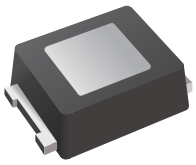
领晨科技
LEADING-TECH

# LTU1AS THRU LTU1MS

## Surface Mount Ultra Fast Recovery Rectifier

## Features

- Top-side Cooling(TSC) Packaging technology
- Compact and Slim Packaging Solutions
- For surface mounted applications
- High efficiency
- Meets MSL level 1, per J-STD-020
- Lead free in comply with EU RoHS 2011/65/EU directives




## Mechanical Data

- Case: SMHS
- Terminal:Leads solderable per MIL-STD-750 Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position:Any

## Ordering Information

| Part Number | Shipping | Reel |
|---|---|---|
| LTU1AS THRU LTU1MS | 15000PCS Tape&Reel | 13 inchs |

## Maximum Ratings and Electrical Characteristics

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

| Parameter | Symbol | LTU1AS | LTU1BS | LTU1DS | LTU1GS | LTU1JS | LTU1KS | LTU1MS | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | Marking | U1A | U1B | U1D | U1G | U1J | U1K | U1M | |
| 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 $T_c$ = 110 °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 Instantaneous Forward Voltage at 1 A | $V_F$ | 1.0 | | | 1.3 | 1.65 | | | V |
| Maximum DC Reverse Current $T_a$ = 25 °C<br>at Rated DC Blocking Voltage $T_a$ =125 °C | $I_R$ | 1<br>100 | | | | | | | μA |
| Maximum Reverse Recovery Time (1) | $t_{rr}$ | 50 | | | | 75 | | | ns |
| Typical Thermal Resistance (2) | $R_{\theta JA}$<br>$R_{\theta JC}$ | 65<br>7 | | | | | | | °C/W |
| Typical Junction Capacitance (3) | $C_j$ | 15 | | | | | | | pF |
| Operating and Storage Temperature Range | $T_j$, $T_{stg}$ | -55 to +150 | | | | | | | °C |

( 1 ) Measured with $I_F$ = 0.5 A, $I_R$ = 1 A, $I_{rr}$ = 0.25 A.
( 2 ) P.C.B. mounted with 0.08" × 0.08"(2mm x 2mm) copper pad areas.
( 3 ) Measured at 1 MHz and applied reverse voltage of 4 V D.C

