Surface Mount Transient Voltage Suppressor
Stand-Off Voltage - 5.0 to 180 Volts
200 Watt Peak Pulse Power

Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition Rate (duty cycle):0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to V(BR) for unidirectional types
- Typical IR less than 1μA above 10V
- High Temperature solderting: 260°C/10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability 94V-O
- Pb-free plated

Mechanical Data

- **Case:** JEDEC SOD-123 molded plastic over passivated chip
- **Terminals:** Solder plated, solderable per MIL-STD-750 Method 2026
- **Polarity:** For uni-directional types the bandby laser denotes the cathode, which is positive with respect to the anode under normal TVS operation

Devices For Bipolar Application

- For Bidirectional use C or CA Suffix for types PMF5.0 thru types PMF170 (e.g. PMF5.0C , PMF170CA)
- Electrical characteristics apply in both directions

Maximum Ratings And Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1,2 ,FIG.1)	P_{PPM}	200	Watts
Peak Pulse Current of on 10/1000μs waveform (Note 1,FIG.3)	I_{PPM}	SEE TABLE 1	Amps
Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load,(JEDEC Method) (Note2,3)	I_{FSM}	20	Amps
Operating junction and Storage Temperature Range	T_J , T_{STG}	−55 to +150	℃

Notes :

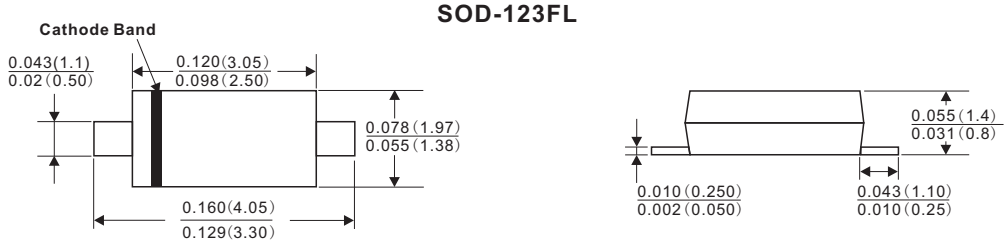
1.Non-repetitive current pulse , per Fig. 3 and derated above TA = 25℃ per Fig. 2 .

2.Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal

3.8.3ms single half sine-wave , or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

Dimensions (SOD-123FL)

SOD-123FL



Dimensions in inches and(millimeters)

Electrical Characteristics

TABLE1

"*"Stand for commonly used models

PMF Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @Ipp	Peak Pulse Current	Reverse Leakage @VRWM
UNI-Polar	BI-Polar	UNI	BI	VRWM(V)	VBR(V)Min.	VBR(V)Max.	IT(mA)	Vc(V)	Ipp(A)	IR(μA)
* PMF5.0A	PMF5.0CA	AE	WE	5.0	6.40	7.00	10	9.2	21.70	400
PMF6.0A	* PMF6.0CA	AG	WG	6.0	6.67	7.37	10	10.3	19.40	400
PMF6.5A	PMF6.5CA	AK	WK	6.5	7.22	7.98	10	11.2	17.90	250
PMF7.0A	PMF7.0CA	AM	WM	7.0	7.78	8.60	10	12.0	16.70	100
PMF7.5A	PMF7.5CA	AP	WP	7.5	8.33	9.21	1	12.9	15.50	50
PMF8.0A	PMF8.0CA	AR	WR	8.0	8.89	9.83	1	13.6	14.70	25
PMF8.5A	PMF8.5CA	AT	WT	8.5	9.44	10.40	1	14.4	13.90	10
PMF9.0A	PMF9.0CA	AV	WV	9.0	10.00	11.10	1	15.4	13.00	5
PMF10A	PMF10CA	AX	WX	10.0	11.10	12.30	1	17.0	11.80	2
PMF11A	PMF11CA	AZ	WZ	11.0	12.20	13.50	1	18.2	11.00	2
PMF12A	* PMF12CA	BE	XE	12.0	13.30	14.70	1	19.9	10.10	2
PMF13A	PMF13CA	BG	XG	13.0	14.40	15.90	1	21.5	9.30	1
PMF14A	PMF14CA	BK	XK	14.0	15.60	17.20	1	23.2	8.62	1
PMF15A	PMF15CA	BM	XM	15.0	16.70	18.50	1	24.4	8.20	1
PMF16A	PMF16CA	BP	XP	16.0	17.80	19.70	1	26.0	7.69	1
PMF17A	PMF17CA	BR	XR	17.0	18.90	20.90	1	27.6	7.25	1
PMF18A	PMF18CA	BT	XT	18.0	20.00	22.10	1	29.2	6.85	1
PMF19A	PMF19CA	BU	XU	19.0	21.10	23.30	1	30.6	6.54	1
PMF20A	PMF20CA	BV	XV	20.0	22.22	24.50	1	32.4	6.17	1
PMF22A	PMF22CA	BX	XY	22.0	24.40	26.90	1	35.5	5.63	1
PMF24A	* PMF24CA	BZ	XZ	24.0	26.7	29.50	1	38.9	5.14	1
PMF26A	PMF26CA	CE	YE	26.0	28.90	31.90	1	42.1	4.75	1
PMF28A	PMF28CA	CG	YG	28.0	31.10	34.40	1	45.4	4.41	1
PMF30A	* PMF30CA	CK	YK	30.0	33.30	36.80	1	48.4	4.13	1
PMF33A	PMF33CA	CM	YM	33.0	36.70	40.60	1	53.3	3.75	1

