

Surface Mount Fast Recovery Rectifier

Features

- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Easy to pick and place
- Fast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0



Mechanical Data

- Case: SOD-123FL
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end

Ordering Information

| Part Number | Shipping | Reel |
|---------------------------|--------------------|-----------|
| LTR101L THRU LTR107L-TR3 | 3000PCS Tape&Reel | 7 inches |
| LTR101L THRU LTR107L-TR12 | 12000PCS Tape&Reel | 13 inches |

Maximum Ratings and Electrical Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Parameter | Symbol | LTR101L | LTR102L | LTR103L | LTR104L | LTR105L | LTR106L | LTR107L | Unit |
|---|-----------------|------------|---------|---------|---------|---------|---------|---------|--------------------|
| Maximum Repetitive Peak Reverse Voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC Blocking Voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum Average Forward Rectified Current at $T_c = 125\text{ }^\circ\text{C}$ | $I_{F(AV)}$ | 1 | | | | | | | A |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load | I_{FSM} | 30 | | | | | | | A |
| Maximum Forward Voltage at 1 A | V_F | 1.3 | | | | | | | V |
| Maximum DC Reverse Current $T_a = 25\text{ }^\circ\text{C}$ at Rated DC Blocking Voltage $T_a = 125\text{ }^\circ\text{C}$ | I_R | 5 100 | | | | | | | μA |
| Typical Junction Capacitance at $V_R=4\text{V}$, $f=1\text{MHz}$ | C_j | 15 | | | | | | | pF |
| Maximum Reverse Recovery Time (Note1) | t_{rr} | 150 | | | | 250 | 500 | | ns |
| Typical Thermal Resistance (Note2) | $R_{\theta JA}$ | 85 | | | | | | | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_j, T_{stg} | -55 ~ +150 | | | | | | | $^\circ\text{C}$ |

Note: (1) Measured with $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{rr} = 0.25\text{ A}$.

(2) P.C.B. mounted with 2.0" X 2.0" (5 cm X 5 cm) copper pad areas.