## Characteristics Curves

**Fig.1 Forward Current Derating Curve**

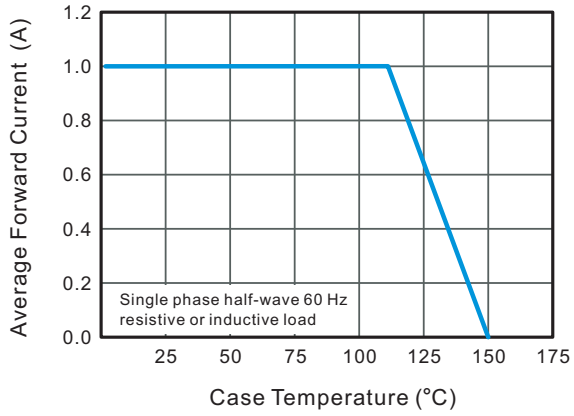



**Fig.2 Typical Reverse Characteristics**

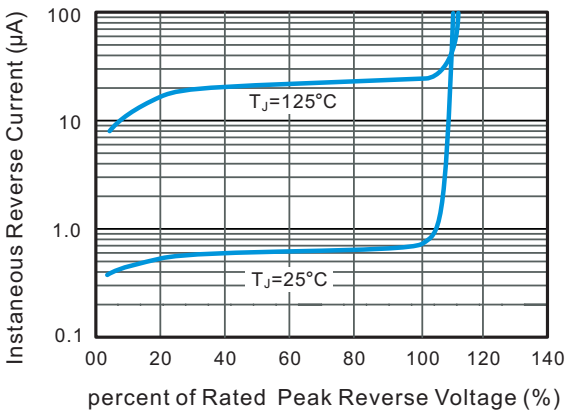



**Fig.3 Typical Forward Characteristics**

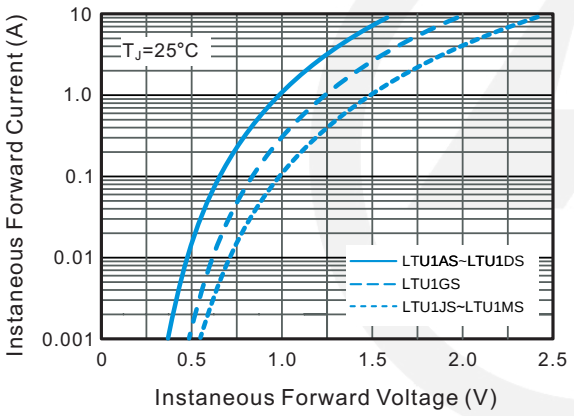



**Fig.4 Maximum Non-Repetitive Peak Forward Surage Current**

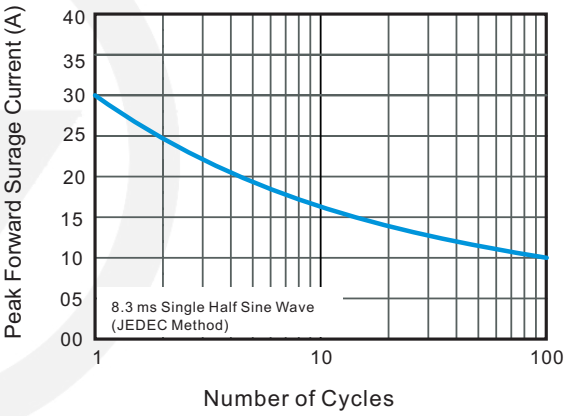
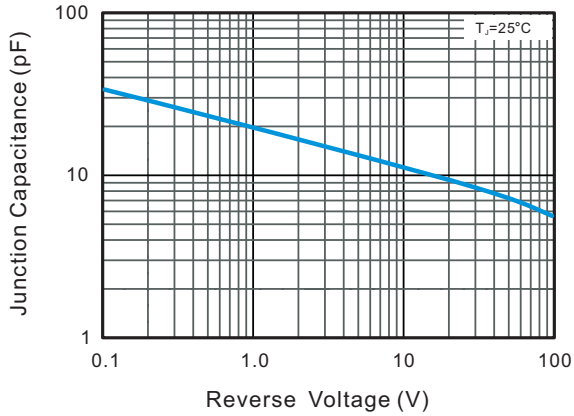


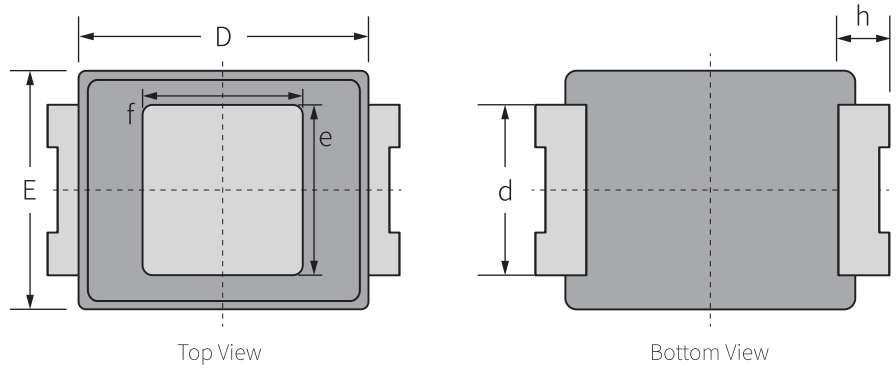

**Fig.5 Typical Junction Capacitance**

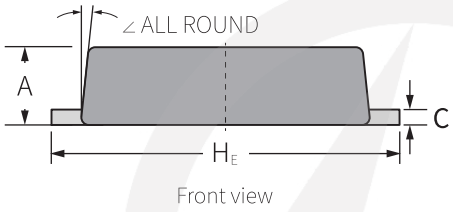


## Package Outline

### SMHS

Unit：mm



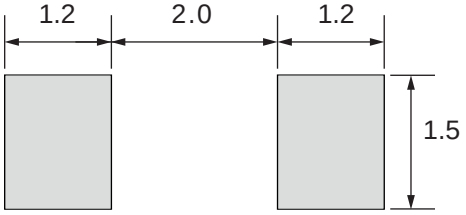




| UNIT | | A | C | D | E | $H_E$ | d | e | f | h | ∠ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.99 | 0.25 | 2.90 | 2.10 | 3.50 | 1.30 | 1.30 | 1.25 | 0.70 | 6° |
| | min | 0.83 | 0.15 | 2.50 | 1.70 | 2.90 | 1.10 | 1.10 | 1.05 | 0.50 | |

