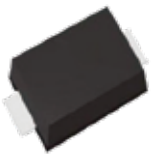
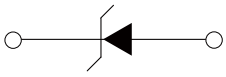
FEATURES

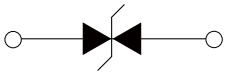
- Low profile package
- Ideal for automated placement
- 200 Watt peak pulse power capability with a 10/1000μs waveform
- For surface mounted applicatons to optimize board space
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meet AEC-Q101 Requirements



SOD-123FL



Uni-directionnal



Bi-directionnal

APPLICATIONS

- Power supply protection
- Automotive application
- Industrial application
- Power management

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS (T_A=25°C)

Parameter	Symbo	Value	Unit
Peak Pulse Power Dissipation on 10/1000us waveform (Note1)	P_{PPM}	200	Watts
Steady State Power Dissipation at T_L=75°C	P_D	0.4	Watts

Notes : 1.Non-repetitive current pulse,T_A=25°C.
2.8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum

THERMAL CONSIDERATIONS

Parameter	Symbol	Value	Unit
Operating Junction Temperature	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Junction to Ambient on printed circuit	$R_{\theta JA}$	220	°C/W

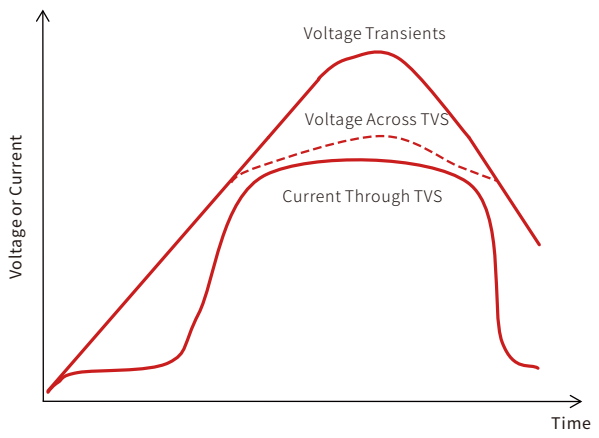
ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage Min.@I_T	Breakdown Voltage Max.@I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
Uni-Polar	Bi-Polar	Uni	Bi	V_{RWM}(V)	V_{BR}(V)	V_{BR}(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(uA)
TPSMF3.3A	TPSMF3.3CA	HZ	GZ	3.3	5.2	6.00	10	8.0	25.0	800
TPSMF5.0A	TPSMF5.0CA	AE	FE	5.0	6.4	7.00	10	9.2	21.7	800
TPSMF6.0A	TPSMF6.0CA	AG	FG	6.0	6.67	7.37	10	10.3	19.4	800
TPSMF6.5A	TPSMF6.5CA	AK	FK	6.5	7.22	7.98	10	11.2	17.9	500
TPSMF7.0A	TPSMF7.0CA	AM	FM	7.0	7.78	8.60	10	12.0	16.7	200
TPSMF7.5A	TPSMF7.5CA	AP	FP	7.5	8.33	9.21	1	12.9	15.5	100
TPSMF8.0A	TPSMF8.0CA	AR	FR	8.0	8.89	9.83	1	13.6	14.7	50
TPSMF8.5A	TPSMF8.5CA	AT	FT	8.5	9.44	10.4	1	14.4	13.9	20
TPSMF9.0A	TPSMF9.0CA	AV	FV	9.0	10.0	11.1	1	15.4	13.0	10
TPSMF10A	TPSMF10CA	AX	FX	10.0	11.1	12.3	1	17.0	11.8	5
TPSMF11A	TPSMF11CA	AZ	FZ	11.0	12.2	13.5	1	18.2	11.0	1
TPSMF12A	TPSMF12CA	BE	GE	12.0	13.3	14.7	1	19.9	10.1	1
TPSMF13A	TPSMF13CA	BG	GG	13.0	14.4	15.9	1	21.5	9.3	1
TPSMF14A	TPSMF14CA	BK	GK	14.0	15.6	17.2	1	23.2	8.6	1
TPSMF15A	TPSMF15CA	BM	GM	15.0	16.7	18.5	1	24.4	8.2	1
TPSMF16A	TPSMF16CA	BP	GP	16.0	17.8	19.7	1	26.0	7.7	1
TPSMF17A	TPSMF17CA	BR	GR	17.0	18.9	20.9	1	27.6	7.2	1
TPSMF18A	TPSMF18CA	BT	GT	18.0	20.0	22.1	1	29.2	6.8	1
TPSMF20A	TPSMF20CA	BV	GV	20.0	22.2	24.5	1	32.4	6.2	1
TPSMF22A	TPSMF22CA	BX	GX	22.0	24.4	26.9	1	35.5	5.6	1
TPSMF24A	TPSMF24CA	BZ	GZ	24.0	26.7	29.5	1	38.9	5.1	1
TPSMF26A	TPSMF26CA	CE	HE	26.0	28.9	31.9	1	42.1	4.8	1
TPSMF28A	TPSMF28CA	CG	HG	28.0	31.1	34.4	1	45.4	4.4	1
TPSMF30A	TPSMF30CA	CK	HK	30.0	33.3	36.8	1	48.4	4.1	1
TPSMF33A	TPSMF33CA	CM	HM	33.0	36.7	40.6	1	53.3	3.8	1
TPSMF36A	TPSMF36CA	CP	HP	36.0	40.0	44.2	1	58.1	3.4	1
TPSMF40A	TPSMF40CA	CR	HR	40.0	44.4	49.1	1	64.5	3.1	1
TPSMF43A	TPSMF43CA	CT	HT	43.0	47.8	52.8	1	69.4	2.9	1
TPSMF45A	TPSMF45CA	CV	HV	45.0	50.0	55.3	1	72.7	2.8	1
TPSMF48A	TPSMF48CA	CX	HX	48.0	53.3	58.9	1	77.4	2.6	1
TPSMF51A	TPSMF51CA	CZ	HZ	51.0	56.7	62.7	1	82.4	2.4	1
TPSMF54A	TPSMF54CA	DE	IE	54.0	60.0	66.3	1	87.1	2.3	1
TPSMF58A	TPSMF58CA	DG	IG	58.0	64.4	71.2	1	93.6	2.1	1

