# LP27N100TZHG

100V P-Channel Power MOSFET

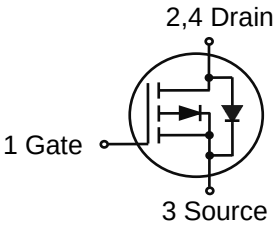
SOT223

## 1. FEATURES

- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

## 2. APPLICATIONS

- Power Routing
- DC/DC Conversion
- Motor Drives




## 3. DEVICE MARKING AND ORDERING INFORMATION

| Device | Marking | Shipping |
|---|---|---|
| LP27N100TZHG | TG | 4000/Tape&Reel |

## 4. MAXIMUM RATINGS(Ta = 25ºC)

| Parameter | | Symbol | Limits | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | VDS | -100 | V |
| Gate-Source Voltage | | VGS | ±20 | |
| Continuous Drain Current (Note 1) | TA = 25℃ | ID | -2 | A |
| Pulsed Drain Current (Note 2) | | IDM | -8 | |
| Avalanche Current (L = 0.1mH) | | IAS | 7 | A |
| Avalanche Energy (L = 0.1mH) | | EAS | 2.45 | mJ |
| Power Dissipation (Note 1) | TA = 25℃ | PD | 2.3 | W |
| Operating Junction and Storage Temperature Range | | TJ , Tstg | -55~+150 | ℃ |

## 5. THERMAL CHARACTERISTICS

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Thermal Resistance,Junction–to–Ambient(Note 1) | RΘJA | 55 | ℃/W |
| Thermal Resistance,Junction-to-Case | RθJC | 15 | ℃/W |

1."1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.

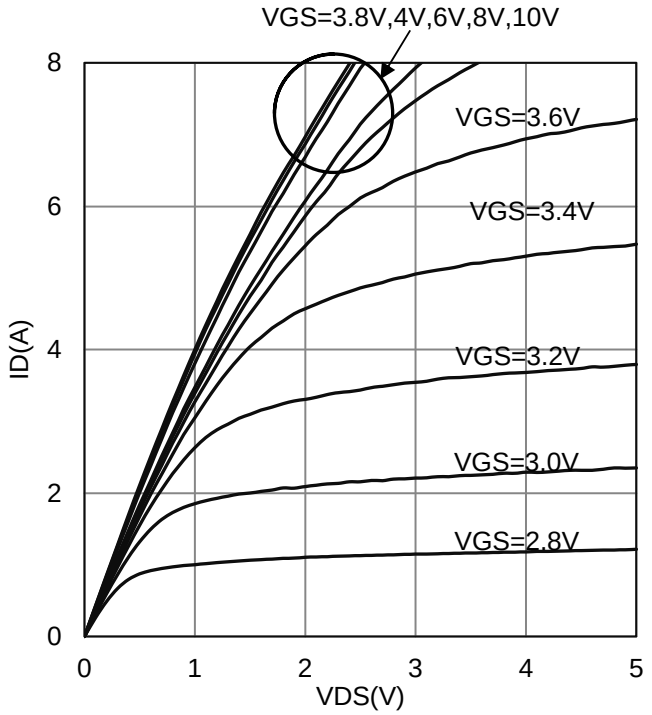
2.Pulse width limited by maximum junction temperature.

