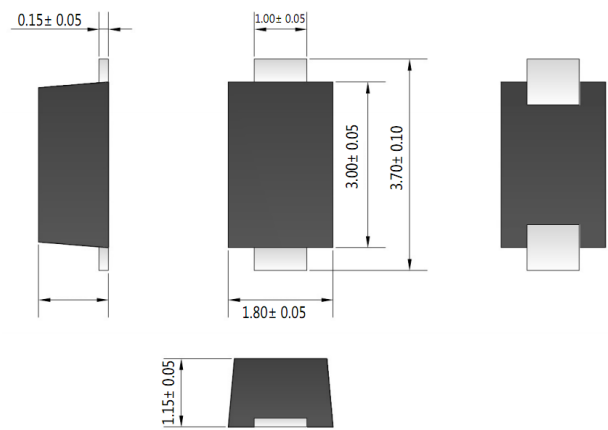


Features

- **Low Profile 1.33mm Max. Case Height**
- 200W Peak Pulse Power Dissipation
- 5.0V – 220V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Typical Response Time < 1nS
- Plastic Material – UL Recognition Flammability Classification 94V-0

Mechanical Data

- Case: SOD-123FL, Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band Except Bi-Directional
- Weight: 0.017 grams (approx.)
- Marking: Device Code
- **Lead Free: For RoHS / Lead Free Version**

SOD-123FL

Maximum Ratings and Electrical Characteristics @ $T_A=25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μs Waveform (Note 1, 2, 5)	PPPM	200	W
Peak Pulse Power Dissipation on 8/20 μs Waveform (Note 2)	PPPM	1000	W
Peak Pulse Current on 10/1000 μs Waveform (Note 1)	I _{PPM}	See Table 1	A
Peak Forward Surge Current (Note 2, 3)	I _{FSM}	20	A
Maximum Instantaneous Forward Voltage at 25A (Note 3, 4)	V _F	3.5 / 5.0	V
Power Dissipation on Infinite Heatsink at T _L = 75°C	P _D	0.4	W
Typical Thermal Resistance, Junction to Ambient (Note 2)	R _{JA}	220	°C/W
Typical Thermal Resistance, Junction to Lead (Note 2)	R _{JL}	100	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Note: 1. Non-repetitive current pulse per Figure 5 and derated above T_A = 25°C per Figure 1.
 2. Mounted on 5.0 x 5.0mm copper pads to each terminal.
 3. Measured on 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum. For uni-directional devices only.
 4. V_F < 3.5V for V_{BR} ≤ 200V and V_F < 5.0V for V_{BR} ≥ 201V.
 5. Peak pulse power waveform is 10/1000 μs .

