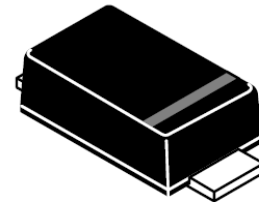


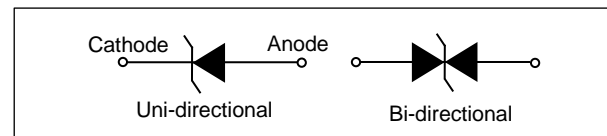
## Features

- Glass passivated chip.
- 400W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01%.
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- Range: P4SMFJ3.3A(CA) Thru. P4SMFJ350A(CA)



## Mechanical Data

- Case: Molded plastic.
- Epoxy: UL 94V-0 rate flame retardant.
- Lead: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end except Bipolar.
- Moisture Sensitivity: Level 1 per J-STD-020.
- RoHS Compliant.



## Circuit Diagram

- Terminal Connections: See Diagram Right

## Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$P_{PP}$	400	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$I_{PP}$	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	$P_D$	0.4	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup>	$I_{FSM}$	40	A
Maximum instantaneous forward voltage at 25 A for unidirectional only	$V_F$	5.0	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to +150	$^\circ\text{C}$

### Note:

(1)Non-repetitive current pulse per Fig.5 and derated above  $T_A= 25^\circ\text{C}$  per Fig.1

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

**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR} @ I_T$			Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}$ (A)	Maximum Clamping Voltage $V_C @ I_{PP}$ (V)
		Min (V)	Max (V)	$I_T$ (mA)				
P4SMFJ3.3A	P4SMFJ3.3CA	4.22	6.58	10	500	3.3	45.5	8.8
P4SMFJ5.0A	P4SMFJ5.0CA	6.40	7.00	10	400	5.0	43.5	9.2
P4SMFJ6.0A	P4SMFJ6.0CA	6.67	7.37	10	400	6.0	38.8	10.3
P4SMFJ6.5A	P4SMFJ6.5CA	7.22	7.98	10	250	6.5	35.7	11.2
P4SMFJ7.0A	P4SMFJ7.0CA	7.78	8.60	10	100	7.0	33.3	12.0
P4SMFJ7.5A	P4SMFJ7.5CA	8.33	9.21	1	50	7.5	31.0	12.9
P4SMFJ8.0A	P4SMFJ8.0CA	8.89	9.83	1	25	8.0	29.4	13.6
P4SMFJ8.5A	P4SMFJ8.5CA	9.44	10.40	1	10	8.5	27.8	14.4
P4SMFJ9.0A	P4SMFJ9.0CA	10.00	11.10	1	5	9.0	26.0	15.4
P4SMFJ10A	P4SMFJ10CA	11.10	12.30	1	2.5	10.0	23.5	17.0
P4SMFJ11A	P4SMFJ11CA	12.20	13.50	1	2.5	11.0	22.0	18.2
P4SMFJ12A	P4SMFJ12CA	13.30	14.70	1	2.5	12.0	20.1	19.9
P4SMFJ13A	P4SMFJ13CA	14.40	15.90	1	1	13.0	18.6	21.5
P4SMFJ14A	P4SMFJ14CA	15.60	17.20	1	1	14.0	17.2	23.2
P4SMFJ15A	P4SMFJ15CA	16.70	18.50	1	1	15.0	16.4	24.4
P4SMFJ16A	P4SMFJ16CA	17.80	19.70	1	1	16.0	15.4	26.0
P4SMFJ17A	P4SMFJ17CA	18.90	20.90	1	1	17.0	14.5	27.6
P4SMFJ18A	P4SMFJ18CA	20.00	22.10	1	1	18.0	13.7	29.2
P4SMFJ19A	P4SMFJ19CA	21.10	23.30	1	1	19.0	13.1	30.6
P4SMFJ20A	P4SMFJ20CA	22.20	24.50	1	1	20.0	12.3	32.4
P4SMFJ22A	P4SMFJ22CA	24.40	26.90	1	1	22.0	11.3	35.5
P4SMFJ24A	P4SMFJ24CA	26.70	29.50	1	1	24.0	10.3	38.9
P4SMFJ26A	P4SMFJ26CA	28.90	31.90	1	1	26.0	9.5	42.1
P4SMFJ28A	P4SMFJ28CA	31.10	34.40	1	1	28.0	8.8	45.4
P4SMFJ30A	P4SMFJ30CA	33.30	36.80	1	1	30.0	8.3	48.4
P4SMFJ33A	P4SMFJ33CA	36.70	40.60	1	1	33.0	7.5	53.3
P4SMFJ36A	P4SMFJ36CA	40.00	44.20	1	1	36.0	6.9	58.1
P4SMFJ40A	P4SMFJ40CA	44.40	49.10	1	1	40.0	6.2	64.5
P4SMFJ43A	P4SMFJ43CA	47.80	52.80	1	1	43.0	5.8	69.4
P4SMFJ45A	P4SMFJ45CA	50.00	55.30	1	1	45.0	5.5	72.7
P4SMFJ48A	P4SMFJ48CA	53.30	58.90	1	1	48.0	5.2	77.4
P4SMFJ51A	P4SMFJ51CA	56.70	62.70	1	1	51.0	4.9	82.4
P4SMFJ54A	P4SMFJ54CA	60.00	66.30	1	1	54.0	4.6	87.1
P4SMFJ58A	P4SMFJ58CA	64.40	71.20	1	1	58.0	4.3	93.6
P4SMFJ60A	P4SMFJ60CA	66.70	73.70	1	1	60.0	4.1	96.8
P4SMFJ64A	P4SMFJ64CA	71.10	78.60	1	1	64.0	3.9	103.0
P4SMFJ70A	P4SMFJ70CA	77.80	86.00	1	1	70.0	3.5	113.0

