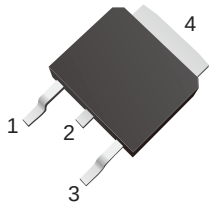
# LTM30P100

## P-Channel Mosfet

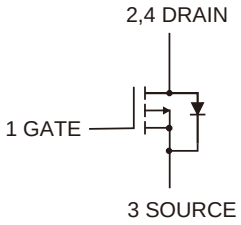
## Features

- Advanced trench process technology
- Reliable and rugged
- High density cell design for ultra low On-Resistance
- Lead free in comply with EU RoHS 2011/65/EU directives




## Ordering Information

| Part Number | Marking | Shipping | Reel |
|---|---|---|---|
| LTM30P100-TR2K5 | 30P100 | 2500PCS Tape&Reel | 13 inchs |




## Maximum Ratings (Ta = 25℃)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{DS}$ | Drain-Source Voltage | -100 | V |
| $V_{GS}$ | Gate-Source Voltage | ±20 | V |
| $I_D$ | Continuous Drain Current[*1] | -30 | A |
| $I_{DM}$ | Pulsed Drain Current $T_j$=25℃[*2] | -120 | A |
| $E_{AS}$ | Single Pulsed Avalanche Energy[*3] | 240 | mJ |
| $P_D$ | Power Dissipation[*1] | 108 | W |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient[*6] | 100 | ℃/W |
| $R_{\theta JC}$ | Thermal Resistance from Junction to Case[*1] | 1.15 | ℃/W |
| $T_J$, $T_{STG}$ | Operating and Storage Temperature Range | -55 ~+150 | ℃ |

## Electrical Characteristics (Ta = 25 ℃)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Off characteristics** | | | | | | |
| $V_{(BR)DSS}$ | Drain-source breakdown voltage | $V_{GS}$=0V, $I_D$=250μA | -100 | | | V |
| $I_{DSS}$ | Zero gate voltage drain current | $V_{DS}$=-80V, $V_{GS}$=0V | | | -1 | μA |
| $I_{GSS}$ | Gate-body leakage current | $V_{DS}$=0V, $V_{GS}$=±20V | | | ±100 | nA |
| $V_{SD}$ | Drain-source diode forward voltage*4 | $V_{DS}$=0V, $I_S$=-10V | | | -1.2 | V |
| **On characteristics** *4 | | | | | | |
| $V_{GS(th)}$ | Gate-threshold voltage | $V_{DS}$=$V_{GS}$, $I_D$=-250μA | -1 | -1.5 | -2.5 | V |
| $R_{DS(on)}$ | Static drain-source on-resistance | $V_{GS}$=-10V, $I_D$=-15A<br>$V_{GS}$=-4.5V, $I_D$=-15A | | 38<br>41 | 45<br>55 | mΩ |
| **Dynamic characteristics** *4*5 | | | | | | |
| $C_{iss}$ | Input capacitance | $V_{DS}$=-20V, $V_{GS}$=0V, f=1MHz | | 6315 | 12630 | pF |
| $C_{oss}$ | Output capacitance | | | 220 | 440 | |
| $C_{rss}$ | Reverse transfer capacitance | | | 50 | 100 | |
| Rg | Gate resistance | f=1MHz | | 5.7 | | Ω |
| **Switching characteristics** *4*5 | | | | | | |
| Qg | Total gate charge | $V_{DS}$=-20V, $V_{GS}$=-10V, $I_D$=-12A | | 98 | 196 | nC |
| Qgs | Gate-source charge | | | 16.2 | 32 | |
| Qgd | Gate-drain charge | | | 13.8 | 28 | |
| td(on) | Turn-on delay time | $V_{DD}$=-20V,$V_{GS}$=-10V, $R_G$=3Ω, $I_D$=-20A | | 10 | | ns |
| tr | Turn-on rise time | | | 18 | | |
| td(off) | Turn-off delay time | | | 38 | | |
| tf | Turn-off fall time | | | 24 | | |

**Notes :**

*1.$T_C$=25℃ Limited only by maximum temperature allowed.

*2. $P_W$≤10μs, Duty cycle≤1%.

*3. EAS condition: $V_{DD}$=-50V,$V_{GS}$=-10V, L=0.5mH, Rg=25Ω Starting $T_J$ = 25℃.