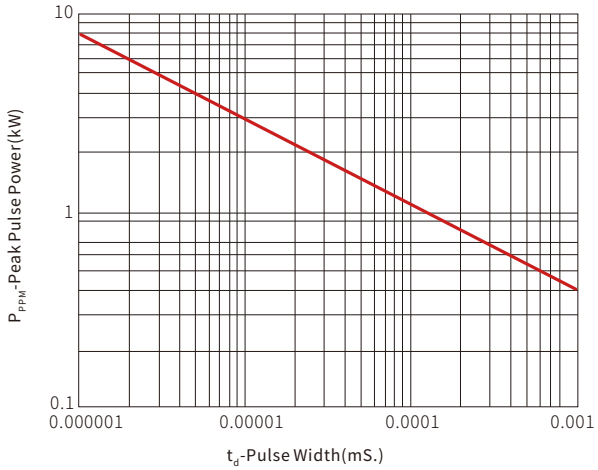
Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage Min.@I_T	Breakdown Voltage Max.@I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
Uni-Polar	Bi-Polar	Uni	Bi	V_{RWM}(V)	V_{BR}(V)	V_{BR}(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(uA)
TPSMF60A	TPSMF60CA	DK	IK	60.0	66.7	73.7	1	96.8	1.86	1
TPSMF64A	TPSMF64CA	DM	IM	64.0	71.1	78.6	1	103.0	1.75	1
TPSMF70A	TPSMF70CA	DP	IP	70.0	77.8	86.0	1	113.0	1.59	1
TPSMF75A	TPSMF75CA	DR	IR	75.0	83.3	92.1	1	121.0	1.49	1
TPSMF78A	TPSMF78CA	DT	IT	78.0	86.7	95.8	1	126.0	1.43	1
TPSMF85A	TPSMF85CA	DV	IV	85.0	94.4	104.0	1	137.0	1.31	1
TPSMF90A	TPSMF90CA	DX	IX	90.0	100.0	111.0	1	146.0	1.23	1
TPSMF100A	TPSMF100CA	EZ	JZ	100.0	111.0	123.0	1	162.0	1.11	1
TPSMF110A	TPSMF110CA	EE	JE	110.0	122.0	135.0	1	177.0	1.02	1
TPSMF120A	TPSMF120CA	EG	JG	120.0	133.0	147.0	1	193.0	0.93	1
TPSMF130A	TPSMF130CA	EK	JK	130.0	144.0	159.0	1	209.0	0.86	1
TPSMF150A	TPSMF150CA	EM	JM	150.0	167.0	185.0	1	243.0	0.74	1
TPSMF160A	TPSMF160CA	EP	JP	160.0	178.0	197.0	1	259.0	0.69	1
TPSMF170A	TPSMF170CA	ER	JR	170.0	189.0	209.0	1	275.0	0.65	1
TPSMF180A	TPSMF180CA	ET	JT	180.0	201.0	222.0	1	292.0	0.66	1
TPSMF190A	TPSMF190CA	EU	JU	190.0	209.0	243.0	1	308.0	0.63	1
TPSMF200A	TPSMF200CA	EV	JV	200.0	224.0	247.0	1	324.0	0.59	1
TPSMF210A	TPSMF210CA	EW	JW	210.0	231.0	269.0	1	340.0	0.57	1
TPSMF220A	TPSMF220CA	EY	JY	220.0	246.0	272.0	1	356.0	0.54	1