**Electrical Characteristics** ( $T_A= 25^\circ\text{C}$  unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}$ @ $I_T$			Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
		Min (V)	Max (V)	$I_T$ (mA)				
P4SMFJ75A	P4SMFJ75CA	83.30	92.10	1	1	75.0	3.3	121.0
P4SMFJ78A	P4SMFJ78CA	86.70	95.80	1	1	78.0	3.2	126.0
P4SMFJ80A	P4SMFJ80CA	88.80	97.60	1	1	80.0	3.1	129.0
P4SMFJ85A	P4SMFJ85CA	94.40	104.00	1	1	85.0	2.9	137.0
P4SMFJ90A	P4SMFJ90CA	100.00	111.00	1	1	90.0	2.7	146.0
P4SMFJ100A	P4SMFJ100CA	111.00	123.00	1	1	100.0	2.5	162.0
P4SMFJ110A	P4SMFJ110CA	122.00	135.00	1	1	110.0	2.3	177.0
P4SMFJ120A	P4SMFJ120CA	133.00	147.00	1	1	120.0	2.1	193.0
P4SMFJ130A	P4SMFJ130CA	144.00	159.00	1	1	130.0	1.9	209.0
P4SMFJ140A	P4SMFJ140CA	155.00	171.00	1	1	140.0	1.8	224.0
P4SMFJ150A	P4SMFJ150CA	167.00	185.00	1	1	150.0	1.6	243.0
P4SMFJ160A	P4SMFJ160CA	178.00	197.00	1	1	160.0	1.5	259.0
P4SMFJ170A	P4SMFJ170CA	189.00	209.00	1	1	170.0	1.5	275.0
P4SMFJ180A	P4SMFJ180CA	200.00	220.00	1	1	180.0	1.4	292.0
P4SMFJ190A	P4SMFJ190CA	211.00	232.00	1	1	190.0	1.3	308.0
P4SMFJ200A	P4SMFJ200CA	224.00	247.00	1	1	200.0	1.2	324.0
P4SMFJ220A	P4SMFJ220CA	246.00	272.00	1	1	220.0	1.1	356.0
P4SMFJ250A		279.00	309.00	1	1	250.0	1.0	405.0
P4SMFJ300A		335.00	371.00	1	1	300.0	0.8	486.0
P4SMFJ350A		391.00	432.00	1	1	350.0	0.7	567.0

Note:

- 1.Add suffix ' CA ' after part number to specify Bi-directional devices
- 2.For Bi-Directional devices having  $V_R$  of 10 volts and under, the  $I_R$  limit is double