## 6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

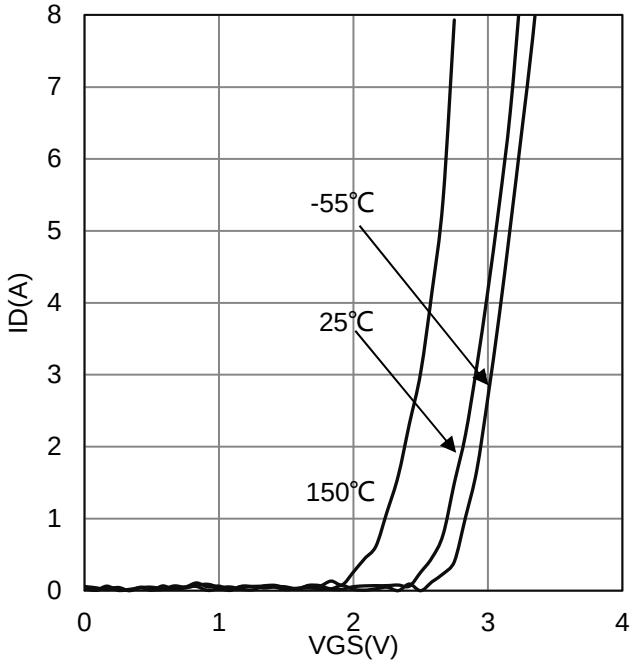
| Characteristic | | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| STATIC | | | | | | |
| Drain–Source Breakdown Voltage (VGS = 0 V, ID = -250 μA) | | VBRDSS | -100 | - | - | V |
| Gate Threshold Voltage (VDS = VGS , ID = -250 μA) | | VGS(th) | -1.1 | - | -3 | V |
| Gate-Body leakage current (VDS = 0 V, VGS = ±20 V) | | IGSS | - | - | ±100 | nA |
| Zero Gate Voltage Drain Current (VDS = -80 V, VGS = 0 V) | | IDSS | - | - | -1 | μA |
| Drain-to-Source On-Resistance (Note 3) (VGS = -10 V, ID = -1.8 A) (VGS = -4.5 V, ID = -1 A) | | RDS(on) | - - | - - | 270 340 | mΩ |
| Diode Forward Voltage (IS = -1 A, VGS = 0 V) | | VSD | - | - | -1.2 | V |
| DYNAMIC | | | | | | |
| Input Capacitance | (VGS = 0 V, VDS = -50 V, f= 1MHz) | Ciss | - | 950 | - | pF |
| Output Capacitance | | Coss | - | 25.5 | - | |
| Reverse Transfer Capacitance | | Crss | - | 20.5 | - | |
| Total Gate Charge | (VDS = -50 V,VGS = -10 V,ID = -1 A) | Qg | - | 16 | - | nC |
| Gate Source Charge | | Qgs | - | 2.5 | - | |
| Gate Drain Charge | | Qgd | - | 4 | - | |
| Turn-On DelayTime | (VDS = -50 V, RL = 5 Ω,ID = -10 A,VGEN = -10 V, RGEN = 6 Ω) | td(on) | - | 6.5 | - | ns |
| Turn-On Rise Time | | tr | - | 11.5 | - | |
| Turn-Off DelayTime | | td(off) | - | 47 | - | |
| Turn-Off Fall Time | | tf | - | 21 | - | |

3.Pulse test: PW ⩽ 300μs duty cycle ⩽ 2%.

