

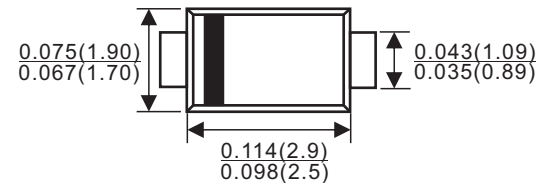
Working Voltage: 5.0 to 250Volts

Peak Pulse Power: 400 Watts

## Features

- ◇ Maximum 400 W peak pulse capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle): 0.01%
- ◇ Low inductance, excellent clamping capability
- ◇ For surface mounted applications to optimize board space
- ◇ Typical failure mode is short from over-specification Voltage or current
- ◇ Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- ◇ IEC-61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ◇ ESD protection of data lines in accordance with IEC61000-4-2
- ◇ EFT protection of data lines in accordance with IEC-61000-4-4
- ◇ Fast response time: typically less than 1.0ns from 0 volts to VBRmin.
- ◇ High temperature soldering: 260°C/30seconds at terminals
- ◇ Glass passivated junction
- ◇ Built-in strain relief
- ◇ Halogen-free and RoHS compliant

SOD-123FL

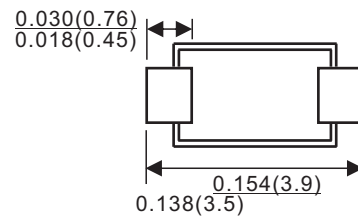


## Applications

- ◇ The protection of I/O interfaces, VCC bus and other vulnerable circuit used in cellular phones, portable devices, business machines, power supplies and other consumer applications.

## Mechanical Data

- ◇ Moisture Sensitivity: MSL Level 1, per J-STD-020
- ◇ Terminals: Matte Tin lead-free plated Finish. Solderable per MIL-STD-202 Method 208
- ◇ Case Material: Molded Plastic; Molding compound meet UL Flammability Classification Rating 94V-0
- ◇ Case: JEDEC SOD-123FL



Dimensions in inches and (millimeters)

## ORDERING PACK INFORMATION

Part No.	Package	Packing (pcs/reel)	Box Size L×W×H(mm)	Quantity (pcs/box)	Carton Size L×W×H(mm)	Quantity (pcs/carton)
SMFxxxA/CA	SOD-123FL	3000	210×210×210	45000	420×420×210	180000

## MAXIMUM RATING CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

PARAMETER	SYMBOL	VALUE	UNITS
Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)(3)</sup>	P <sub>PP</sub>	400	W
Peak power dissipation with a 8/20 $\mu$ s waveform <sup>(1)</sup>	P <sub>PP</sub>	2000	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	I <sub>PP</sub>	See next table	A
Peak forward surge current, 8.3ms single half sine-wave unidirectional only <sup>(2)</sup>	I <sub>FSM</sub>	30	A
Maximum instantaneous forward voltage at 25A for unidirectional only	V <sub>F</sub>	3.5	V
Thermal resistance Junction to Ambient	R <sub>θJA</sub>	220	°C/W
Thermal resistance Junction to Lead	R <sub>θJL</sub>	100	°C/W
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature range	T <sub>STG</sub>	-55~150	°C

Note:

(1) Non-repetitive current pulse per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.1

(2) Measured on 8.3ms single half sine-wave or equivalent average wave, duty cycle=4 pulses per minute maximum