Characteristic Curves

Fig1. Forward Current Derating Curve

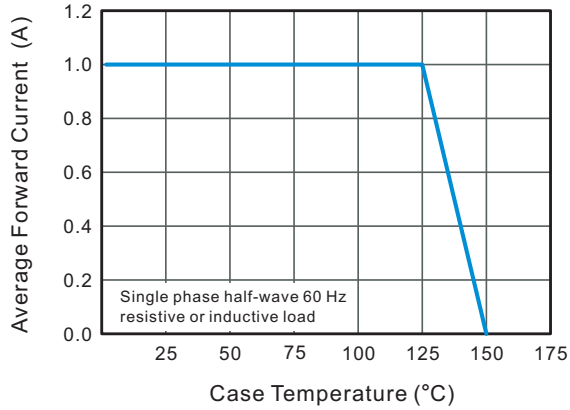


Fig2. Typical Reverse Characteristics

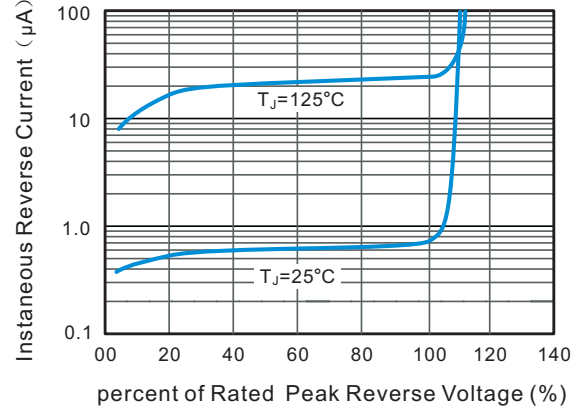


Fig3. Typical Instaneous Forward Characteristics

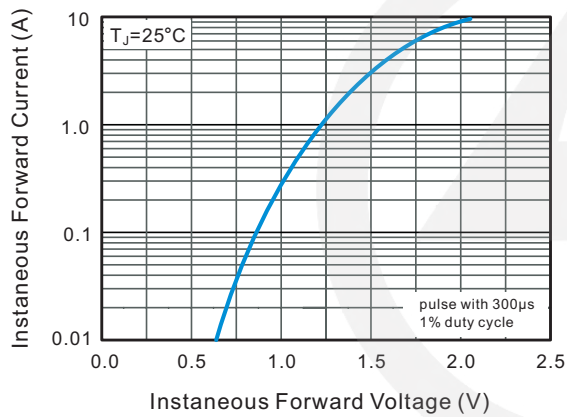


Fig4. Typical Junction Capacitance

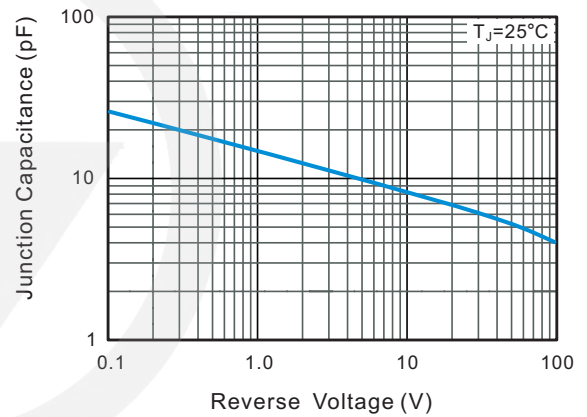
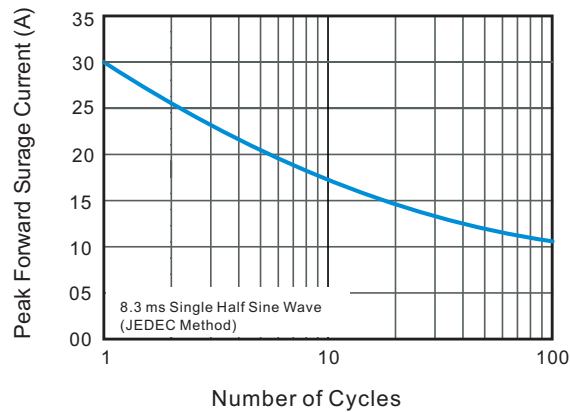
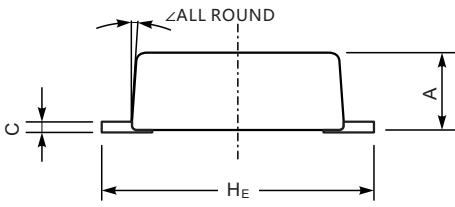


Fig5. Maximum Non-Repetitive Peak Forward Surge Current

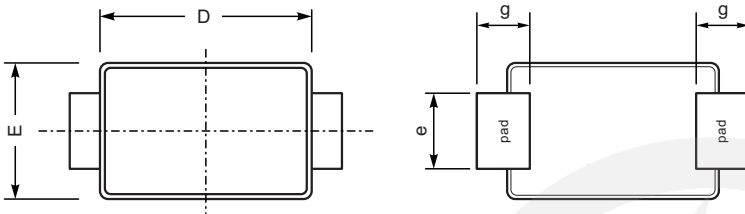


SOD-123FL Package Outline

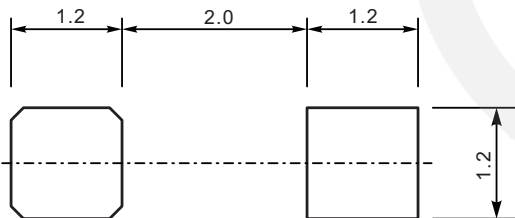
Unit: mm



| SYMBOL | DIMENSIONS | |
|----------------|------------|------|
| | MIN. | MAX. |
| A | 0.9 | 1.35 |
| C | 0.12 | 0.20 |
| D | 2.6 | 2.9 |
| E | 1.75 | 1.95 |
| e | 0.8 | 1.1 |
| g | 0.7 | 0.9 |
| H _E | 3.5 | 3.8 |
| ∠ | 7° | |