## Suggested Pad Layout

### SMHS

Unit：mm



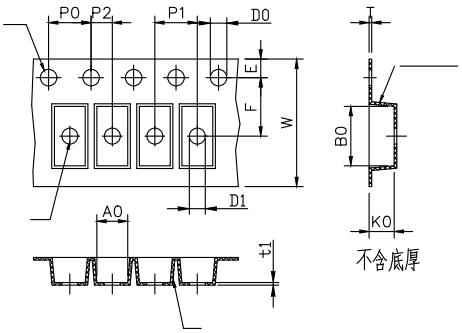

Note:

1. Controlling dimension:in millimeters.
2. General tolerance:±0.05mm
3. The pad layout is for reference purpose only.

# LTU1AS THRU LTU1MS

## Carrier Tape Dimensions

Unit：mm

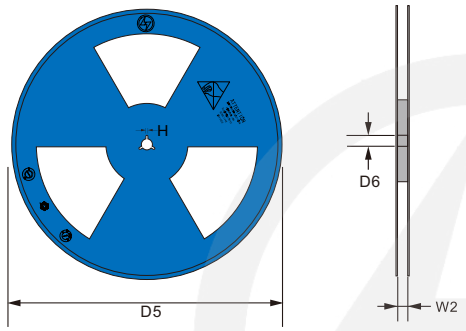



| Symbol | Spec | Symbol | Spec |
|---|---|---|---|
| W | 8.00±0.10 | P2 | 2.00±0.10 |
| E | 1.75±0.10 | t | 0.22±0.02 |
| F | 3.50±0.10 | t1 | Min. 0.05 |
| D0 | 1.55±0.10 | A0 | 2.15±0.10 |
| D1 | 1.05±0.10 | B0 | 3.40±0.10 |
| P0 | 4.00±0.10 | K0 | 1.15±0.10 |
| P1 | 4.00±0.10 | | |

## Reel Dimensions

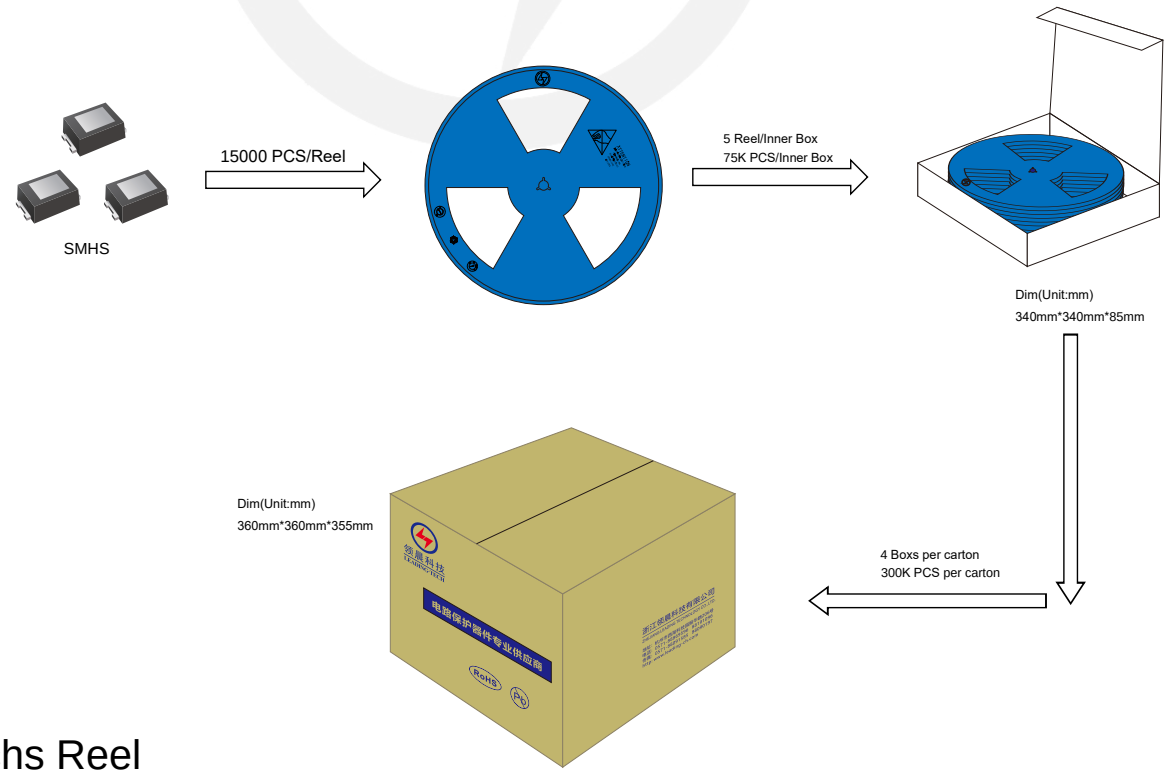
Unit：mm

13” Reel




| | |
|---|---|
| D5 | Φ330.0±5.0 |
| D6 | Φ13.5±0.5 |
| H | 2.5±1.0 |
| W2 | 8.0±2.0 |
| Quantity: 15000PCS | |