Ratings and Characteristics Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

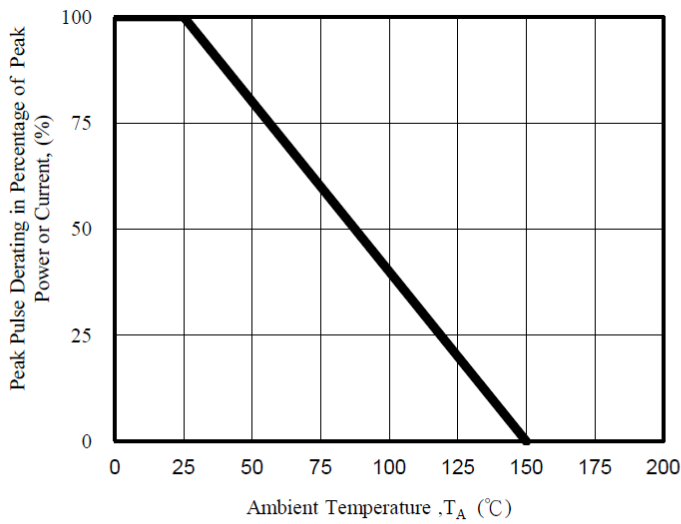


Fig. 1 - Pulse Derating Curve

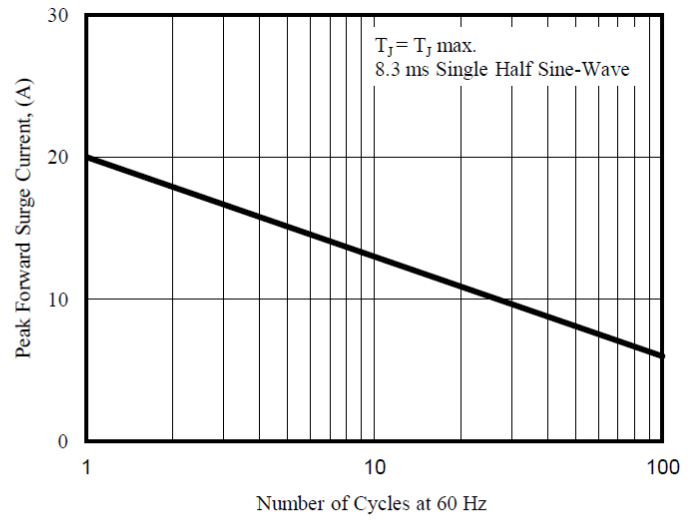


Fig. 2 - Maximum Non-Repetitive Surge Current

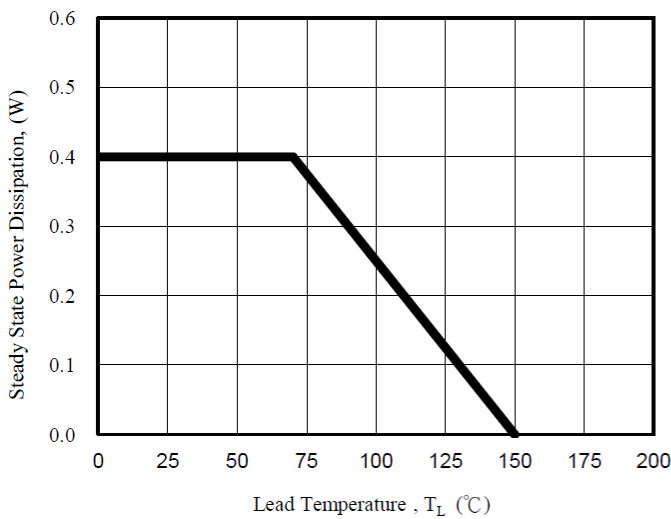


Fig. 3 - Steady State Power Derating Curve

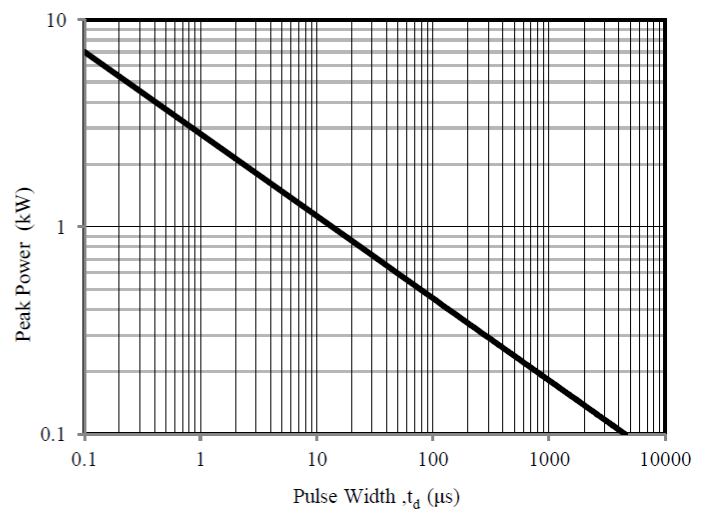


Fig. 4 - Peak Pulse Power Rating Curve

