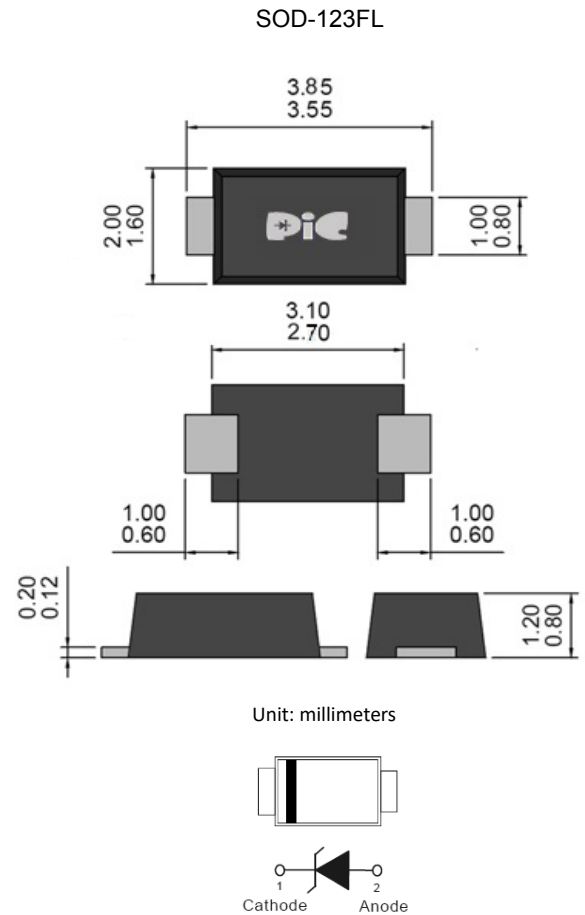


### Features

- Glass passivated chip
- Maximum 400 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni polar unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

### 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
- Mounting position: Any
- Weight: Approx. 0.0006 ounce, 0.0173grams



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

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 $\mu$ s waveform(1)(3)	$P_{PP}$	400	Watts
Peak pulse current with a 10/1000 $\mu$ s waveform(1)	$I_{PP}$	See Next Table	Amps
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only	$I_{FSM}$	30	Amps
Maximum instantaneous forward voltage at 25 A for unidirectional only	$V_F$	3.5	V
Operating junction and storage temperature range	$T_J, T_{STG}$	-55~+150	$^\circ\text{C}$

Notes :

- (1) Non-repetitive current pulse per Fig.3 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 for unidirectional device only
- (3) SMF4L5.0A~SMF4L9.0A Peak Pulse Power Dissipation is 370W min, 400W typical @10/1000 $\mu$ s



# SMF4L5.0A THRU SMF4L85A

## 400W Transient Voltage Suppressors

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

Part Number	Marking Code	Breakdown Voltage $V_{BR}$ @ $I_T$			Max. Reverse Leakage $I_R$ @ $V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Max. Reverse Surge Current $I_{PP}$ (A)	Max. Clamp Voltage $V_C$ @ $I_{PP}$ (V)
		Min(V)	Max(V)	$I_T$ (mA)				
SMF4L5.0A	KE	6.40	7.00	10	800	5.0	40.1	9.2
SMF4L6.0A	KG	6.67	7.37	10	800	6.0	35.9	10.3
SMF4L6.5A	KK	7.22	7.98	10	500	6.5	33.1	11.2
SMF4L7.0A	KM	7.78	8.60	10	200	7.0	30.9	12.0
SMF4L7.5A	KP	8.33	9.21	1	100	7.5	28.7	12.9
SMF4L8.0A	KR	8.89	9.83	1	50	8.0	27.2	13.6
SMF4L8.5A	KT	9.44	10.40	1	20	8.5	25.7	14.4
SMF4L9.0A	KV	10.00	11.10	1	10	9.0	24.1	15.4
SMF4L10A	KX	11.10	12.30	1	5	10.0	23.5	17.0
SMF4L11A	KZ	12.20	13.50	1	1	11.0	22.0	18.2
SMF4L12A	LE	13.30	14.70	1	1	12.0	20.1	19.9
SMF4L13A	LG	14.40	15.90	1	1	13.0	18.6	21.5
SMF4L14A	LK	15.60	17.20	1	1	14.0	17.2	23.2
SMF4L15A	LM	16.70	18.50	1	1	15.0	16.4	24.4
SMF4L16A	LP	17.80	19.70	1	1	16.0	15.4	26.0
SMF4L17A	LR	18.90	20.90	1	1	17.0	14.5	27.6
SMF4L18A	LT	20.00	22.10	1	1	18.0	13.7	29.2
SMF4L20A	LV	22.20	24.50	1	1	20.0	12.3	32.4
SMF4L22A	LX	24.40	26.90	1	1	22.0	11.3	35.5
SMF4L24A	LZ	26.70	29.50	1	1	24.0	10.3	38.9
SMF4L26A	ME	28.90	31.90	1	1	26.0	9.5	42.1
SMF4L28A	MG	31.10	34.40	1	1	28.0	8.8	45.4
SMF4L30A	MK	33.30	36.80	1	1	30.0	8.3	48.4
SMF4L33A	MM	36.70	40.60	1	1	33.0	7.5	53.3
SMF4L36A	MP	40.00	44.20	1	1	36.0	6.9	58.1
SMF4L40A	MR	44.40	49.10	1	1	40.0	6.2	64.5
SMF4L43A	MT	47.80	52.80	1	1	43.0	5.8	69.4
SMF4L45A	MV	50.00	55.30	1	1	45.0	5.5	72.7
SMF4L48A	MX	53.30	58.90	1	1	48.0	5.2	77.4
SMF4L51A	MZ	56.70	62.70	1	1	51.0	4.9	82.4
SMF4L54A	NE	60.00	66.30	1	1	54.0	4.6	87.1
SMF4L58A	NG	64.40	71.20	1	1	58.0	4.3	93.6
SMF4L60A	NK	66.70	73.70	1	1	60.0	4.1	96.8
SMF4L64A	NM	71.10	78.60	1	1	64.0	3.9	103.0
SMF4L70A	NP	77.80	86.00	1	1	70.0	3.5	113.0
SMF4L75A	NR	83.30	92.10	1	1	75.0	3.3	121.0
SMF4L78A	NT	86.70	95.80	1	1	78.0	3.2	126.0
SMF4L85A	NV	94.40	104.00	1	1	85.0	2.9	137.0

