

FEATURES

- 200 Watts Pulse capability
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time
- High temperature soldering guaranteed: 260°C/10 seconds at terminals
- Component in accordance to RoHS 2011/65/EU

MECHANICAL DATA

- Case: SOD-123FL molded plastic body
- Terminals: Solder Plated
- Polarity: By cathode band denotes uni-directional device,
none cathode band denotes bi-directional device.



- "GK" represents the brand name
- "XXX" represents the periodic code
- "YY" represents the product type marking

VOLTAGE RANGE

5.0 to 440 Volts
200 Watts Peak Power

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^{\circ}\text{C}$, $T_P=1\text{ms}$ (NOTE 1)	P_{PK}	Minimum 200	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	I_{FSM}	30	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above $T_A=25^{\circ}\text{C}$ per Fig. 2.
2. Mounted on Copper Pad area of 5.0mm^2 (.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

DEVICES FOR BIDIRECTIONAL APPLICATIONS

- 1. For bi-directional use C suffix for Types .
- 2. Electrical characteristics apply in both directions.

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER DERATING CURVE

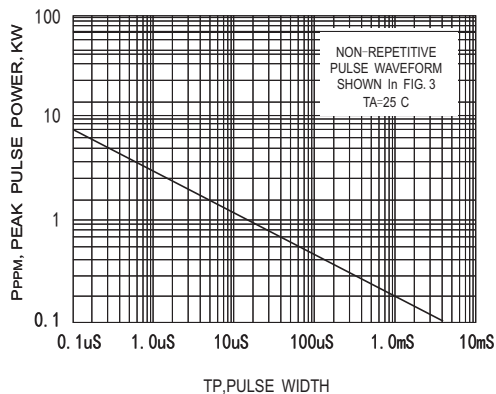


FIG.2-PULSE DERATING CURVE

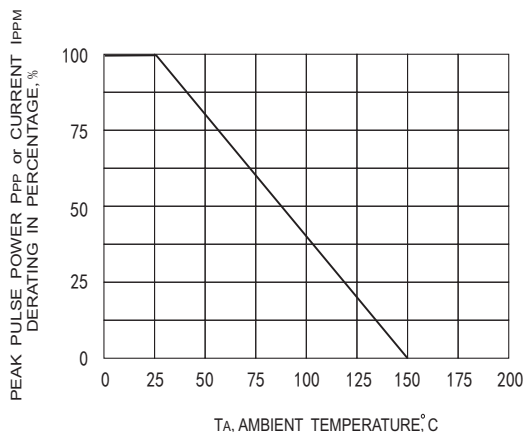


FIG.3-PULSE WAVE FORM

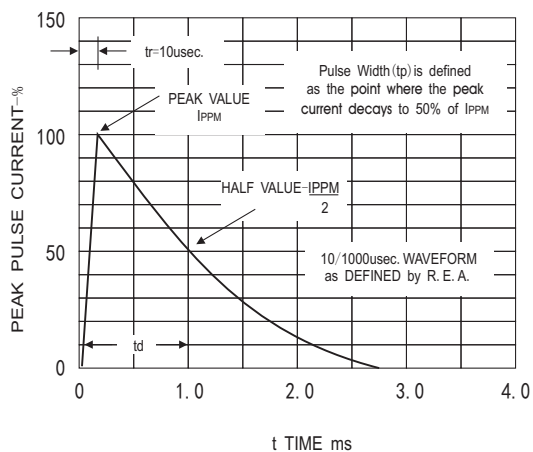
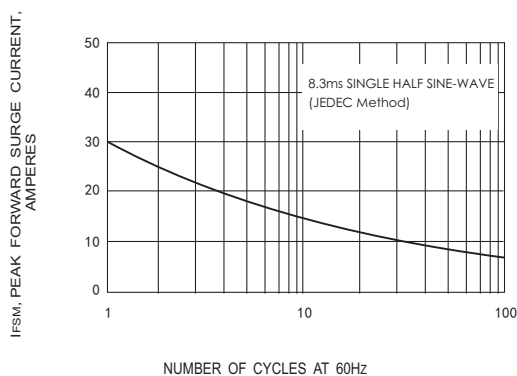