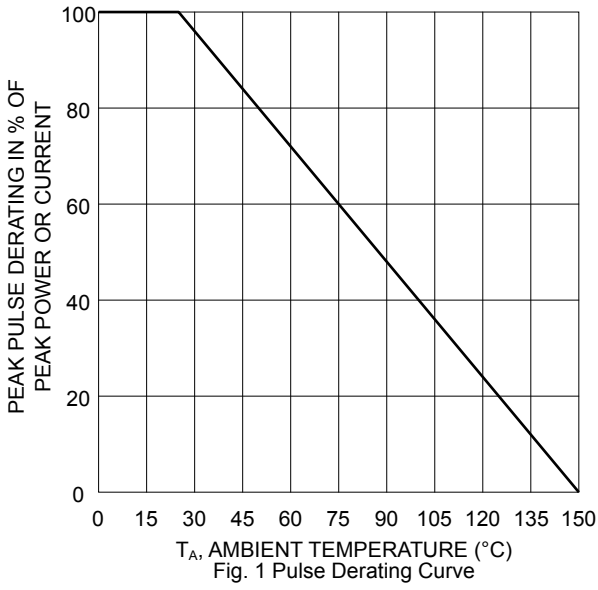


Fig. 1 Pulse Derating Curve

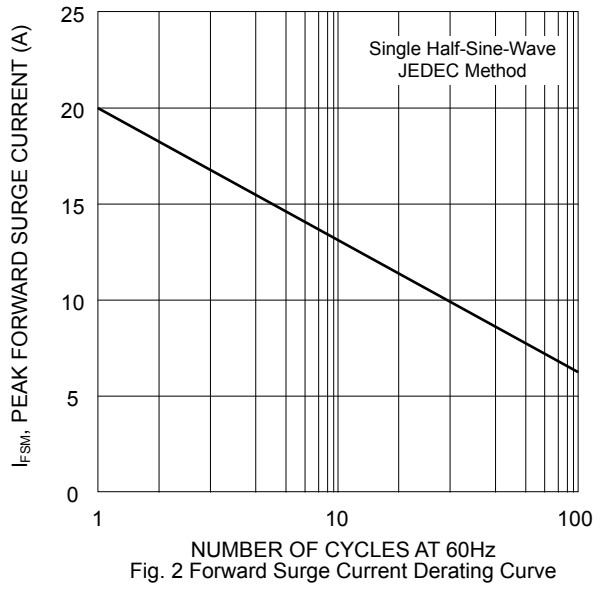


Fig. 2 Forward Surge Current Derating Curve

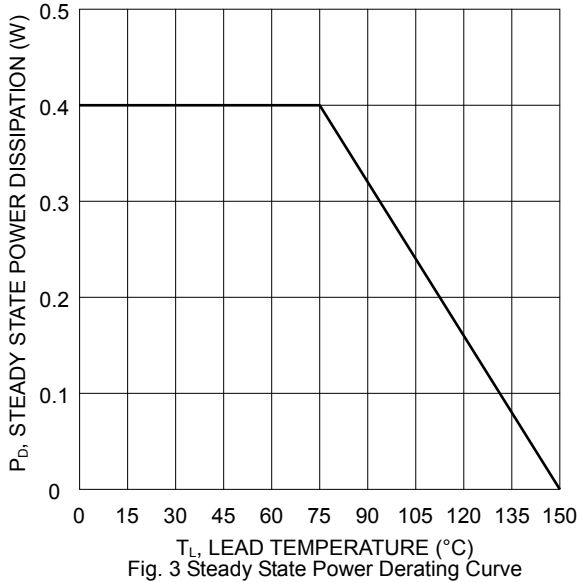


Fig. 3 Steady State Power Derating Curve

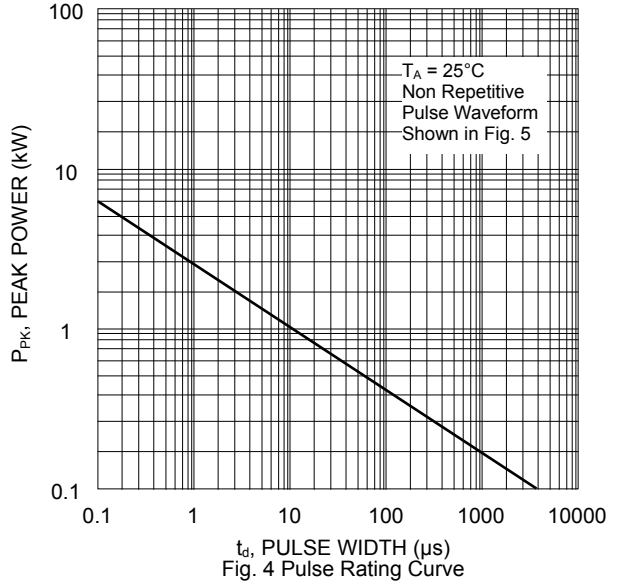


Fig. 4 Pulse Rating Curve

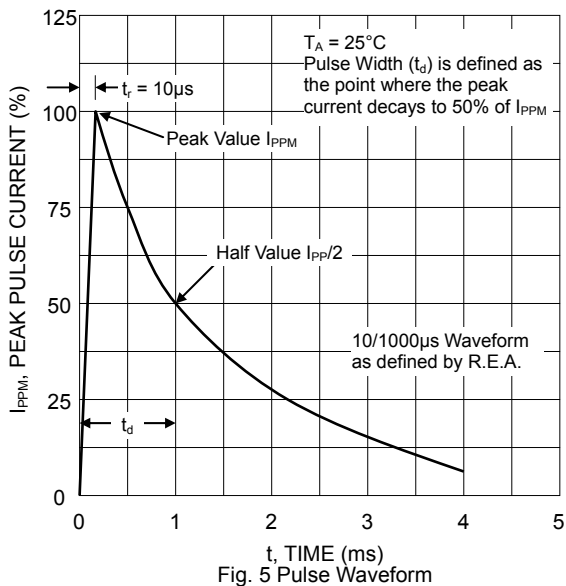


Fig. 5 Pulse Waveform

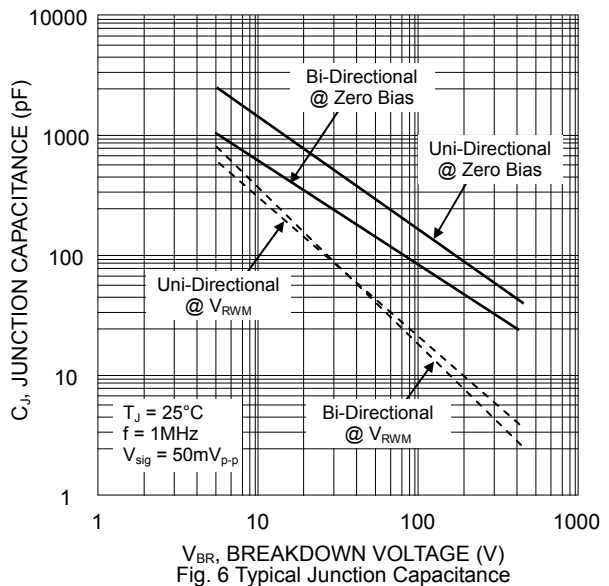


Fig. 6 Typical Junction Capacitance



Electrical Characteristics (@T_A=25°C unless otherwise specified) Table 1

Uni-Directional Part No.	Bi-Directional Part No.	Device Marking Code		Reverse Stand-Off Voltage V _{RWM} (V)	Breakdown Voltage V _{BR} (V) @I _T		Test Current I _T (mA)	Maximum Clamping Voltage @I _{PP} V _C (V)	Peak Pulse Current I _{PP} (A)	Reverse Leakage* @V _{RWM} I _R (μA)
		UNI	BI		Min.	Max.				
SMF5.0A	SMF5.0CA	FE	KE	5.0	6.40	7.00	10	9.2	21.74	400
SMF6.0A	SMF6.0CA	FG	KG	6.0	6.67	7.37	10	10.3	19.42	400
SMF6.5A	SMF6.5CA	FK	KK	6.5	7.22	7.98	10	11.2	17.86	250
SMF7.0A	SMF7.0CA	FM	KM	7.0	7.78	8.60	10	12.0	16.67	100
SMF7.5A	SMF7.5CA	FP	KP	7.5	8.33	9.21	1	12.9	15.50	50
SMF8.0A	SMF8.0CA	FR	KR	8.0	8.89	9.83	1	13.6	14.71	25
SMF8.5A	SMF8.5CA	FT	KT	8.5	9.44	10.40	1	14.4	13.89	10
SMF9.0A	SMF9.0CA	FV	KV	9.0	10.00	11.10	1	15.4	12.99	5
SMF10A	SMF10CA	FX	KX	10.0	11.10	12.30	1	17.0	11.76	2.5
SMF11A	SMF11CA	FZ	KZ	11.0	12.20	13.50	1	18.2	10.99	2.5
SMF12A	SMF12CA	HE	LE	12.0	13.30	14.70	1	19.9	10.05	2.5
SMF13A	SMF13CA	HG	LG	13.0	14.40	15.90	1	21.5	9.30	1
SMF14A	SMF14CA	HK	LK	14.0	15.60	17.20	1	23.2	8.62	1
SMF15A	SMF15CA	HM	LM	15.0	16.70	18.50	1	24.4	8.20	1
SMF16A	SMF16CA	HP	LP	16.0	17.80	19.70	1	26.0	7.69	1
SMF17A	SMF17CA	HR	LR	17.0	18.90	20.90	1	27.6	7.25	1
SMF18A	SMF18CA	HT	LT	18.0	20.00	22.10	1	29.2	6.85	1
SMF19A	SMF19CA	HB	LB	19.0	21.10	23.30	1	30.6	6.54	1
SMF20A	SMF20CA	HV	LV	20.0	22.20	24.50	1	32.4	6.17	1