### Rating & Characteristic Curves

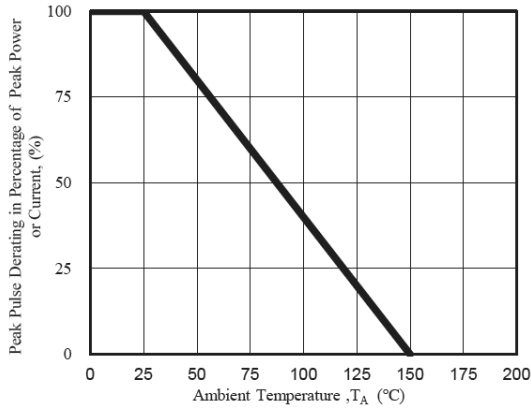


Fig. 1 Pulse Derating Curve

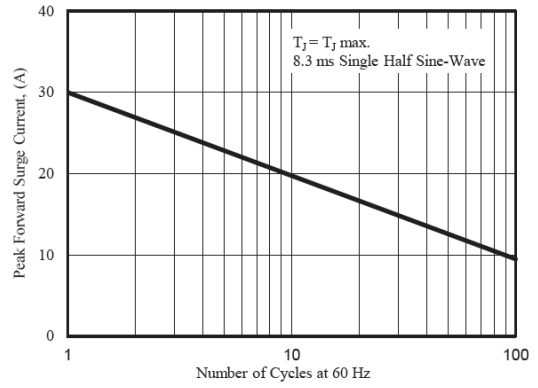


Fig. 2 Maximum Non Repetitive

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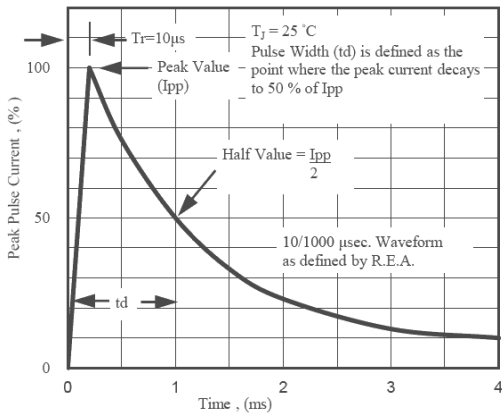


