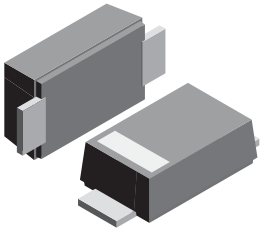
# TPSMF4L5.0A - TPSMF4L85A

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPESSOR DIODE



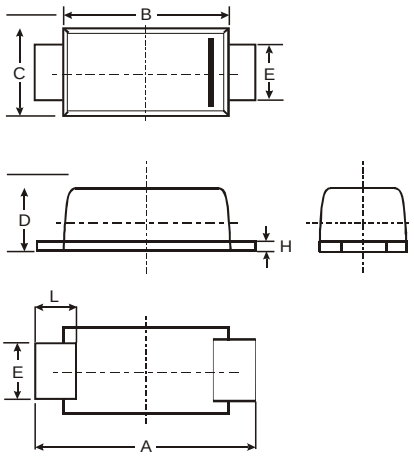
### Features

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

### Mechanical Data

- Case: SOD-123FL
  plastic body over passivated junction
- Terminals : Plated axial leads,
- solderable per MIL-STD-750, Method 2026
- Polarity : Color band denotes cathode end
- Mounting Position : Any
- Weight:0.0007 ounce, 0.02 grams

RoHS COMPLIANT




| SOD-123FL | | | |
|---|---|---|---|
| Dim | Min | Max | Typ |
| A | 3.50 | 3.80 | 3.65 |
| B | 2.60 | 2.90 | 2.75 |
| C | 1.70 | 1.90 | 1.80 |
| D | 0.09 | 1.10 | 1.00 |
| E | 0.08 | 1.10 | 0.095 |
| H | 0.12 | 0.20 | 0.16 |
| L | 0.07 | 0.09 | 0.08 |
| All Dimensions in mm | | | |

### Maximum Ratings and Electrical Characteristics $T_A$ = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak power dissipation with a 10/1000μs waveform(1)(3) | $P_{PP}$ | 400 | W |
| Peak pulse current with a 10/1000μs waveform(1) | $I_{PP}$ | See Next Table | A |
| Power dissipation on infinite heatsink at $T_L$ = 75 °C | $P_D$ | 1.0 | W |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional (2) | $I_{FSM}$ | 30 | A |
| 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 to +150 | °C |

**Note:**

(1)Non-repetitive current pulse per Fig.3 and derated above $T_A$= 25 °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 (TA=25°C unless otherwise noted)

