

**SURFACE MOUNT
UNIDIRECTIONAL AND BIDIRECTIONAL
TRANSIENT VOLTAGE SUPPRESSORS**

REVERSE VOLTAGE - **5.0 to 170** Volts
POWER DISSIPATION - **200** Watts

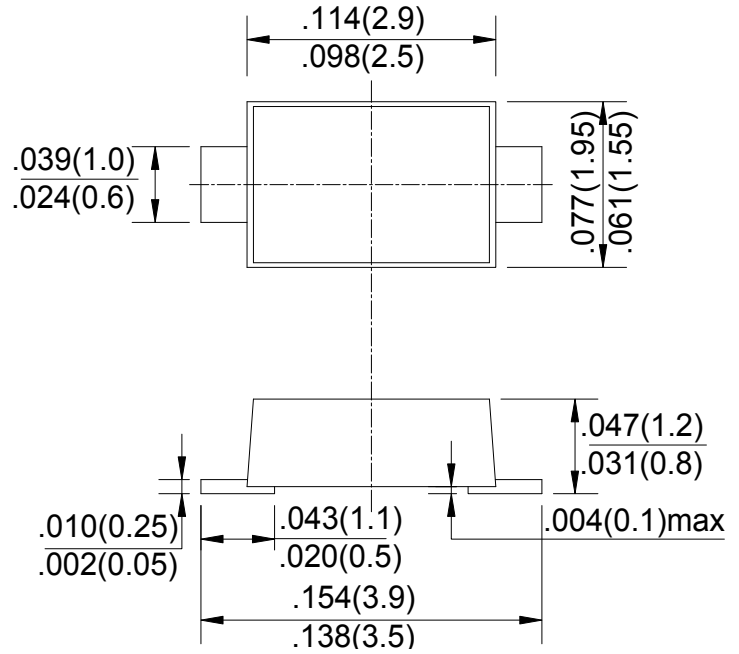
FEATURES

- For surface mounted applications in order to optimize board space
- Low profile space
- Glass passivated chip
- Low inductance
- Excellent clamping capability
- Very fast response time
- Typical ID less than 1μA at VWM
- 200 W peak pulse power capability with a 10/1000 μs waveform
- Component in accordance to RoHS 2002/95/1 and WEEE 2002/96/EC

MECHANICAL DATA

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

SOD-123FL



Dimensions in inches and(millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave ,60Hz, resistive or inductive load.

For capacitive load, derate current by 20%

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000μs waveform (see fig. 1)	P _{PPM}	200	W
Peak forward surge current 8.3ms single half sine-wave	I _{FSM}	20	A
Peak pulse current with a waveform (see fig. 3 , single pulse)	I _{PPM}	See Next Table	A
Typical thermal resistance, junction to ambient ⁽¹⁾	R _{θJA}	120.0	°C/W
Typical thermal resistance, junction to lead ⁽¹⁾	R _{θJL}	30.0	°C/W
Operating Temperature Range	T _J	-55 to + 150	°C
Storage Temperature Range	T _{STG}	-55 to + 150	°C

Notes: 1.Mounted on P.C.B. with 0.036 x 0.06" (0.9 x 1.5mm) copper pad areas.