## ELECTRICAL CHARACTERISTICS

Part Number		Marking Code		Breakdown Voltage V <sub>BR</sub> (Volts)@I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Reverse Stand off Voltage V <sub>R</sub> (V)	Maximum Reverse Leakage @V <sub>R</sub> I <sub>R</sub> (μA)	Maximum Peak Pulse Current I <sub>PP</sub> (A)	Maximum Clamping Voltage @I <sub>PP</sub> V <sub>C</sub> (V)
				Min	Max					
Uni-directional	Bi-directional	Uni-directional	Bi-directional							
SMF4L3.3A	SMF4L3.3CA	4KD	4AD	4.20	6.10	10	3.3	800	44.45	9.0
SMF4L5.0A	SMF4L5.0CA	4KE	4AE	6.40	7.00	10	5.0	800	43.48	9.2
SMF4L6.0A	SMF4L6.0CA	4KG	4AG	6.67	7.37	10	6.0	800	38.83	10.3
SMF4L6.5A	SMF4L6.5CA	4KK	4AK	7.22	7.98	10	6.5	500	35.71	11.2
SMF4L7.0A	SMF4L7.0CA	4KM	4AM	7.78	8.60	10	7.0	200	33.33	12.0
SMF4L7.5A	SMF4L7.5CA	4KP	4AP	8.33	9.21	1	7.5	100	31.01	12.9
SMF4L8.0A	SMF4L8.0CA	4KR	4AR	8.89	9.83	1	8.0	50	29.41	13.6
SMF4L8.5A	SMF4L8.5CA	4KT	4AT	9.44	10.40	1	8.5	20	27.78	14.4
SMF4L9.0A	SMF4L9.0CA	4KV	4AV	10.00	11.10	1	9.0	10	25.97	15.4
SMF4L10A	SMF4L10CA	4KX	4AX	11.10	12.30	1	10	5	23.53	17.0
SMF4L11A	SMF4L11CA	4KZ	4AZ	12.20	13.50	1	11	1	21.98	18.2
SMF4L12A	SMF4L12CA	4LE	4BE	13.30	14.70	1	12	1	20.10	19.9
SMF4L13A	SMF4L13CA	4LG	4BG	14.40	15.90	1	13	1	18.60	21.5
SMF4L14A	SMF4L14CA	4LK	4BK	15.60	17.20	1	14	1	17.24	23.2
SMF4L15A	SMF4L15CA	4LM	4BM	16.70	18.50	1	15	1	16.39	24.4
SMF4L16A	SMF4L16CA	4LP	4BP	17.80	19.70	1	16	1	15.38	26.0
SMF4L17A	SMF4L17CA	4LR	4BR	18.90	20.90	1	17	1	14.49	27.6
SMF4L18A	SMF4L18CA	4LT	4BT	20.00	22.10	1	18	1	13.70	29.2
SMF4L20A	SMF4L20CA	4LV	4BV	22.20	24.50	1	20	1	12.35	32.4
SMF4L22A	SMF4L22CA	4LX	4BX	24.40	26.90	1	22	1	11.27	35.5
SMF4L24A	SMF4L24CA	4LZ	4BZ	26.70	29.50	1	24	1	10.28	38.9
SMF4L26A	SMF4L26CA	4ME	4CE	28.90	31.90	1	26	1	9.50	42.1