SOD-123FL Suggested Pad Layout



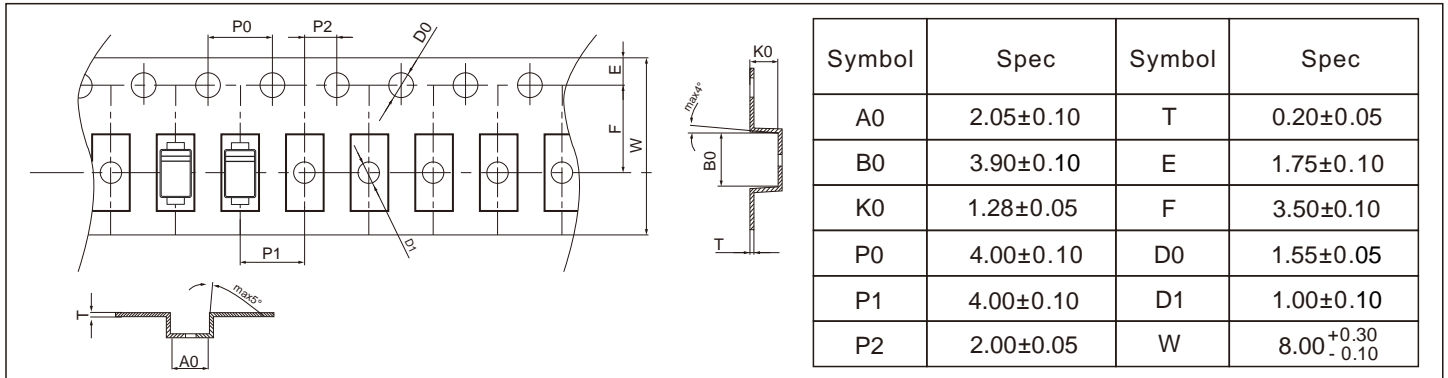
- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$
 3. The pad layout is for reference purpose only.

Marking

| Type number | Marking code |
|-------------|--------------|
| LTR101L | F2 |
| LTR102L | F2 |
| LTR103L | F2 |
| LTR104L | F2 |
| LTR105L | F3 |
| LTR106L | F7 |
| LTR107L | F7 |