Fig. 3 Pulse Waveform

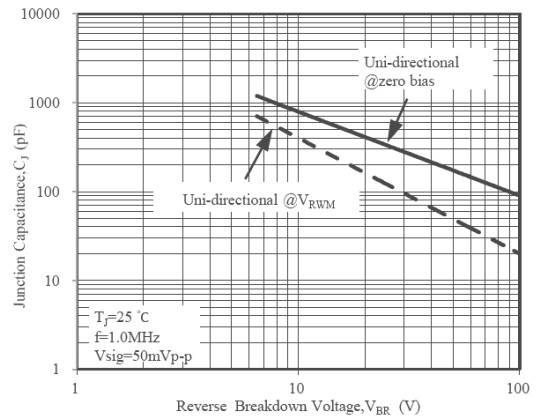


Fig. 4 Typical Junction Capacitance

### Suggested Pad Layout

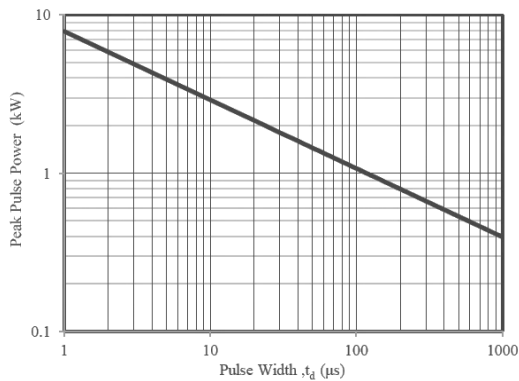
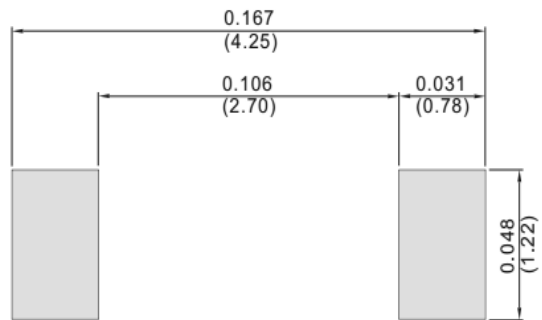
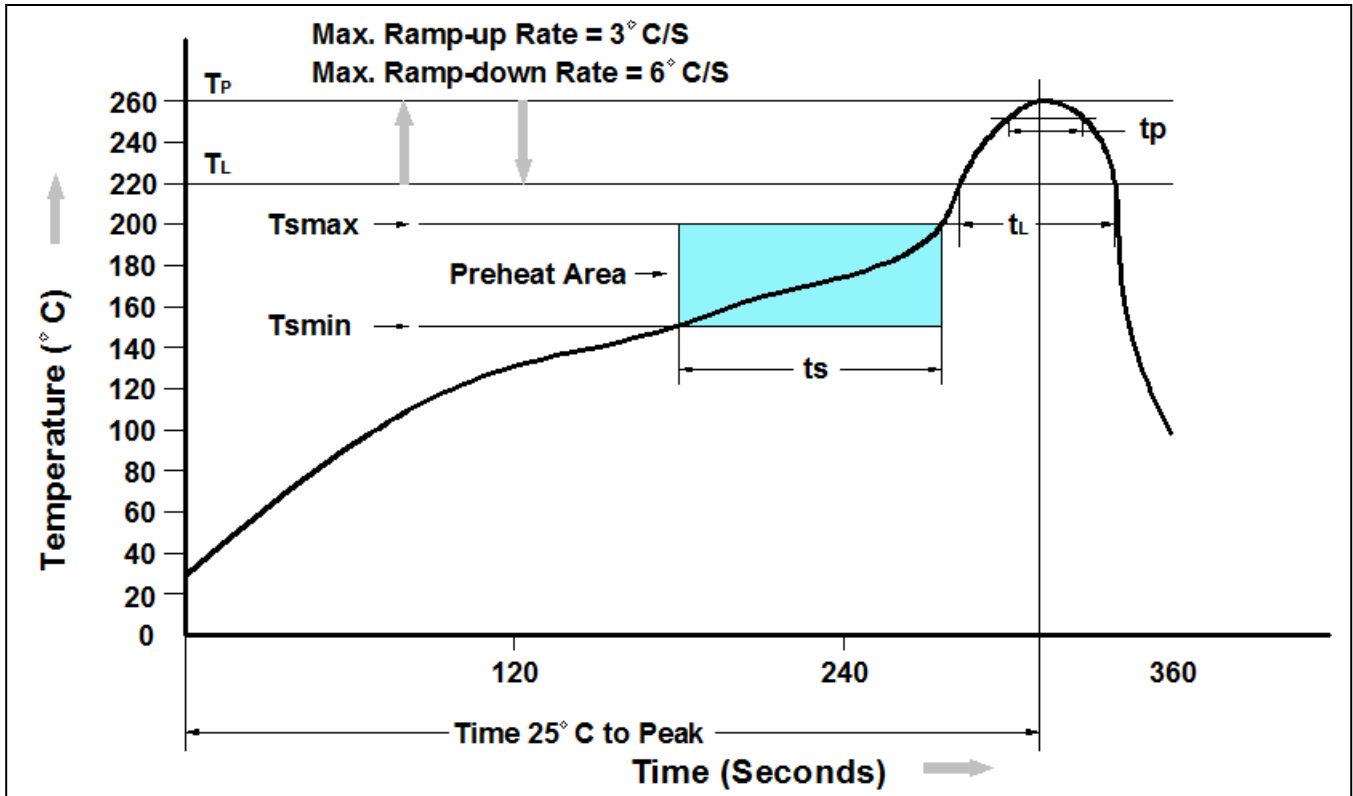


Fig. 5 Steady State Power Derating Curve



Unit: inch (mm)

### Recommend IR Reflow Soldering Thermal Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T <sub>smin</sub> )	150°C
Temperature Max. (T <sub>smax</sub> )	200°C
Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds
Average Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (t <sub>P</sub> ) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

### Ordering Information

Part Number	Description	Quantity
SMF4L5.0A THRU SMF4L85A	SOD-123FL Reel	3000 pcs

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