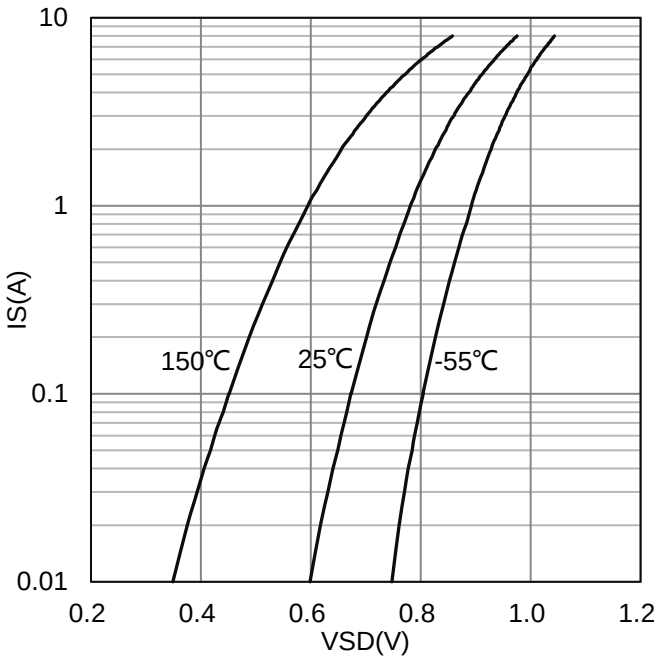
## 7. ELECTRICAL CHARACTERISTICS CURVES



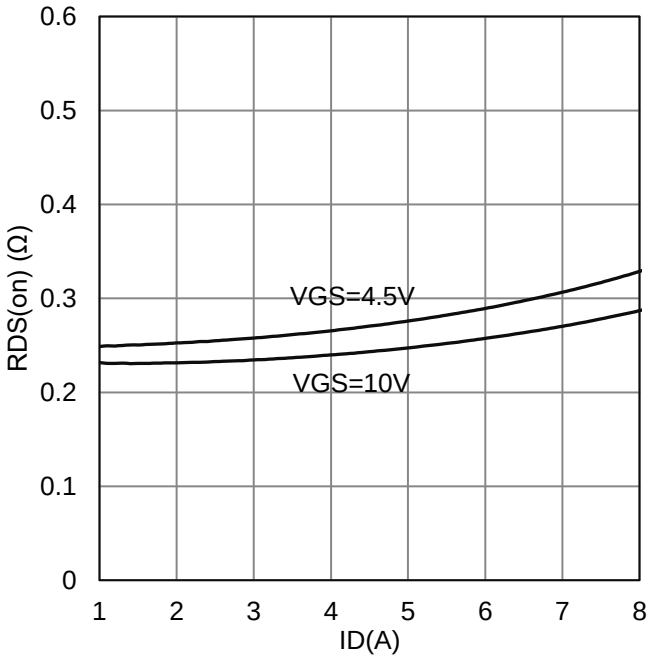

ID vs. VDS




ID vs. VGS

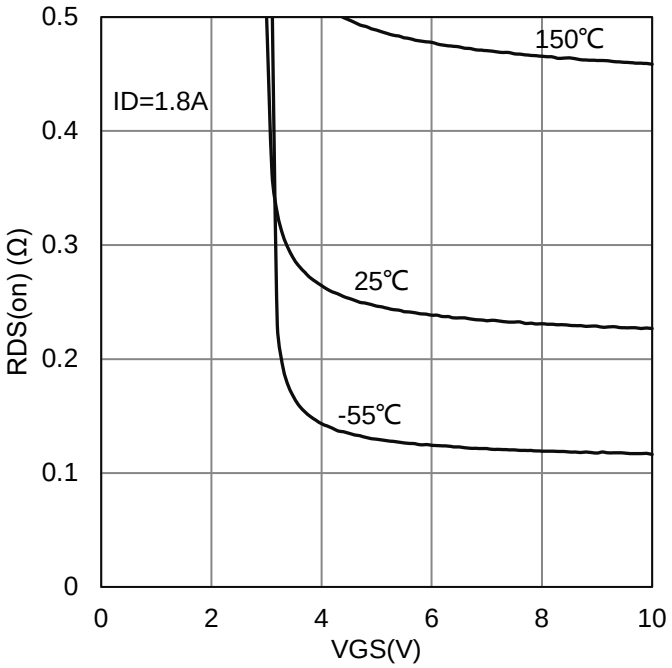