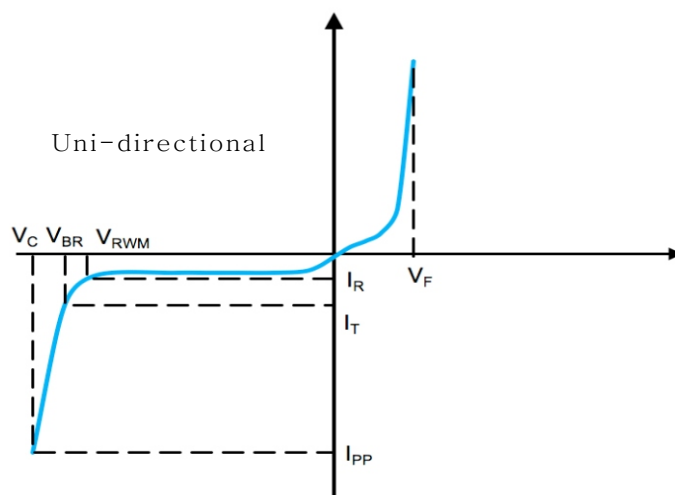
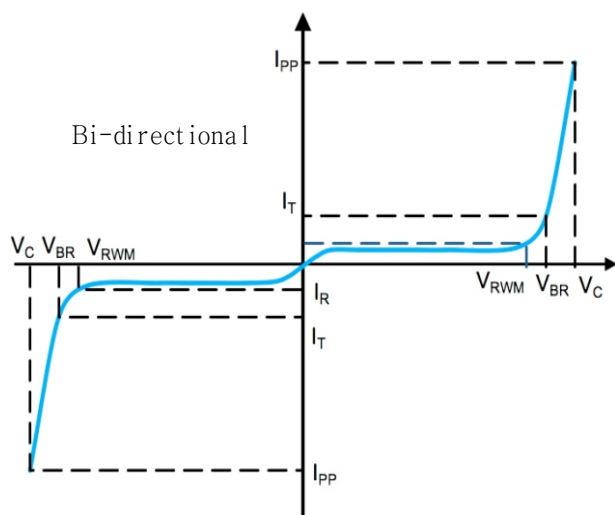
FIG.4-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



PART NUMBER ADD C FOR BI-DIRECTIONAL	V _{RWM}	Breakdown Voltage		Test Current	Reverse Leakage	Max. Clamp Voltage	Peak Pulse Current	Marking	
		V _{BR} @ I _T		I _T	I _R @ V _{RWM}	V _C @ I _{PP}	I _{PP}		
		Min	Max						
See Note 1	V	V	V	mA	μA	V	A	Uni	Bi
SMF5.0(C) A	5	6.4	7	10	400	9.2	21.7	AE	CAE
SMF6.0(C) A	6	6.67	7.37	10	400	10.3	19.4	AG	CAG
SMF6.5(C) A	6.5	7.22	7.98	10	250	11.2	17.9	AK	CAK
SMF7.0(C) A	7	7.78	8.6	10	100	12	16.7	AM	CAM
SMF7.5(C) A	7.5	8.33	9.21	1	50	12.9	15.5	AP	CAP
SMF8.0(C) A	8	8.89	9.83	1	25	13.6	14.7	AR	CAR
SMF8.5(C) A	8.5	9.44	10.4	1	10	14.4	13.9	AT	CAT
SMF9.0(C) A	9	10	11.1	1	5	15.4	13	AV	CAV
SMF10(C) A	10	11.1	12.3	1	2.5	17	11.8	AX	CAX
SMF11(C) A	11	12.2	13.5	1	2.5	18.2	11	AZ	CAZ
SMF12(C) A	12	13.3	14.7	1	2.5	19.9	10.1	BE	CBE
SMF13(C) A	13	14.4	15.9	1	1	21.5	9.3	BG	CBG
SMF14(C) A	14	15.6	17.2	1	1	23.2	8.6	BK	CBK
SMF15(C) A	15	16.7	18.5	1	1	24.4	8.2	BM	CBM
SMF16(C) A	16	17.8	19.7	1	1	26	7.7	BP	CBP
SMF17(C) A	17	18.9	20.9	1	1	27.6	7.2	BR	CBR
SMF18(C) A	18	20	22.1	1	1	29.2	6.8	BT	CBT
SMF20(C) A	20	22.2	24.5	1	1	32.4	6.2	BV	CBV
SMF22(C) A	22	24.4	26.9	1	1	35.5	5.6	BX	CBX
SMF24(C) A	24	26.7	29.5	1	1	38.9	5.1	BZ	CBZ
SMF26(C) A	26	28.9	31.9	1	1	42.1	4.8	CE	CCE
SMF28(C) A	28	31.1	34.4	1	1	45.4	4.4	CG	CCG
SMF30(C) A	30	33.3	36.8	1	1	48.4	4.1	CK	CCK
SMF33(C) A	33	36.7	40.6	1	1	53.3	3.8	CM	CCM
SMF36(C) A	36	40	44.2	1	1	58.1	3.4	CP	CCP
SMF40(C) A	40	44.4	49.1	1	1	64.5	3.1	CR	CCR
SMF43(C) A	43	47.8	52.8	1	1	69.4	2.9	CT	CCT
SMF45(C) A	45	50	55.3	1	1	72.7	2.8	CV	CCV
SMF48(C) A	48	53.3	58.9	1	1	77.4	2.6	CX	CCX
SMF51(C) A	51	56.7	62.7	1	1	82.4	2.4	CZ	CCZ
SMF54(C) A	54	60	66.3	1	1	87.1	2.3	DE	CDE
SMF58(C) A	58	64.4	71.2	1	1	93.6	2.1	DG	CDG
SMF60(C) A	60	66.7	73.7	1	1	96.8	1.8	DK	CDK
SMF64(C) A	64	71.1	78.6	1	1	103	1.7	DM	CDM
SMF70(C) A	70	77.8	86	1	1	113	1.5	DP	CDP
SMF75(C) A	75	83.3	92.1	1	1	121	1.4	DR	CDR
SMF78(C) A	78	86.7	95.8	1	1	126	1.4	DT	CDT
SMF85(C) A	85	94.4	104	1	1	137	1.3	DV	CDV
SMF90(C) A	90	100	111	1	1	146	1.2	DX	CDX
SMF100(C) A	100	111	123	1	1	162	1.1	DZ	CDZ
SMF110(C) A	110	122	135	1	1	177	1	EE	CEE
SMF120(C) A	120	133	147	1	1	193	0.9	EG	CEG
SMF130(C) A	130	144	159	1	1	209	0.8	EK	CEK
SMF150(C) A	150	167	185	1	1	243	0.7	EM	CEM
SMF160(C) A	160	178	197	1	1	259	0.7	EP	CEP
SMF170(C) A	170	189	209	1	1	275	0.6	ER	CER
SMF180(C) A	180	201	222	1	1	292	0.5	ET	CET
SMF200(C) A	200	224	247	1	1	324	0.5	EX	CEX
SMF220(C) A	220	246	272	1	1	356	0.5	E22	CE22
SMF250(C) A	250	279	309	1	1	405	0.5	E25	CE25
SMF300(C) A	300	335	371	1	1	486	0.45	E30	CE30
SMF350(C) A	350	391	432	1	1	567	0.4	E35	CE35
SMF400(C) A	400	447	494	1	1	648	0.35	E40	CE40
SMF440(C) A	440	492	543	1	1	713	0.3	E44	CE44