SMF4L28A	SMF4L28CA	4MG	4CG	31.10	34.40	1	28	1	8.81	45.4
SMF4L30A	SMF4L30CA	4MK	4CK	33.30	36.80	1	30	1	8.26	48.4
SMF4L33A	SMF4L33CA	4MM	4CM	36.70	40.60	1	33	1	7.50	53.3
SMF4L36A	SMF4L36CA	4MP	4CP	40.00	44.20	1	36	1	6.88	58.1
SMF4L40A	SMF4L40CA	4MR	4CR	44.40	49.10	1	40	1	6.20	64.5
SMF4L43A	SMF4L43CA	4MT	4CT	47.80	52.80	1	43	1	5.76	69.4
SMF4L45A	SMF4L45CA	4MV	4CV	50.00	55.30	1	45	1	5.50	72.7
SMF4L48A	SMF4L48CA	4MX	4CX	53.30	58.90	1	48	1	5.17	77.4
SMF4L51A	SMF4L51CA	4MZ	4CZ	56.70	62.70	1	51	1	4.85	82.4
SMF4L54A	SMF4L54CA	4NE	4DE	60.00	66.30	1	54	1	4.59	87.1
SMF4L58A	SMF4L58CA	4NG	4DG	64.40	71.20	1	58	1	4.27	93.6
SMF4L60A	SMF4L60CA	4NK	4DK	66.70	73.70	1	60	1	4.13	96.8
SMF4L64A	SMF4L64CA	4NM	4DM	71.10	78.60	1	64	1	3.88	103.0
SMF4L70A	SMF4L70CA	4NP	4DP	77.80	86.00	1	70	1	3.54	113.0
SMF4L75A	SMF4L75CA	4NR	4DR	83.30	92.10	1	75	1	3.31	121.0
SMF4L78A	SMF4L78CA	4NT	4DT	86.70	95.80	1	78	1	3.17	126.0
SMF4L85A	SMF4L85CA	4NV	4DV	94.40	104.00	1	85	1	2.92	137.0
SMF4L90A	SMF4L90CA	4NX	4DX	100.00	111.00	1	90	1	2.74	146.0
SMF4L100A	SMF4L100CA	4NZ	4DZ	111.00	123.00	1	100	1	2.47	162.0
SMF4L110A	SMF4L110CA	4OE	4EE	122.00	135.00	1	110	1	2.26	177.0
SMF4L120A	SMF4L120CA	4OG	4EG	133.00	147.00	1	120	1	2.07	193.0
SMF4L130A	SMF4L130CA	4OK	4EK	144.00	159.00	1	130	1	1.91	209.0
SMF4L150A	SMF4L150CA	4OM	4EM	167.00	185.00	1	150	1	1.65	243.0
SMF4L160A	SMF4L160CA	4OP	4EP	178.00	197.00	1	160	1	1.54	259.0
SMF4L170A	SMF4L170CA	4OR	4ER	189.00	209.00	1	170	1	1.45	275.0
SMF4L180A	SMF4L180CA	4OT	4ET	201.00	222.00	1	180	1	1.37	291.6
SMF4L188A	SMF4L188CA	4OV	4EV	209.00	231.00	1	188	1	1.32	304.0
SMF4L200A	SMF4L200CA	4OX	4EX	224.00	247.00	1	200	1	1.23	324.0
SMF4L220A	SMF4L220CA	4OZ	4EZ	246.00	272.00	1	220	1	1.12	356.0
SMF4L250A	SMF4L250CA	4PE	4FE	279.00	309.00	1	250	1	0.99	405.0