FIG.1-PULSE RATING CURVE

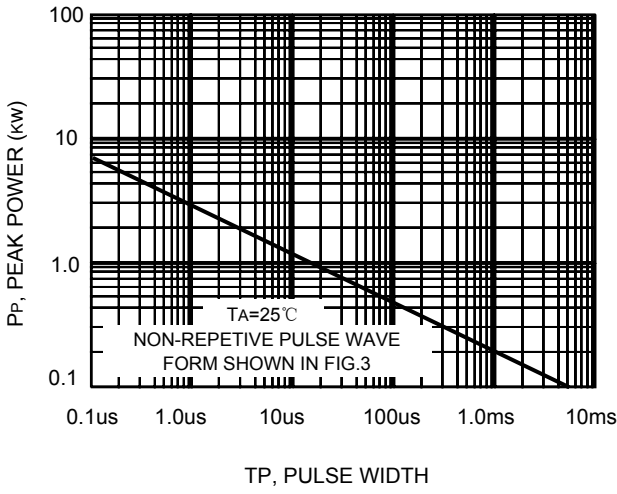


FIG.2-PULSE DERATING CURVE

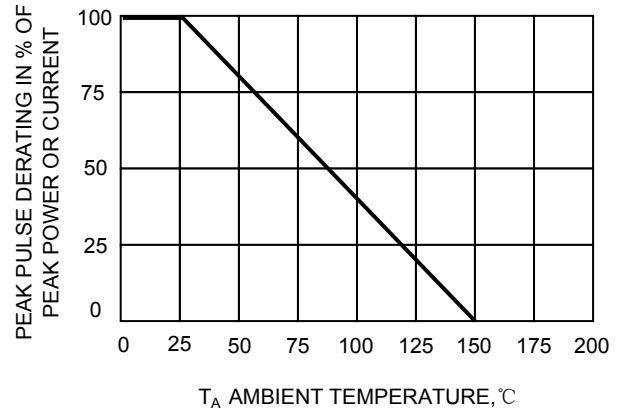


FIG.3-PULSE WAVEFORM

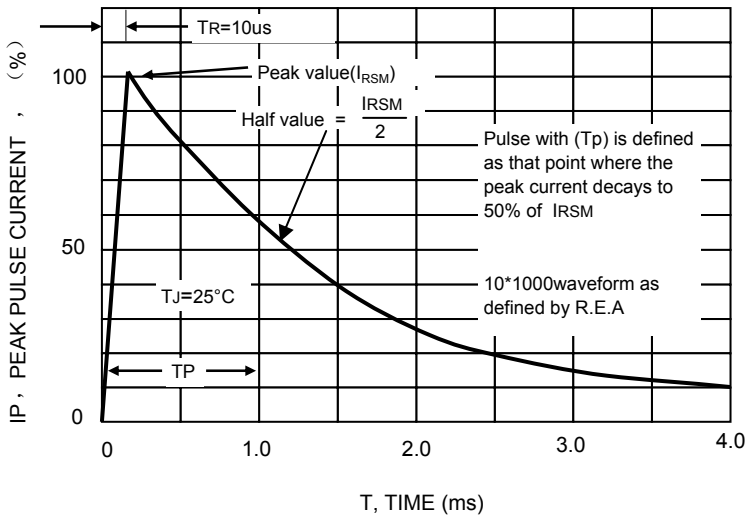


FIG.4-TYPICAL JUNCTION CAPACITANCE

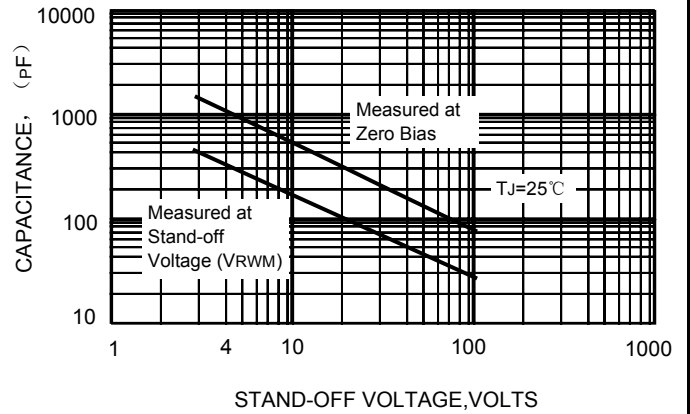
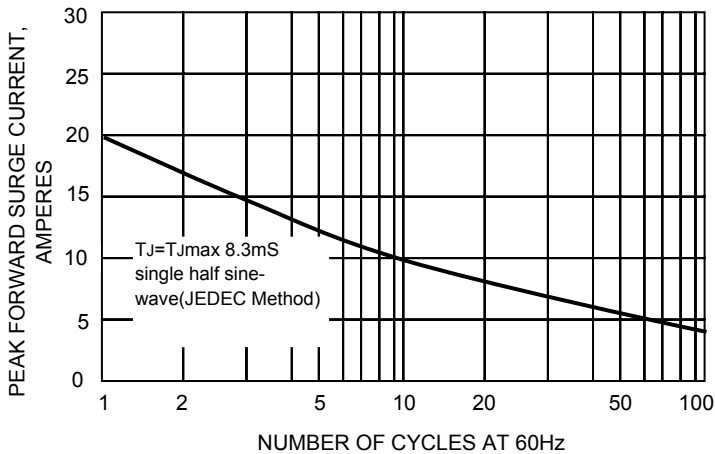


FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



The curve graph is for reference only, can't be the basis for judgment(曲线图仅供参考)!



SMF SERIES

TRR House No.	Marking Code		Breakdown Voltage at I_T^2 $V_{(BR)} (V)$		Test Current	Stand-off Voltage	Maximum Reverse Leakage at $V_{WM}^{(4)}$	Maximum Peak Pulse Surge Current ⁽³⁾	Maximum Clamping Voltage at IPPM
			Min	Max					
UNI	BI	UNI	Min	Max	I_T (mA)	V_{WM} (V)	I_D (μ A)	IPPM (A)	V_C (V)
SMF5.0(C)	KD	AD	6.40	7.82	10	5.0	400	20.80	9.6
SMF5.0(C)A	KE	AE	6.40	7.00	10	5.0	400	21.70	9.2
SMF6.0(C)	KF	AF	6.67	8.15	10	6.0	400	17.55	11.4
SMF6.0(C)A	KG	AG	6.67	7.37	10	6.0	400	19.40	10.3
SMF6.5(C)	KH	AH	7.22	8.82	10	6.5	250	16.30	12.3
SMF6.5(C)A	KK	AK	7.22	7.98	10	6.5	250	17.90	11.2
SMF7.0(C)	KL	AL	7.78	9.51	10	7.0	100	15.10	13.3
SMF7.0(C)A	KM	AM	7.78	8.60	10	7.0	100	16.70	12.0
SMF7.5(C)	KN	AN	8.33	10.20	1.0	7.5	50	14.00	14.3
SMF7.5(C)A	KP	AP	8.33	9.21	1.0	7.5	50	15.50	12.9
SMF8.0(C)	KQ	AQ	8.89	10.90	1.0	8.0	25	13.35	15.0
SMF8.0(C)A	KR	AR	8.89	9.83	1.0	8.0	25	14.70	13.6
SMF8.5(C)	KS	AS	9.44	11.50	1.0	8.5	10	12.60	15.9
SMF8.5(C)A	KT	AT	9.44	10.40	1.0	8.5	10	13.90	14.4
SMF9.0(C)	KU	AU	10.00	12.20	1.0	9.0	5.0	11.85	16.9
SMF9.0(C)A	KV	AV	10.00	11.10	1.0	9.0	5.0	13.00	15.4
SMF10(C)	KW	AW	11.10	13.60	1.0	10	2.5	10.70	18.8
SMF10(C)A	KX	AX	11.10	12.30	1.0	10	2.5	11.80	17.0
SMF11(C)	KY	AY	12.20	14.90	1.0	11	2.5	9.95	20.1