IS vs. VSD

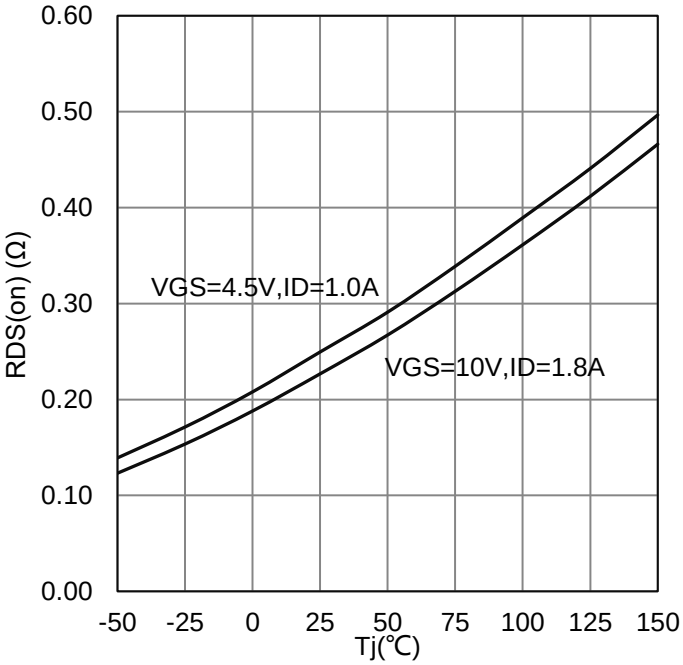



RDS(on) vs. ID

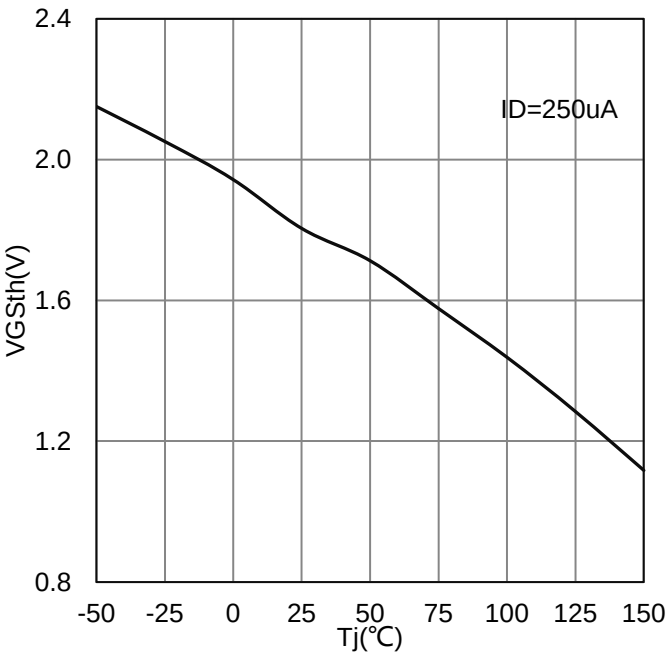
## 7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