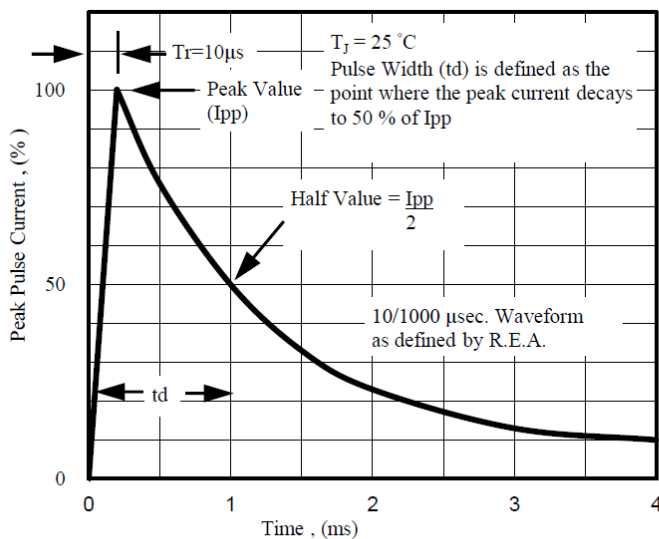


Fig. 5 - Pulse Waveform

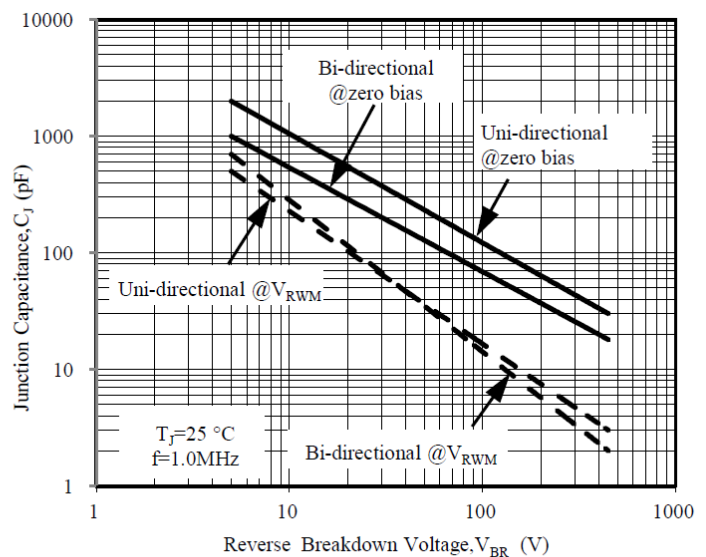
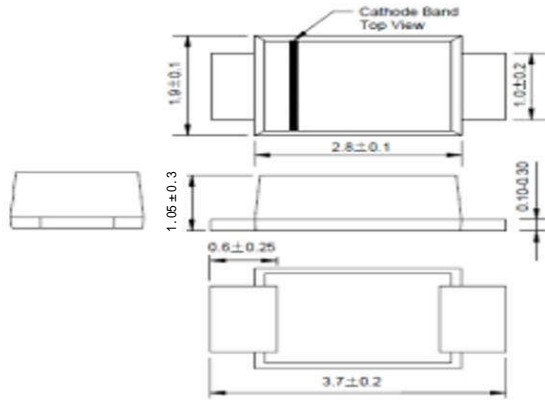



Fig. 6 - Typical Junction Capacitance

## Package Outline Dimensions and Pad Layouts

### SOD-123FL



## Summary of Packing Options

Package Type	Description	Part Number	Device Marking	Packing Quantity
SOD-123(P4SMFJ) 	Embossed Carrier Reel Pack	P4SMFJ7.0CA	ETM	3000PCS