*4. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

*5. Guaranteed by design, not subject to production.

*6. The value of RθJA is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25℃.

## Characteristics Curve

**Fig.1 Output Characteristics**

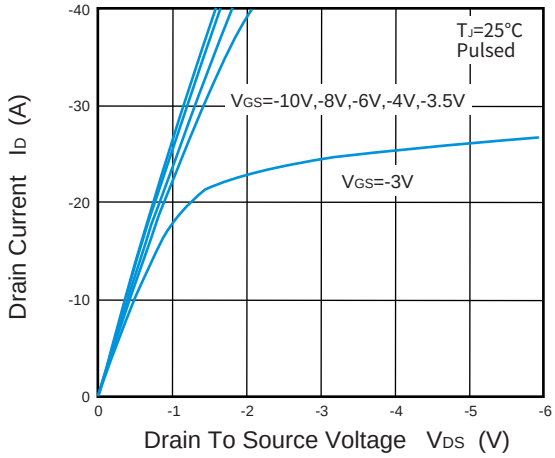



**Fig.2 Transfer Characteristics**

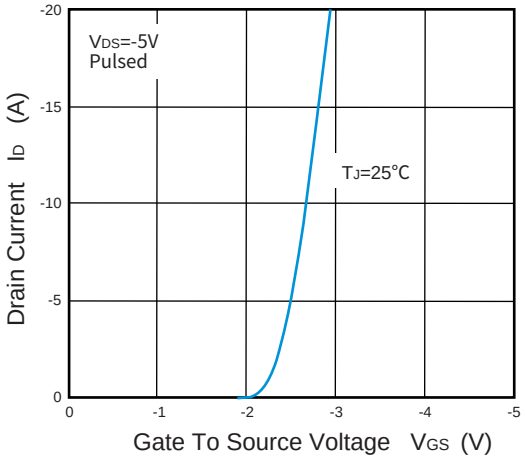