CHARACTERISTIC CURVES

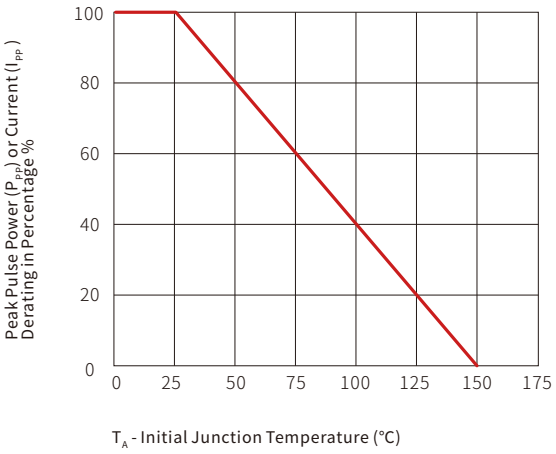
TVS Transients Clamping Waveform



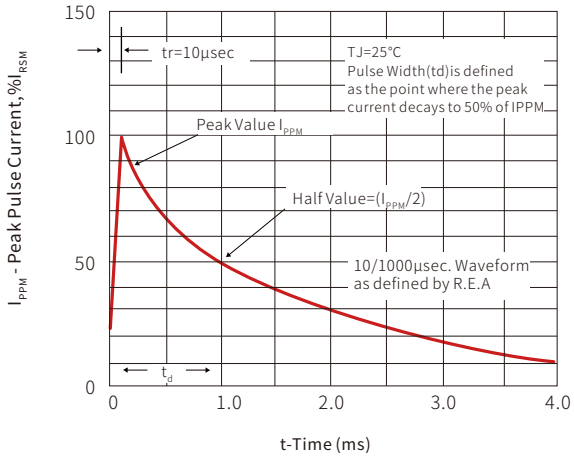
Peak Pulse Power Rating Curve



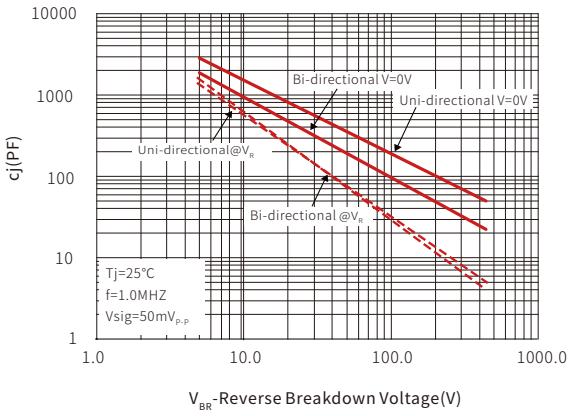
Pulse Derating Curve



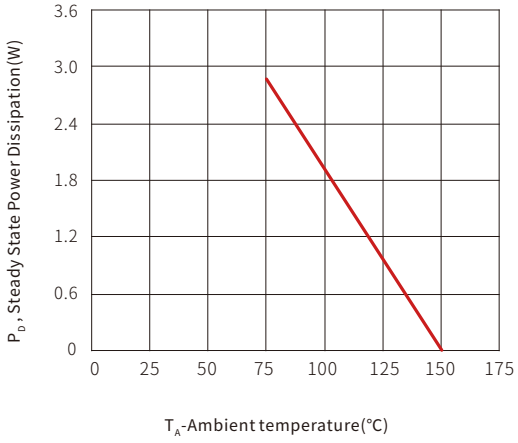
Pulse Waveform



Typical Junction Capacitance

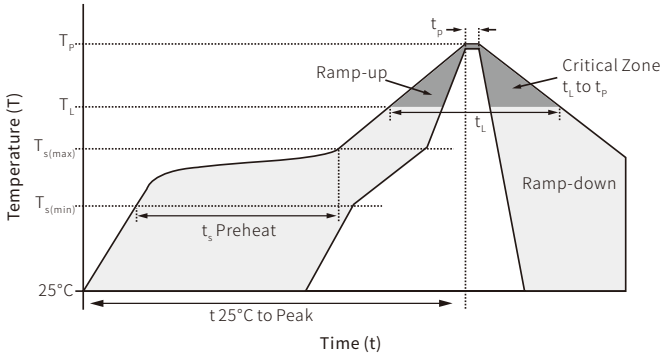


Steady State Power Dissipaton Deraiting Curve

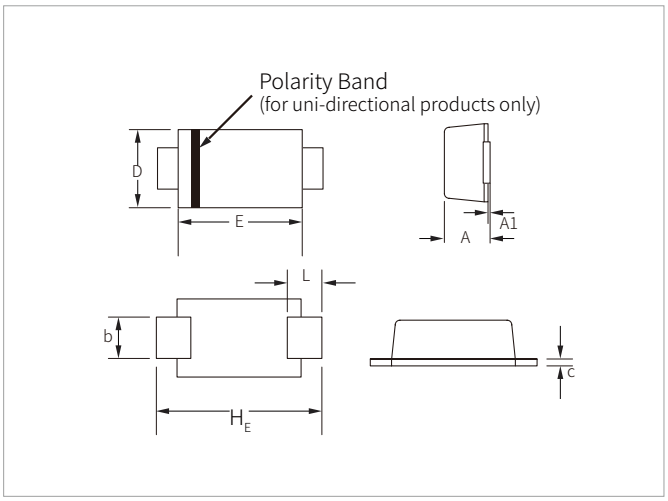


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	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/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C

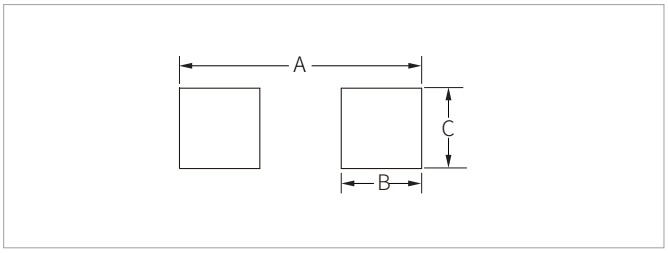


SOD-123FL PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.45	0.037	0.057
A1	0.00	0.10	0.000	0.004
b	0.70	1.20	0.028	0.047
c	0.05	0.30	0.002	0.012
D	1.50	2.00	0.059	0.079
E	2.50	2.90	0.098	0.114
L	0.35	0.90	0.014	0.035
H_E	3.40	3.90	0.134	0.154

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
A	4.20	0.165
B	1.50	0.059
C	1.20	0.047

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
TPSMFxx(C)A	SOD-123FL	3000PCS	7”

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