Notes :

1.For bidirectional type having VRWM of 10 volts and less, the IR limit is double

2.For parts with A , the VBR is ± 5%

Electrical Characteristics

"*"Stand for commonly used models

TABLE1

PMF Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @Ipp	Peak Pulse Current	Reverse Leakage @VRWM
UNI-Polar	BI-Polar	UNI	BI	VRWM(V)	VBR(V)Min.	VBR(V)Max.	IT(mA)	Vc(V)	Ipp(A)	IR(μA)
PMF36A	* PMF36CA	CP	YP	36.0	40.00	44.20	1	58.1	3.44	1
PMF40A	PMF40CA	CR	YR	40.0	44.40	49.10	1	64.5	3.10	1
PMF43A	PMF43CA	CT	YT	43.0	47.80	52.80	1	69.4	2.88	1
PMF45A	PMF45CA	CV	YV	45.0	50.00	55.30	1	72.7	2.75	1
PMF48A	PMF48CA	CX	YX	48.0	53.30	58.90	1	77.4	2.58	1
PMF51A	PMF51CA	CZ	YZ	51.0	56.70	62.70	1	82.4	2.43	1
PMF54A	PMF54CA	RE	ZE	54.0	60.00	66.30	1	87.1	2.30	1
PMF58A	* PMF58CA	RG	ZG	58.0	64.40	71.20	1	93.6	2.14	1
PMF60A	PMF60CA	RK	ZK	60.0	66.70	73.70	1	96.8	2.07	1
PMF64A	PMF64CA	RM	ZM	64.0	71.10	78.60	1	103.0	1.94	1
PMF70A	PMF70CA	RP	ZP	70.0	77.80	86.00	1	113.0	1.77	1
PMF75A	PMF75CA	RR	ZR	75.0	83.30	92.10	1	121.0	1.65	1
PMF78A	PMF78CA	RT	ZT	78.0	86.70	95.80	1	126.0	1.59	1
PMF80A	PMF80CA	RU	ZU	80.0	88.80	97.60	1	129.0	1.55	1
PMF85A	PMF85CA	RV	ZV	85.0	94.40	104.00	1	137.0	1.46	1
PMF90A	PMF90CA	RX	ZX	90.0	100.00	111.00	1	146.0	1.37	1
PMF100A	PMF100CA	RZ	ZZ	100.0	111.00	123.00	1	162.0	1.23	1
PMF110A	PMF110CA	SE	VE	110.0	122.00	135.00	1	177.0	1.13	1
PMF120A	PMF120CA	SG	VG	120.0	133.00	147.00	1	193.0	1.04	1
PMF130A	PMF130CA	SK	VK	130.0	144.00	159.00	1	209.0	0.96	1
PMF140A	PMF140CA	SL	VL	140.0	155.00	171.00	1	224.0	0.89	1
PMF150A	PMF150CA	SM	VM	150.0	167.00	185.00	1	243.0	0.82	1
PMF160A	PMF160CA	SP	VP	160.0	178.00	197.00	1	259.0	0.77	1
PMF170A	PMF170CA	SR	VR	170.0	189.00	209.00	1	275.0	0.73	1
PMF180A	PMF180CA	ST	VT	180.0	200.00	220.00	1	290.0	0.69	1