SMF22A	SMF22CA	HX	LX	22.0	24.40	26.90	1	35.5	5.63	1
SMF24A	SMF24CA	HZ	LZ	24.0	26.70	29.50	1	38.9	5.14	1
SMF26A	SMF26CA	JE	ME	26.0	28.90	31.90	1	42.1	4.75	1
SMF28A	SMF28CA	JG	MG	28.0	31.10	34.40	1	45.4	4.41	1
SMF30A	SMF30CA	JK	MK	30.0	33.30	36.80	1	48.4	4.13	1
SMF33A	SMF33CA	JM	MM	33.0	36.70	40.60	1	53.3	3.75	1
SMF36A	SMF36CA	JP	MP	36.0	40.00	44.20	1	58.1	3.44	1
SMF40A	SMF40CA	JR	MR	40.0	44.40	49.10	1	64.5	3.10	1
SMF43A	SMF43CA	JT	MT	43.0	47.80	52.80	1	69.4	2.88	1
SMF45A	SMF45CA	JV	MV	45.0	50.00	55.30	1	72.7	2.75	1
SMF48A	SMF48CA	JX	MX	48.0	53.30	58.90	1	77.4	2.58	1
SMF51A	SMF51CA	JZ	MZ	51.0	56.70	62.70	1	82.4	2.43	1
SMF54A	SMF54CA	XE	NE	54.0	60.00	66.30	1	87.1	2.30	1
SMF58A	SMF58CA	XG	NG	58.0	64.40	71.20	1	93.6	2.14	1
SMF60A	SMF60CA	XK	NK	60.0	66.70	73.70	1	96.8	2.07	1
SMF64A	SMF64CA	XM	NM	64.0	71.10	78.60	1	103.0	1.94	1
SMF70A	SMF70CA	XP	NP	70.0	77.80	86.00	1	113.0	1.77	1
SMF75A	SMF75CA	XR	NR	75.0	83.30	92.10	1	121.0	1.65	1
SMF78A	SMF78CA	XT	NT	78.0	86.70	95.80	1	126.0	1.59	1
SMF80A	SMF80CA	XB	NB	80.0	88.80	97.60	1	129.0	1.55	1
SMF85A	SMF85CA	XV	NV	85.0	94.40	104.00	1	137.0	1.46	1
SMF90A	SMF90CA	XX	NX	90.0	100.00	111.00	1	146.0	1.37	1
SMF100A	SMF100CA	XZ	NZ	100.0	111.00	123.00	1	162.0	1.23	1
SMF110A	SMF110CA	TE	PE	110.0	122.00	135.00	1	177.0	1.13	1
SMF120A	SMF120CA	TG	PG	120.0	133.00	147.00	1	193.0	1.04	1
SMF130A	SMF130CA	TK	PK	130.0	144.00	159.00	1	209.0	0.96	1
SMF140A	SMF140CA	TB	PB	140.0	155.00	171.00	1	224.0	0.89	1
SMF150A	SMF150CA	TM	PM	150.0	167.00	185.00	1	243.0	0.82	1
SMF160A	SMF160CA	TP	PP	160.0	178.00	197.00	1	259.0	0.77	1
SMF170A	SMF170CA	TR	PR	170.0	189.00	209.00	1	275.0	0.73	1
SMF180A	SMF180CA	TT	PT	180.0	200.00	220.00	1	292.0	0.68	1
SMF190A	SMF190CA	TV	PV	190.0	211.00	232.00	1	308.0	0.65	1
SMF200A	SMF200CA	TX	PX	200.0	224.00	247.00	1	324.0	0.62	1
SMF220A	SMF220CA	TZ	PZ	220.0	246.00	272.00	1	356.0	0.56	1