| TYPE (UNI) | Reverse Stand-Off Voltage | Breakdown Voltage Min. @$I_T$ | Breakdown Voltage Max. @ $I_T$ | Test Current | Reverse Leakage @$V_{RWM}$ | Peak Pulse Current | Maximum Clamping Voltage @$I_{PP}$ |
|---|---|---|---|---|---|---|---|
| | $V_{RWM}$(V) | $V_{BR\ MIN}$(V) | $V_{BR\ MAX}$(V) | $I_T$ (mA) | $I_R$(uA) | $I_{PP}$(A) | $V_C$(V) |
| TPSMF4L5.0A | 5.0 | 6.40 | 7.00 | 10 | 800 | 40.10 | 9.20 |
| TPSMF4L6.0A | 6.0 | 6.67 | 7.37 | 10 | 800 | 35.90 | 10.30 |
| TPSMF4L6.5A | 6.5 | 7.22 | 7.98 | 10 | 500 | 33.10 | 11.20 |
| TPSMF4L7.0A | 7.0 | 7.78 | 8.60 | 10 | 200 | 30.90 | 12.00 |
| TPSMF4L7.5A | 7.5 | 8.33 | 9.21 | 10 | 100 | 28.70 | 12.90 |
| TPSMF4L8.0A | 8.0 | 8.89 | 9.83 | 1 | 50 | 27.20 | 13.60 |
| TPSMF4L8.5A | 8.5 | 9.44 | 10.40 | 1 | 20 | 25.70 | 14.40 |
| TPSMF4L9.0A | 9.0 | 10.00 | 11.10 | 1 | 10 | 24.10 | 15.40 |
| TPSMF4L10A | 10 | 11.10 | 12.30 | 1 | 5 | 23.50 | 17.00 |
| TPSMF4L11A | 11 | 12.20 | 13.50 | 1 | 1 | 22.00 | 18.20 |
| TPSMF4L12A | 12 | 13.30 | 14.70 | 1 | 1 | 20.10 | 19.90 |
| TPSMF4L13A | 13 | 14.40 | 15.90 | 1 | 1 | 18.60 | 21.50 |
| TPSMF4L14A | 14 | 15.80 | 17.20 | 1 | 1 | 17.20 | 23.20 |
| TPSMF4L15A | 15 | 18.70 | 18.50 | 1 | 1 | 16.40 | 24.40 |
| TPSMF4L16A | 16 | 17.80 | 19.70 | 1 | 1 | 15.40 | 26.00 |
| TPSMF4L17A | 17 | 18.90 | 20.90 | 1 | 1 | 14.50 | 27.60 |
| TPSMF4L18A | 18 | 20.00 | 22.10 | 1 | 1 | 13.70 | 29.20 |
| TPSMF4L20A | 20 | 22.20 | 24.50 | 1 | 1 | 12.30 | 32.40 |
| TPSMF4L22A | 22 | 24.40 | 26.90 | 1 | 1 | 11.30 | 35.50 |
| TPSMF4L24A | 24 | 26.70 | 29.50 | 1 | 1 | 10.30 | 38.90 |
| TPSMF4L26A | 26 | 28.90 | 31.90 | 1 | 1 | 9.50 | 42.10 |
| TPSMF4L28A | 28 | 31.10 | 34.40 | 1 | 1 | 8.80 | 45.40 |
| TPSMF4L30A | 30 | 33.30 | 36.80 | 1 | 1 | 8.30 | 48.40 |
| TPSMF4L33A | 33 | 38.70 | 40.60 | 1 | 1 | 7.50 | 53.30 |
| TPSMF4L36A | 36 | 40.00 | 44.20 | 1 | 1 | 8.90 | 58.10 |
| TPSMF4L40A | 40 | 44.40 | 49.10 | 1 | 1 | 6.20 | 64.50 |
| TPSMF4L43A | 43 | 47.80 | 52.80 | 1 | 1 | 5.80 | 69.40 |
| TPSMF4L45A | 45 | 50.00 | 55.30 | 1 | 1 | 5.50 | 72.70 |
| TPSMF4L48A | 48 | 53.30 | 58.90 | 1 | 1 | 5.20 | 77.40 |
| TPSMF4L51A | 51 | 58.70 | 62.70 | 1 | 1 | 4.90 | 82.40 |
| TPSMF4L54A | 54 | 80.00 | 66.30 | 1 | 1 | 4.60 | 87.10 |
| TPSMF4L58A | 58 | 64.40 | 71.20 | 1 | 1 | 4.30 | 93.60 |
| TPSMF4L60A | 60 | 86.70 | 73.70 | 1 | 1 | 4.10 | 98.80 |
| TPSMF4L64A | 64 | 71.10 | 78.60 | 1 | 1 | 3.90 | 103.00 |
| TPSMF4L70A | 70 | 77.80 | 88.00 | 1 | 1 | 3.50 | 113.00 |
| TPSMF4L75A | 75 | 83.30 | 92.10 | 1 | 1 | 3.30 | 121.00 |
| TPSMF4L78A | 78 | 86.70 | 95.80 | 1 | 1 | 3.20 | 126.00 |
| TPSMF4L85A | 85 | 94.40 | 104.00 | 1 | 1 | 2.90 | 137.00 |