For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

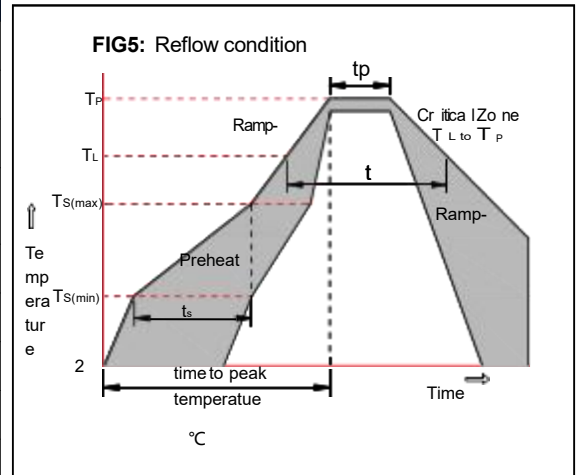
I-V Curve Characteristics



- P_{PPM} Peak Pulse Power Dissipation - Max power dissipation
- V_{RWM} Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
- V_{BR} Breakdown Voltage – Maximum voltage that flows though the TVS at a specified current (I_T)
- V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)
- I_R Reverse Leakage Current – Current measured at V_R
- V_F Forward Voltage Drop for Uni-directional

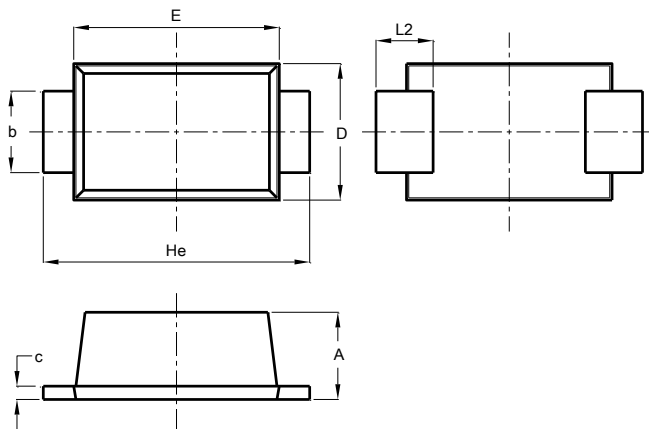
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
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 (Liquid us 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)(Liquid us)	+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)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C

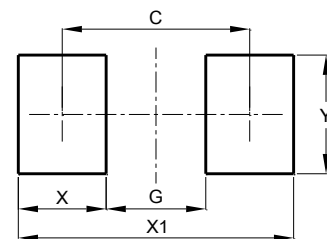


Package Dimensions & Suggested Pad Layout

SOD123FL



SOD123FL		
Dim	Min	Max
A	1.00	1.20
b	0.80	1.10
c	0.12	0.20
D	1.75	1.95
E	2.60	2.90
He	3.55	3.80
L2	0.50	0.85
All Dimensions in mm		



Dimensions	Value (in mm)
C	3.25
G	2.00
X	1.25
X1	4.50
Y	1.50

Tape & reel specification

Tape	Symbol	Dimension (mm)
	P0	4.00±0.20
	P1	4.00±0.20
	P2	2.00±0.20
	D0	1.55±0.15
	D1	1.00±0.20
	E	1.75±0.20
	F	3.50±0.25
	W	8.00±0.20
	A0	1.85±0.20
	B0	3.95±0.20
	K0	1.30±0.20
	T	0.21±0.10
	D2	178.0±5.0
7" Reel	D3	55.0Min.
	D4	10.0±2.5
	W1	11.5±2.5
	Quantity: 3000PCS	