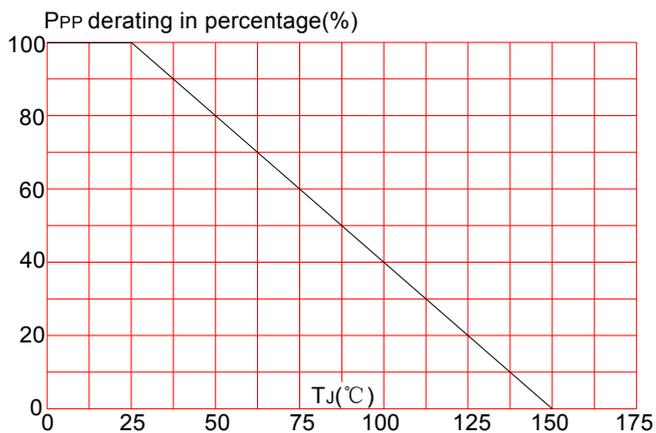
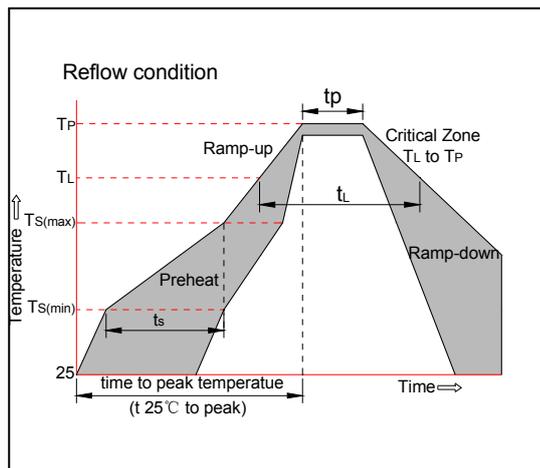


FIG.3: Pulse derating curve

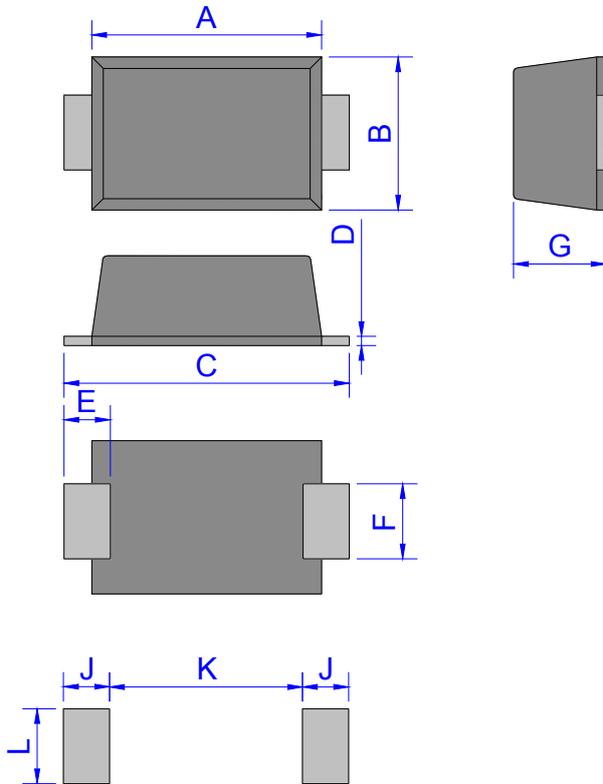


SOLDERING PARAMETERS

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) (t_s)	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



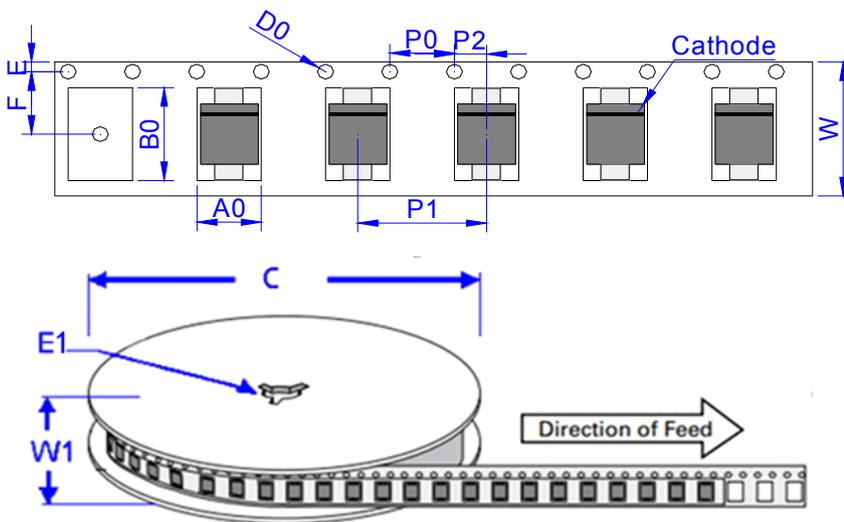
PACKAGE MECHANICAL DATA



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	

SOD-123FL

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
SMFxxALH	0.0136	SOD-123FL	3000	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 24-July-2018. This document supersedes and replaces all information previously supplied.

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

Copyright©2018Jiangsu JieJie Microelectronics Co.,Ltd. Printed All rights reserved.