## Ratings and Characteristic Curves $T_A$=25°C unless otherwise noted

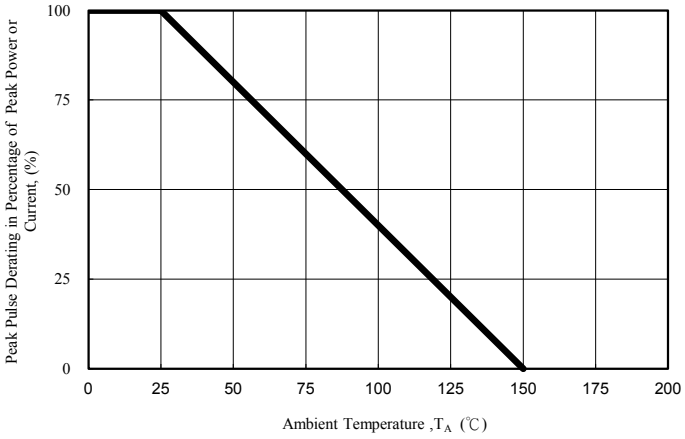



Fig. 1 - Pulse Derating Curve

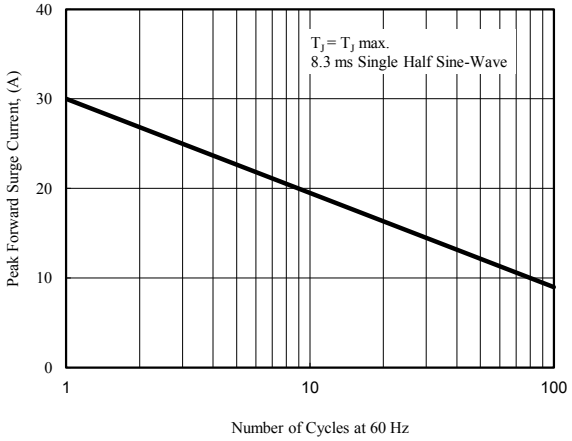



Fig. 2 - Maximum Non-Repetitive

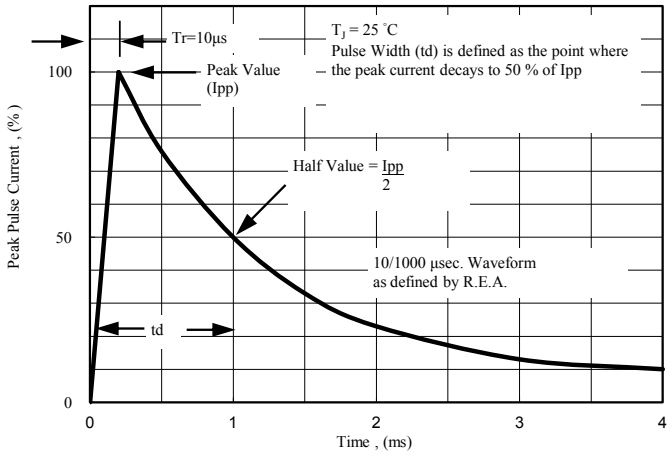



Fig. 3 - Pulse Waveform

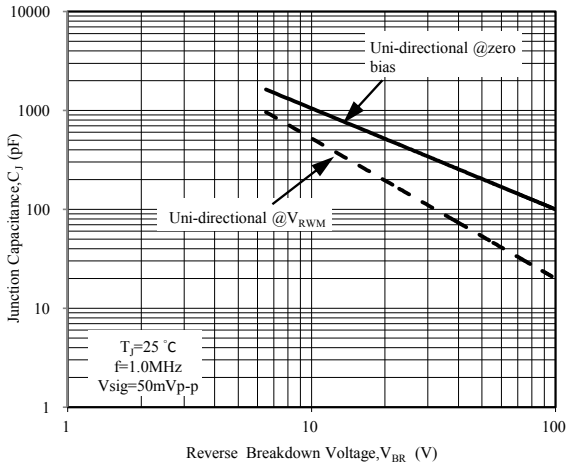



Fig. 4 - Typical Junction Capacitance

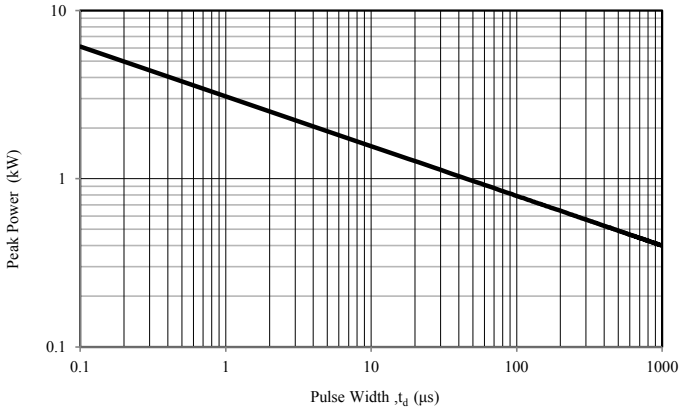



Fig. 5 - Steady State Power Derating Curve