Notes :

1.For bidirectional type having VRWM of 10 volts and less, the IR limit is double

2.For parts with A , the VBR is ± 5%

Characteristic Curves (TA=25 ℃ unless otherwise noted)

Fig.1 Peak Pulse Power Rating Curve

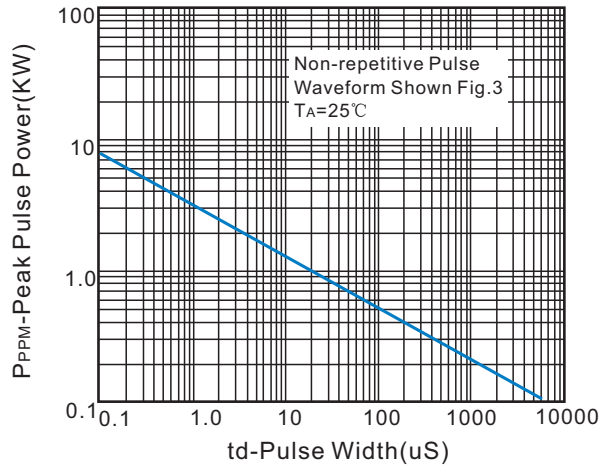


Fig.2 Pulse Derating Curve

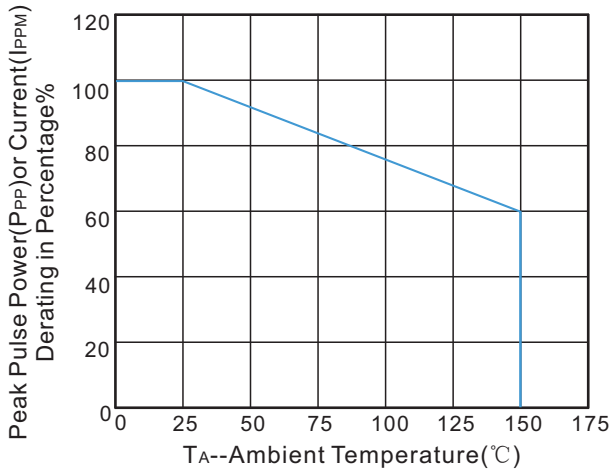


Fig.3 Pulse Waverform

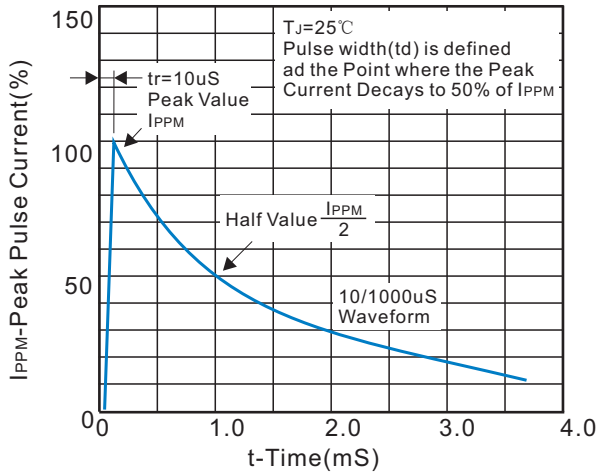


Fig.4 Typical Junction Capacitance

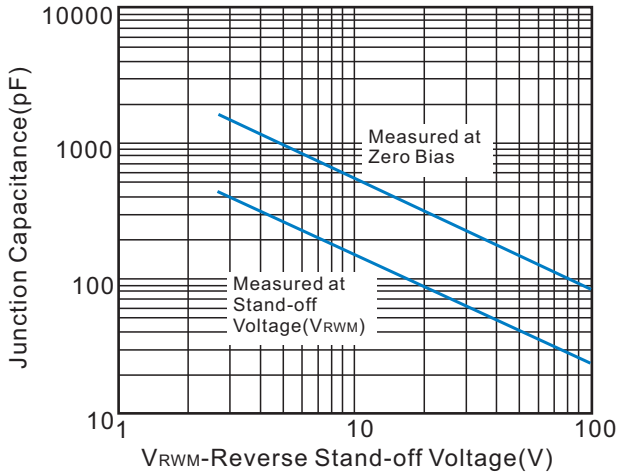
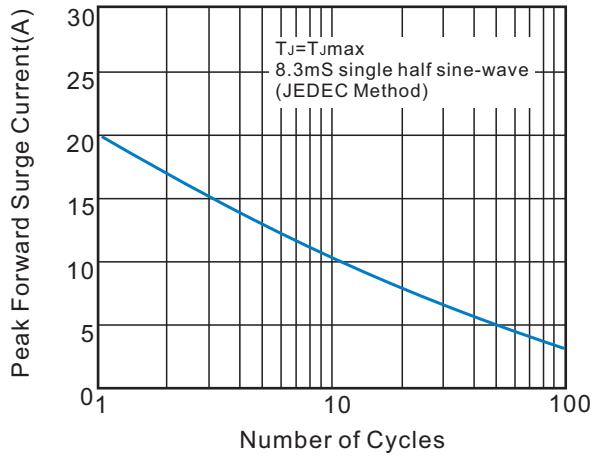


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current

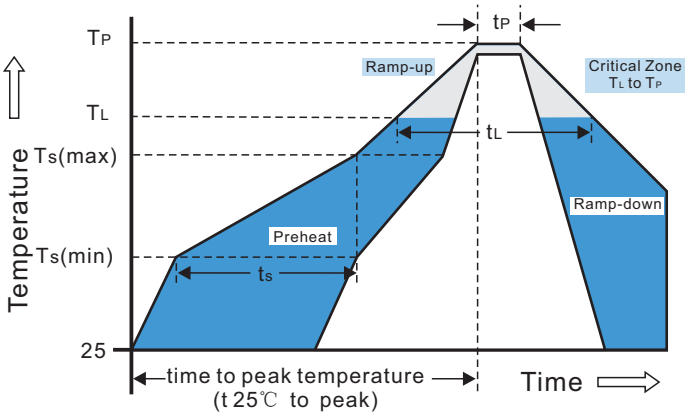


Recommended Soldering Conditions

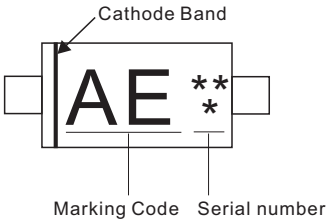
Recommended Conditions

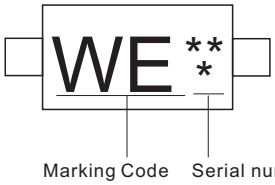
Re"ow Condition		Pb-Free assembly (see Fig.1)
Pre Heat	-Temperature Min($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time(Min to Max)(t_s)	60-180secs
Average ramp up rate (Liquidus Temp(T_L) to peak)		3℃/sec.Max.
$T_{s(max)}$ to T_L -Ramp-up Rate		3℃/sec.Max.
Re"ow	-Temperature(T_L)(Liquidus)	+217℃
	-Temperature(t_L)	60-150secs
Peak Temp(T_P)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp(t_P)		30 secs.Max.
Ramp-down Rate		6℃/sec.Max.
Time 25℃ to Peak Temp(T_P)		8 min.Max.
Do not exceed		+260℃

Reflow Soldering



Marking Code





Tape And Reel Specification

Symbol	Ea Per Reel	REEL DIA (mm)	Industry Standard
PMF***	3000	178	EIA RS-481