SMF11(C)A	KZ	AZ	12.20	13.50	1.0	11	2.5	11.00	18.2
SMF12(C)	LD	BD	13.30	16.30	1.0	12	2.5	9.15	22.0
SMF12(C)A	LE	BE	13.30	14.70	1.0	12	2.5	10.10	19.9
SMF13(C)	LF	BF	14.40	17.60	1.0	13	1.0	8.40	23.8
SMF13(C)A	LG	BG	14.40	15.90	1.0	13	1.0	9.30	21.5
SMF14(C)	LH	BH	15.60	19.10	1.0	14	1.0	7.75	25.8
SMF14(C)A	LK	BK	15.60	17.20	1.0	14	1.0	8.60	23.2
SMF15(C)	LL	BL	16.70	20.40	1.0	15	1.0	7.45	26.9
SMF15(C)A	LM	BM	16.70	18.50	1.0	15	1.0	8.20	24.4
SMF16(C)	LN	BN	17.80	21.80	1.0	16	1.0	6.95	28.8
SMF16(C)A	LP	BP	17.80	19.70	1.0	16	1.0	7.70	17.0
SMF17(C)	LQ	BQ	18.90	23.10	1.0	17	1.0	6.50	30.5
SMF17(C)A	LR	BR	18.90	20.90	1.0	17	1.0	7.20	27.6
SMF18(C)	LS	BS	20.00	24.40	1.0	18	1.0	6.15	32.2
SMF18(C)A	LT	BT	20.00	22.10	1.0	18	1.0	6.80	29.2
SMF20(C)	LU	BU	22.20	27.10	1.0	20	1.0	5.65	35.8
SMF20(C)A	LV	BV	22.20	24.50	1.0	20	1.0	6.20	32.4
SMF22(C)	LW	BW	24.40	29.80	1.0	22	1.0	5.05	39.4
SMF22(C)A	LX	BX	24.40	26.90	1.0	22	1.0	5.60	35.5
SMF24(C)	LY	BY	26.70	32.60	1.0	24	1.0	4.60	43.0
SMF24(C)A	LZ	BZ	26.70	29.50	1.0	24	1.0	5.10	38.9
SMF26(C)	MD	CD	28.90	35.30	1.0	26	1.0	4.35	46.6
SMF26(C)A	ME	CE	28.90	31.90	1.0	26	1.0	4.80	42.1
SMF28(C)	MF	CF	31.10	38.00	1.0	28	1.0	4.00	50.0
SMF28(C)A	MG	CG	31.10	34.40	1.0	28	1.0	4.40	45.4
SMF30(C)	MH	CH	33.30	40.70	1.0	30	1.0	3.70	53.5
SMF30(C)A	MK	CK	33.30	36.80	1.0	30	1.0	4.10	48.4
SMF33(C)	ML	CL	36.70	44.90	1.0	33	1.0	3.45	59.00
SMF33(C)A	MM	CM	36.70	40.60	1.0	33	1.0	3.80	53.30