**Fig.3 $R_{DS(ON)}$ vs $I_D$**

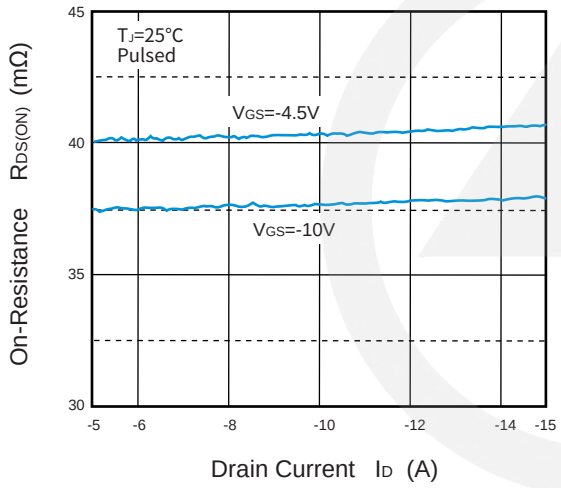



**Fig.4 $R_{DS(ON)}$ vs $V_{GS}$**

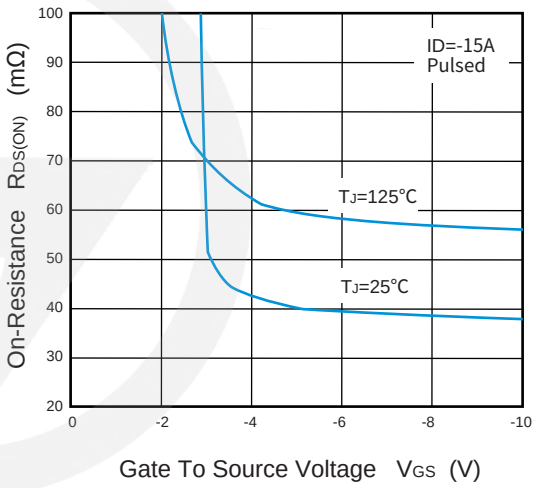



**Fig.5 $I_S$ vs $V_{SD}$**

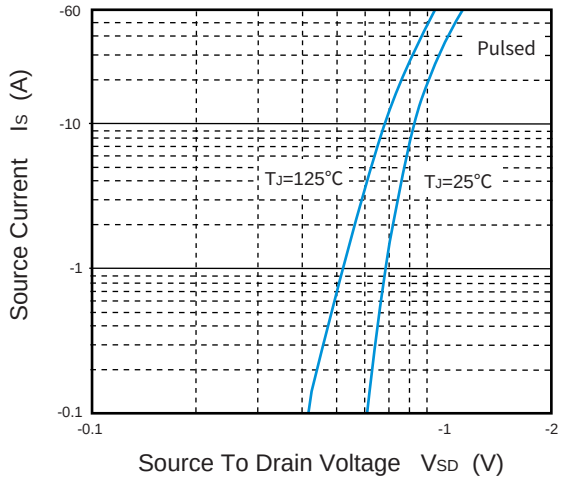
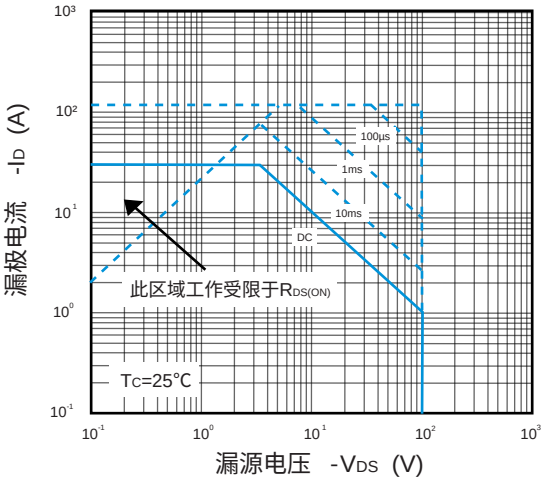
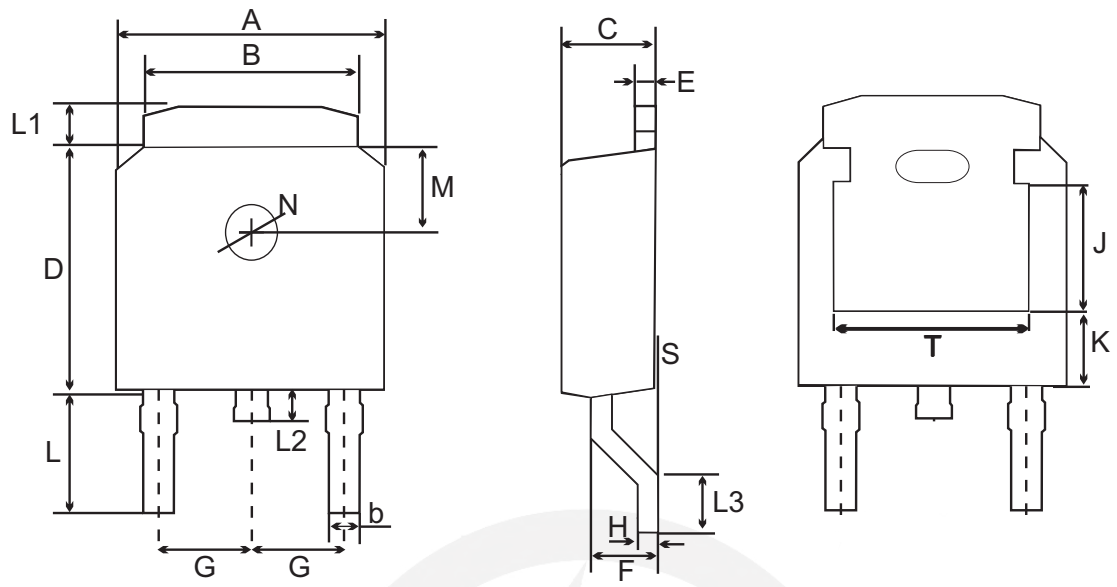