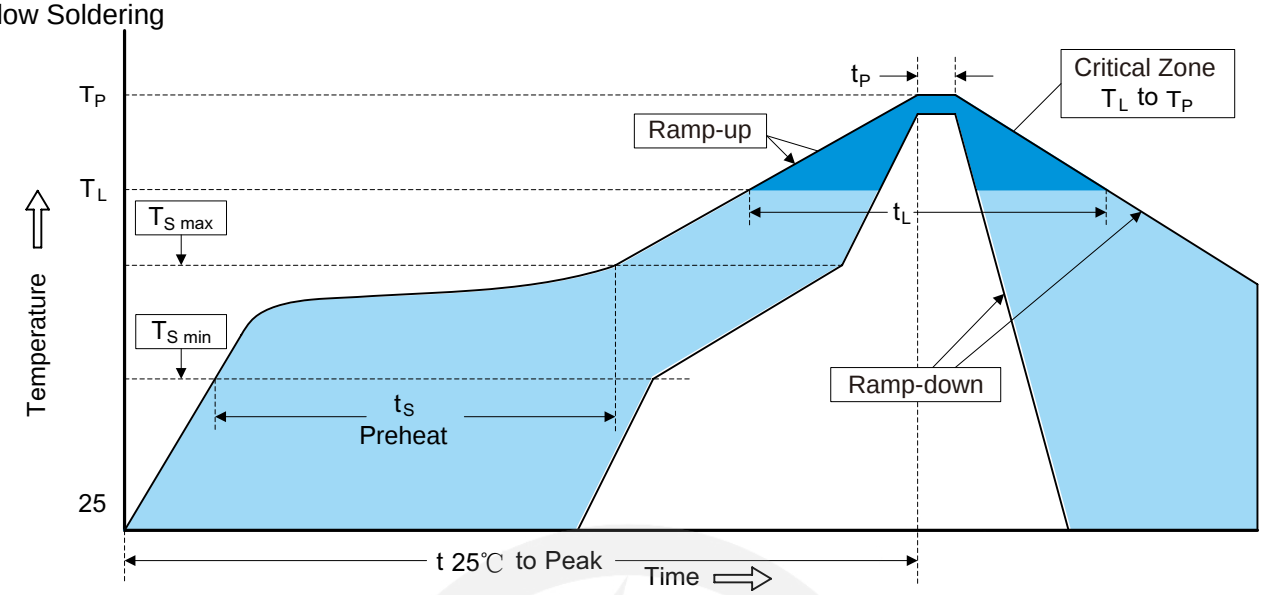
## Packaging




13 inchs Reel

## Recommended Soldering Conditons

Reflow Soldering




Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|---|---|
| Average ramp-up rate ($T_L$ to $T_P$) | 3℃/second max. |
| Preheat<br>-Temperature Min ($T_{S\ min}$)<br>-Temperature Max ($T_{S\ max}$)<br>-Time (min to max) ( $t_S$) | <br>150℃<br>200℃<br>60-180 seconds |
| $T_{S\ max}$ to $T_L$<br>-Ramp-up Rate | <br>3℃/second max. |
| Time maintained above:<br>-Temperature ($T_L$)<br>-Time ($t_L$) | <br>217℃<br>60-150 seconds |
| Peak Temperature ($T_P$) | 260℃ |
| Time within 5℃ of actual Peak Temperature ($t_P$) | 20-40 seconds |
| Ramp-down Rate | 6℃/second max. |
| Time 25℃ to Peak Temperature | 8 minutes max. |

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## Version Update Iformation

| Series NO. | Enactment/Revision Date | Effective Date | Version | Revision Content | Revision Reason | Revision Person | Note |
|---|---|---|---|---|---|---|---|
| 01 | 2025.09.09 | 2025.09.09 | 1.0 | New file | / | Ding | |