SMF SERIES

TRR House No.	Marking Code		Breakdown Voltage at I_T^2 $V_{(BR)}$ (V)		Test Current	Stand-off Voltage	Maximum Reverse Leakage at V_{WM} I_D (μA) ⁽⁴⁾	Maximum Peak Pulse Surge Current ⁽³⁾	Maximum Clamping Voltage at I_{PPM}
			Min	Max					
UNI	UNI	BI	Min	Max	I_T (mA)	V_{WM} (V)	I_D (μA)	I_{PPM} (A)	V_C (V)
SMF36(C)	MN	CN	40.00	48.90	1.0	36	1.0	3.06	64.30
SMF36(C)A	MP	CP	40.00	44.20	1.0	36	1.0	3.40	58.10
SMF40(C)	MQ	CQ	44.40	54.30	1.0	40	1.0	2.80	71.40
SMF40(C)A	MR	CR	44.40	49.10	1.0	40	1.0	3.10	64.50
SMF43(C)	MS	CS	47.80	58.40	1.0	43	1.0	2.60	76.70
SMF43(C)A	MT	CT	47.80	52.80	1.0	43	1.0	2.90	69.40
SMF45(C)	MU	CU	50.00	61.10	1.0	45	1.0	2.55	80.30
SMF45(C)A	MV	CV	50.00	55.30	1.0	45	1.0	2.80	72.70
SMF48(C)	MW	CW	53.30	65.10	1.0	48	1.0	2.35	85.50
SMF48(C)A	MX	CX	53.30	58.90	1.0	48	1.0	2.60	77.40
SMF51(C)	MY	CY	56.70	69.30	1.0	51	1.0	2.16	91.10
SMF51(C)A	MZ	CZ	56.70	62.70	1.0	51	1.0	2.40	82.40
SMF54(C)	ND	DD	60.00	73.30	1.0	54	1.0	2.10	96.30
SMF54(C)A	NE	DE	60.00	66.30	1.0	54	1.0	2.30	87.10
SMF58(C)	NF	DF	64.40	78.70	1.0	58	1.0	2.00	103.00
SMF58(C)A	NG	DG	64.40	71.20	1.0	58	1.0	2.20	93.60
SMF60(C)	NH	DH	66.70	81.50	1.0	60	1.0	1.90	107.00
SMF60(C)A	NK	DK	66.70	73.70	1.0	60	1.0	2.10	96.80
SMF64(C)	NL	DL	71.10	86.90	1.0	64	1.0	1.79	114.00
SMF64(C)A	NM	DM	71.10	78.60	1.0	64	1.0	2.00	103.00
SMF70(C)	NN	DN	77.80	95.10	1.0	70	1.0	1.65	125.00
SMF70(C)A	NP	DP	77.80	86.00	1.0	70	1.0	1.80	113.00
SMF75(C)	NQ	DQ	83.30	102.0	1.0	75	1.0	1.55	134.00
SMF75(C)A	NR	DR	83.30	92.10	1.0	75	1.0	1.70	121.00
SMF78(C)	NS	DS	86.70	106.0	1.0	78	1.0	1.45	139.00
SMF78(C)A	NT	DT	86.70	95.80	1.0	78	1.0	1.60	126.00
SMF85(C)	NU	DU	94.40	115.0	1.0	85	1.0	1.34	151.00
SMF85(C)A	NV	DV	94.40	104.0	1.0	85	1.0	1.50	137.00
SMF90(C)	NW	DW	100.0	122.0	1.0	90	1.0	1.30	160.00
SMF90(C)A	NX	DX	100.0	111.0	1.0	90	1.0	1.40	146.00
SMF100(C)	NY	DY	111.0	136.0	1.0	100	1.0	1.14	179.00
SMF100(C)A	NZ	DZ	111.0	123.0	1.0	100	1.0	1.30	162.00
SMF110(C)	PD	ED	122.0	149.0	1.0	110	1.0	1.04	196.00
SMF110(C)A	PE	EE	122.0	135.0	1.0	110	1.0	1.20	177.00
SMF120(C)	PF	EF	133.0	163.0	1.0	120	1.0	0.95	214.00
SMF120(C)A	PG	EG	133.0	147.0	1.0	120	1.0	1.00	193.00
SMF130(C)	PH	EH	144.0	176.0	1.0	130	1.0	0.89	231.00
SMF130(C)A	PK	EK	144.0	159.0	1.0	130	1.0	1.00	209.00
SMF150(C)	PL	EL	167.0	204.0	1.0	150	1.0	0.75	268.00
SMF150(C)A	PM	EM	167.0	185.0	1.0	150	1.0	0.80	243.00
SMF160(C)	PN	EN	178.0	218.0	1.0	160	1.0	0.75	287.00
SMF160(C)A	PP	EP	178.0	197.0	1.0	160	1.0	0.80	259.00
SMF170(C)	PQ	EQ	189.0	231.0	1.0	170	1.0	0.65	304.00
SMF170(C)A	PR	ER	189.0	209.0	1.0	170	1.0	0.70	275.00

Notes: 1. Pulse test : $T_p \leq 50ms$.

2. Surge current waveform 10 / 1000 μs .

3. For bi-directional types with V_{WM} of 10 V and less, the I_D limit is doubled

4. $V_F = 3.5 V$ at $I_F = 25 A$ (uni-directional only)



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