**Fig.6 SOA**



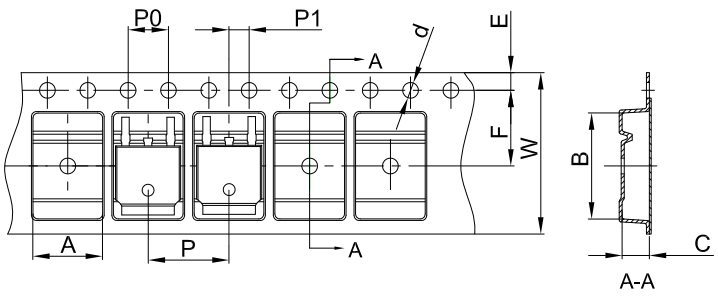
## TO-252 Package Outline




| UNIT | | A | B | b | C | D | E | F | G | H | L | L1 | L2 | L3 | S | M | N | J | K | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 6.7 | 5.5 | 0.8 | 2.5 | 6.3 | 0.6 | 1.8 | 2.29 TYPICAL | 0.55 | 3.1 | 1.2 | 1.0 | 1.75 | 0.23 | 1.8 TYPICAL | 1.3 TYPICAL | 3.16 ref. | 1.80 ref. | 4.83 ref. |
| | typ | 6.6 | 5.3 | 0.7 | 2.3 | 6.1 | 0.5 | 1.5 | | 0.50 | 2.8 | 1.0 | 0.8 | 1.30 | 0.15 | | | | | |
| | min | 6.3 | 5.1 | 0.3 | 2.1 | 5.9 | 0.4 | 1.3 | | 0.45 | 2.7 | 0.8 | 0.6 | 1.00 | 0.0 | | | | | |

## Carrier Tape Dimensions

Unit：mm

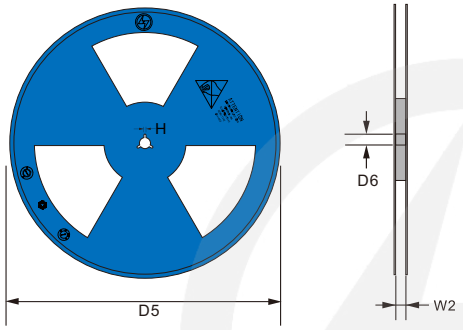



| Symbol | Spec | Symbol | Spec |
|---|---|---|---|
| A | 6.90 | F | 7.50 |
| B | 10.50 | P0 | 4.00 |
| C | 2.70 | P | 8.00 |
| d | Φ1.55 | P1 | 2.00 |
| E | 1.75 | W | 16.00 |