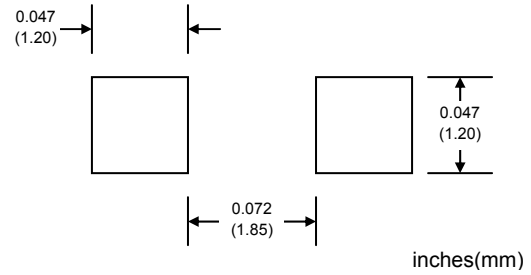
*For bi-directional devices V_{RWM} ≤ 10V, the I_R limit is double.

MARKING INFORMATION



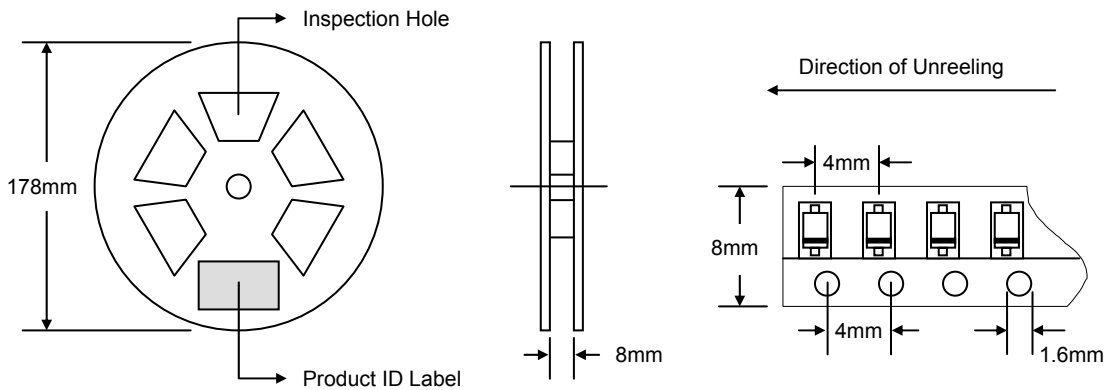
Cathode = Polarity Band Except Bi-Directional Types
 xx = Device Code, See Table 1

RECOMMENDED FOOTPRINT



PACKAGING INFORMATION

TAPE & REEL



Reel Diameter (mm)	Quantity (PCS)	Inner Box Size L x W x H (mm)	Quantity (PCS)	Carton Size L x W x H (mm)	Quantity (PCS)	Approx. Gross Weight (KG)
178	3,000	195 x 135 x 195	30,000	370 x 370 x 420	240,000	10.0

Note: 1. Anti-static plastic reel, white, water clear or blue color. Inspection hole might be varied in different alignment.
 2. Components are packed in accordance with EIA standard 481-1 and 481-2.