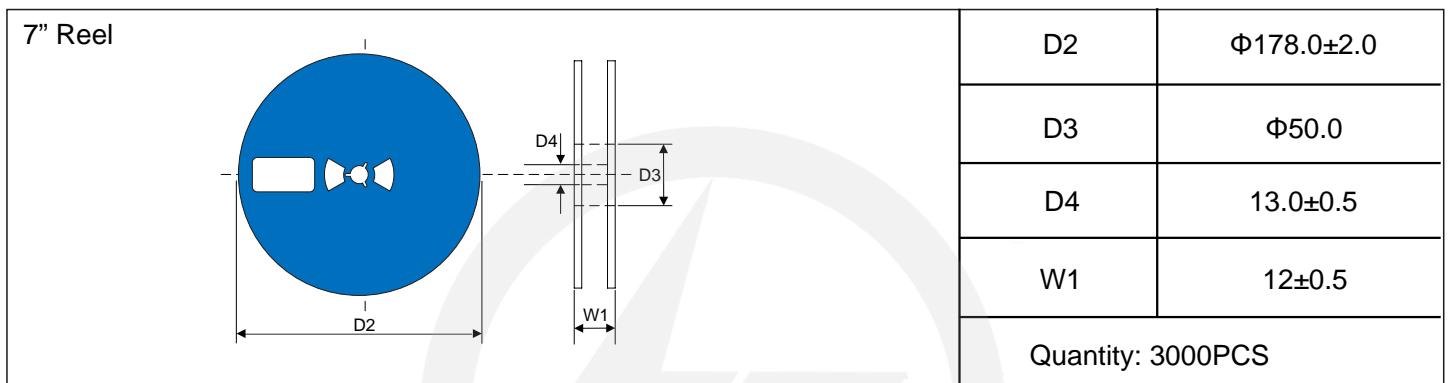
Carrier Tape Dimensions

Unit : mm



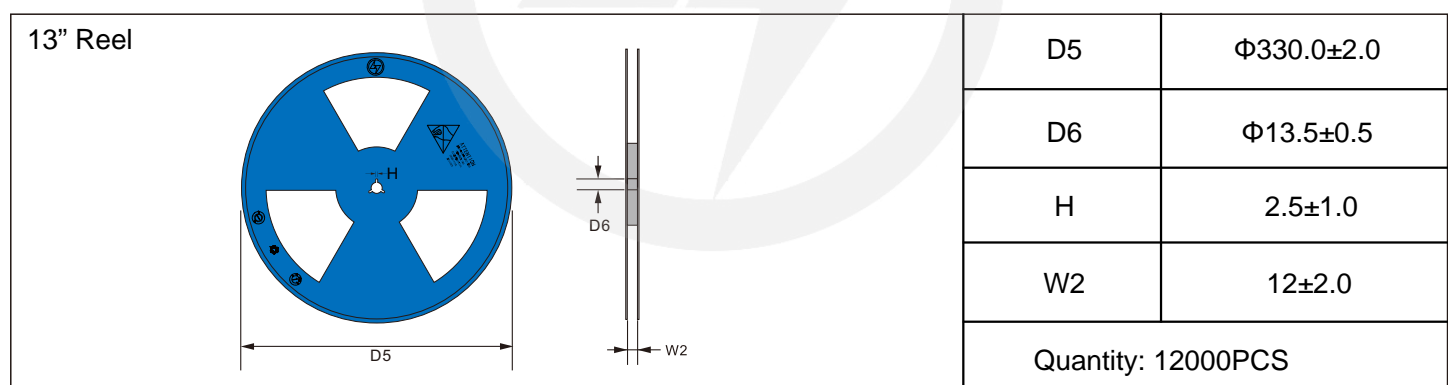
Reel Dimensions

Unit : mm

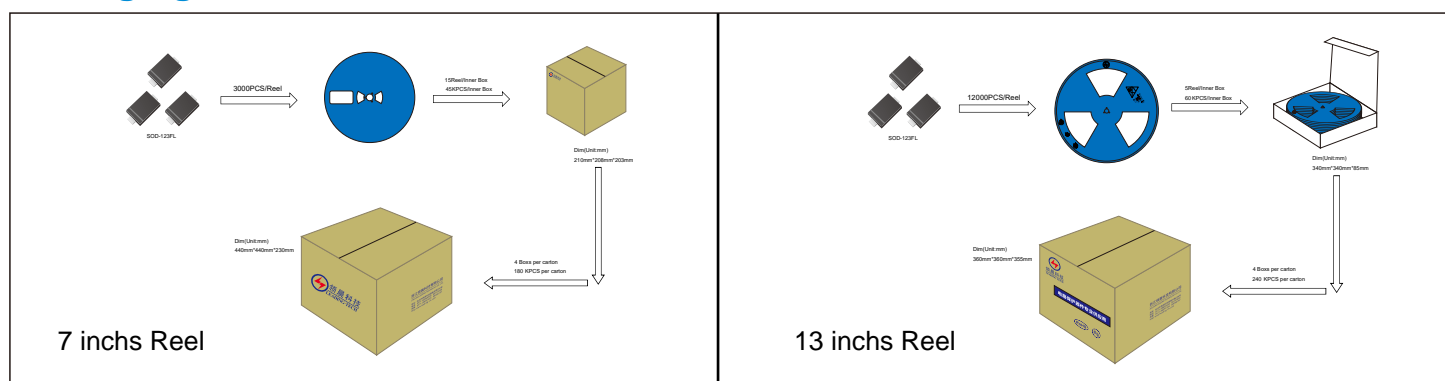


Reel Dimensions

Unit : mm



Packaging





Recommended Soldering Conditions



Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|--|------------------|
| Average ramp-up rate (T _L to T _P) | 3°C/second max. |
| Preheat | |
| -Temperature Min (T _{S min}) | 150°C |
| -Temperature Max (T _{S max}) | 200°C |
| -Time (min to max) (t _s) | 60-180 seconds |
| T _{S max} to T _L | |
| -Ramp-up Rate | 3°C/second max. |
| Time maintained above: | |
| -Temperature (T _L) | 217°C |
| -Time (t _L) | 60-150 seconds |
| Peak Temperature (T _P) | 260°C |
| Time within 5°C of actual Peak Temperature (t _p) | 20-40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max. |

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Version Update Information

| Series NO. | Enactment/Revision Date | Effective Date | Version | Revision content | Revision Reason | Revision Person | Note |
|------------|-------------------------|----------------|---------|------------------------------|-----------------|-----------------|------|
| 01 | 2024.6.17 | 2024.6.17 | 3.0 | New File | / | Ding | |
| 02 | 2025.06.12 | 2025.06.12 | 3.1 | Update packaging information | / | Ding | |