## Reel Dimensions

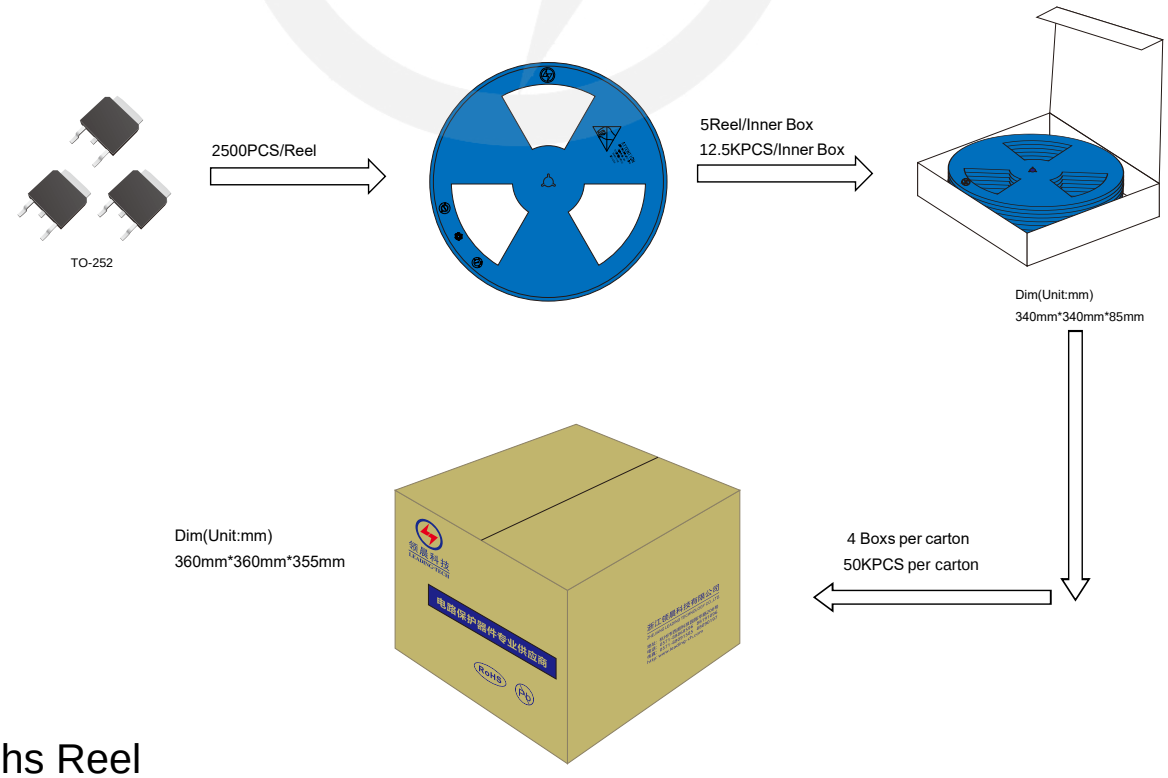
Unit：mm

13” Reel




| | |
|---|---|
| D5 | Φ330.0±2.0 |
| D6 | Φ13.5±0.5 |
| H | 2.5±1.0 |
| W2 | 12±2.0 |
| Quantity: 2500PCS | |

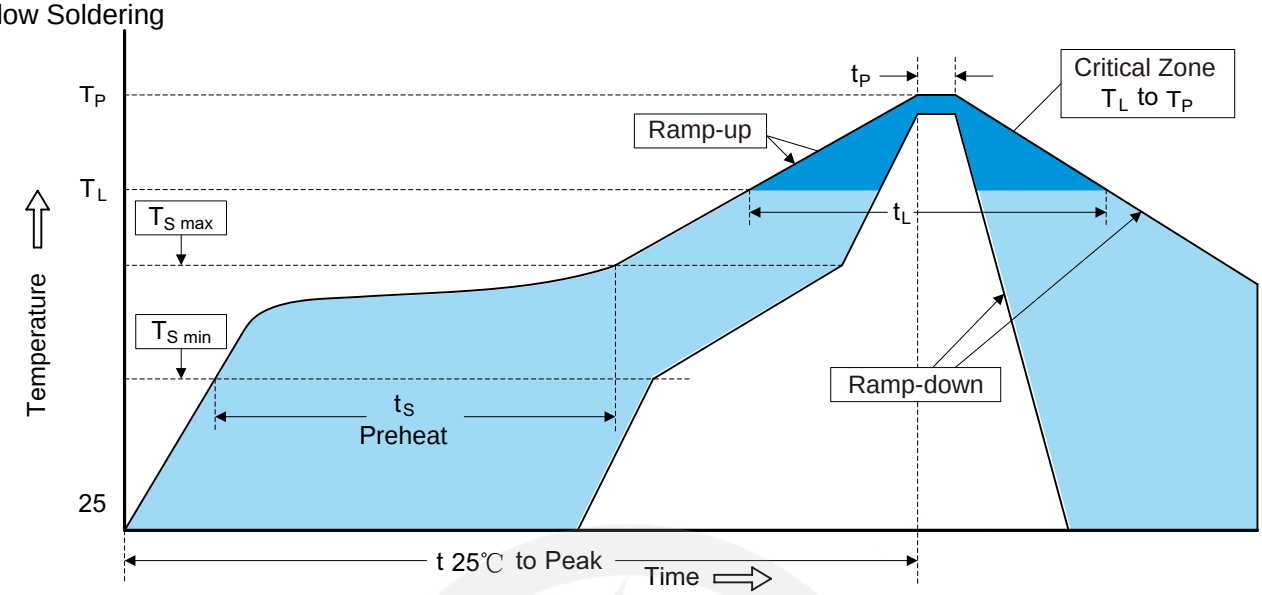
## Packaging




13 inchs Reel

## Recommended Soldering Conditions

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 Information

| Series NO. | Enactment/Revision Date | Effective Date | Version | Revision content | Revision Reason | Revision Person | Note |
|---|---|---|---|---|---|---|---|
| 01 | 2024.5.18 | 2024.5.18 | 3.0 | New File | / | Ding | |
| 02 | 2025.06.12 | 2025.06.12 | 3.1 | Update packaging information | / | Ding | |