**Note:**

1. VBR measured after IT applied for 300μs, IT = square wave pulse or equivalent.
2. Surge current waveform per 10/1000μs exponential wave and derated per Fig.2.
3. All terms and symbols are consistent with ANSI/IEEE C62.35.

# RATING AND CHARACTERISTICS CURVES

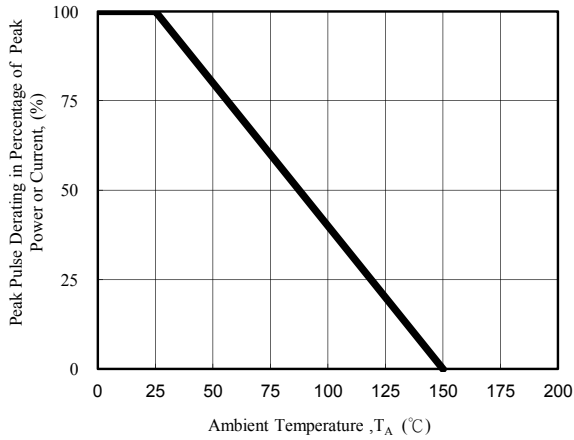


Fig. 1 - Pulse Derating Curve

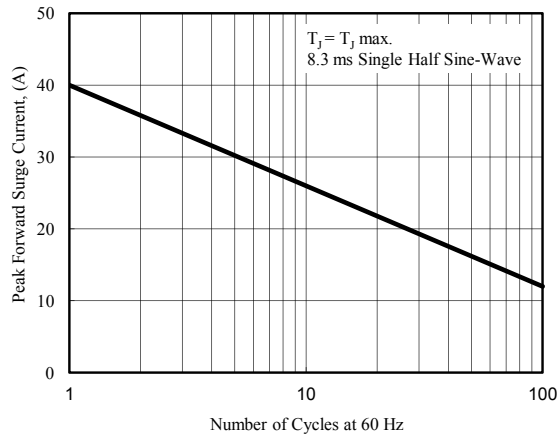


Fig. 2 - Maximum Non-Repetitive Surge Current

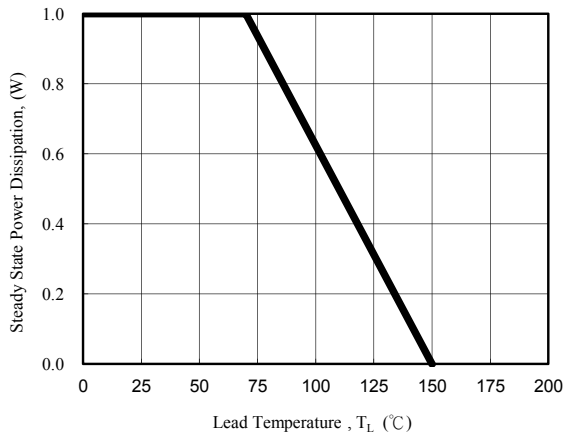


Fig. 3 - Steady State Power Derating Curve

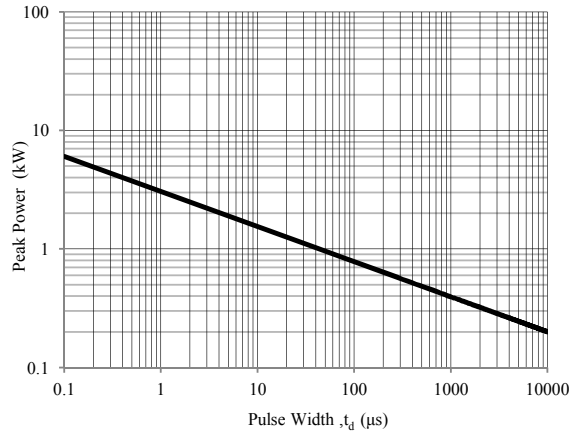


Fig. 4 - Peak Pulse Power Rating Curve

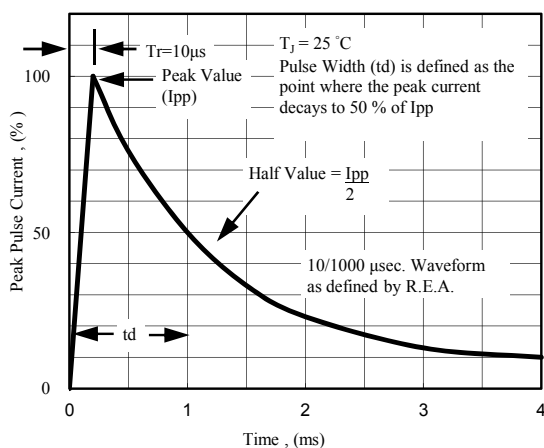


Fig. 5 - Pulse Waveform

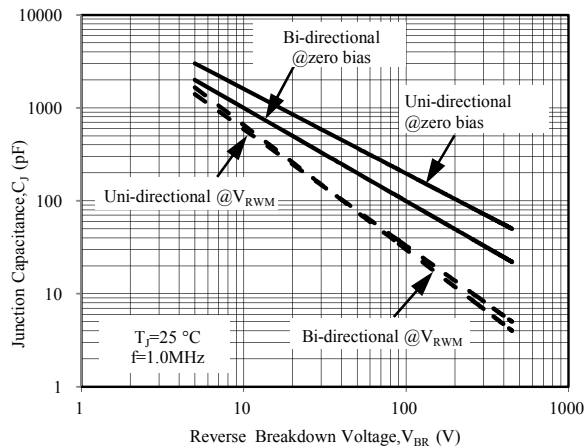


Fig. 6 - Typical Junction Capacitance

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