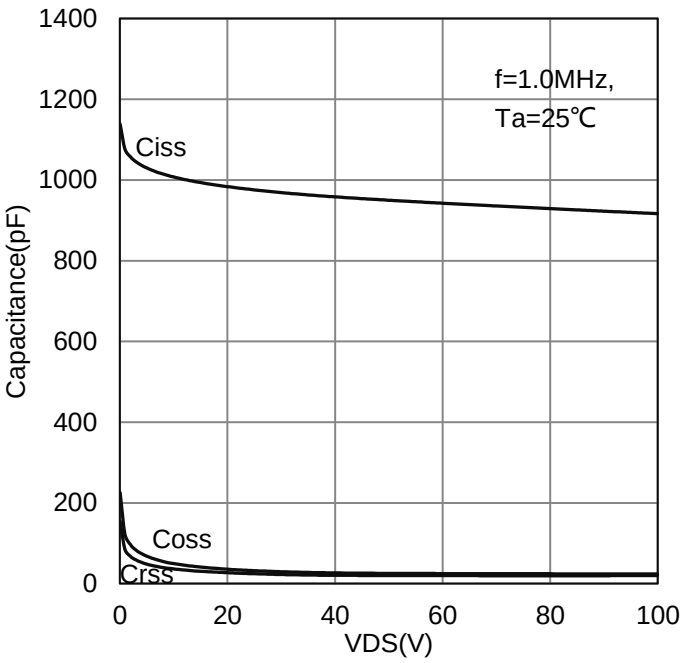

RDS(on) vs. VGS




RDS(on) vs. Tj

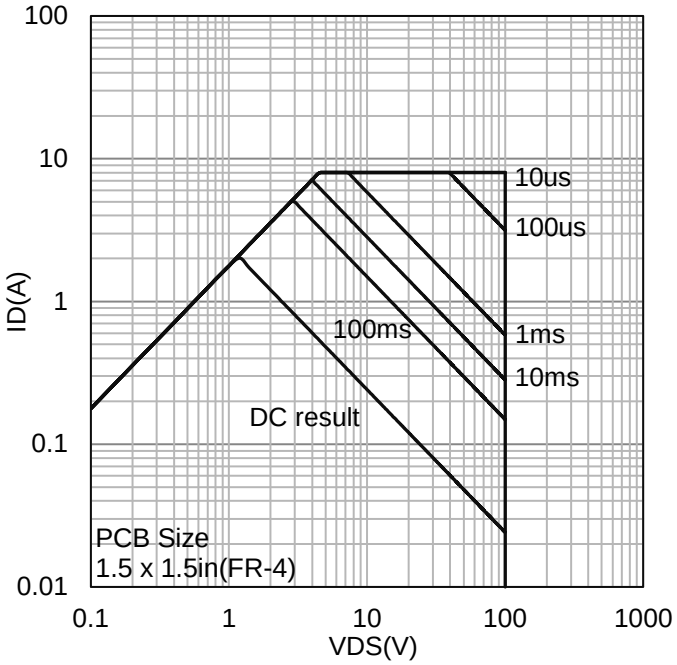



VGSth vs. Tj

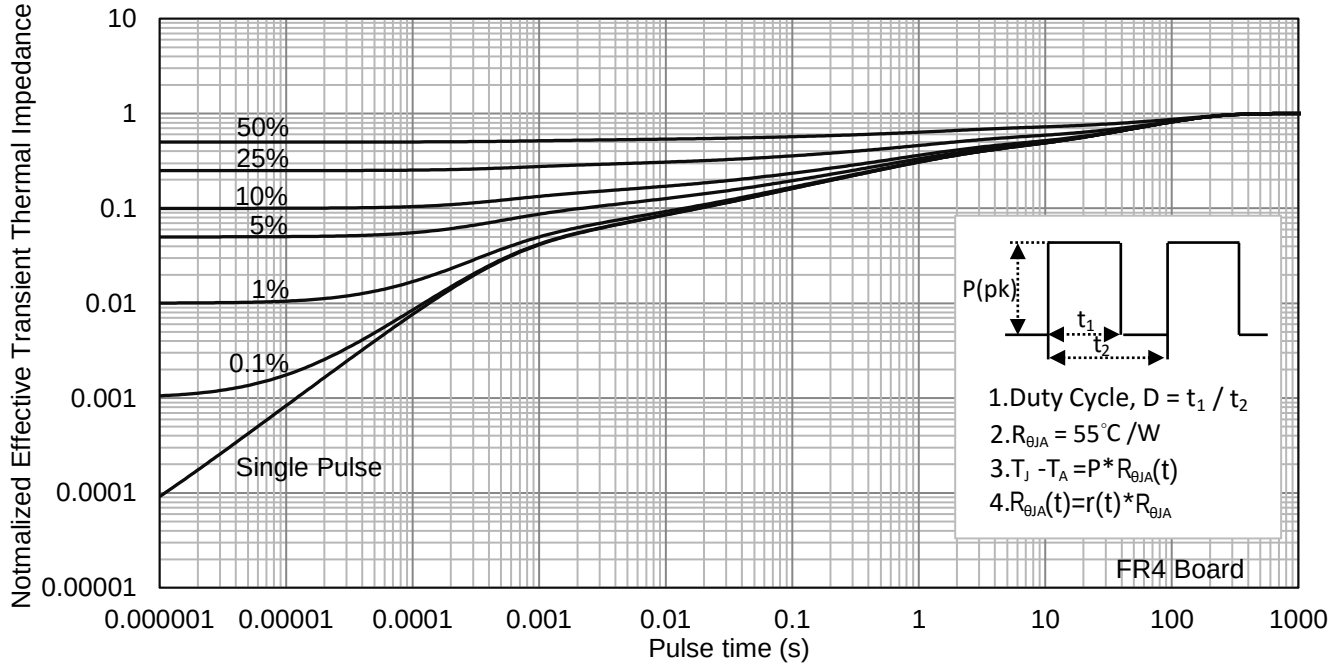



Capacitance

## 7. ELECTRICAL CHARACTERISTICS CURVES(Con.)




Safe Operating Area




Thermal Response

## 8.OUTLINE AND DIMENSIONS

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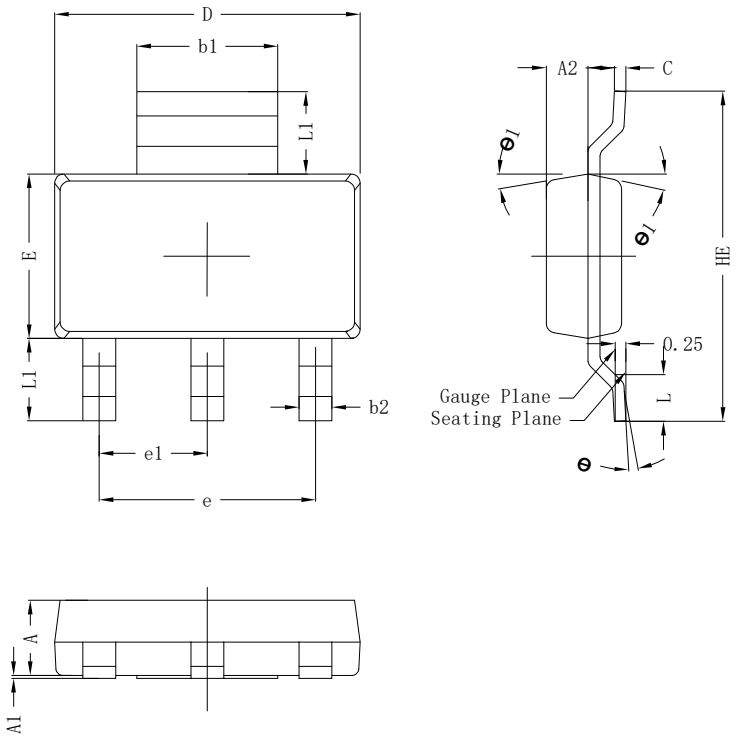
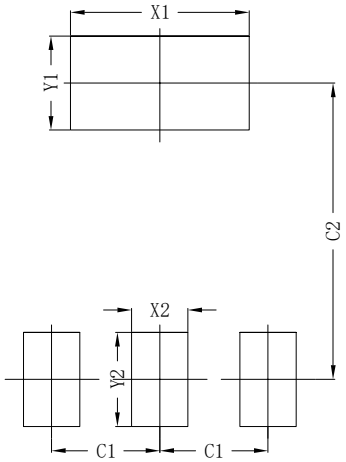



| SOT223 | | | |
|---|---|---|---|
| DIM | MIN | NOR | MAX |
| A | 1.50 | 1.60 | 1.70 |
| A1 | 0.00 | 0.05 | 0.10 |
| A2 | 0.80 | 0.90 | 1.00 |
| b1 | 2.90 | 3.02 | 3.10 |
| b2 | 0.60 | 0.72 | 0.80 |
| c | 0.20 | 0.27 | 0.35 |
| D | 6.30 | 6.50 | 6.70 |
| E | 3.30 | 3.50 | 3.70 |
| e | 4.60BSC | | |
| e1 | 2.30BSC | | |
| HE | 6.80 | 7.00 | 7.20 |
| L | 0.80 | 1.00 | 1.20 |
| L1 | 1.75(REF) | | |
| θ | 0°~8° | | |
| θ1 | 8° | 10° | 12° |
| All Dimensions in mm | | | |

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um
4. Protrusion or Gate Burrs shall not exceed 0.10mm per side.

## 9.SOLDERING FOOTPRINT




| SOT223 | |
|---|---|
| DIM | (mm) |
| X1 | 3.80 |
| Y1 | 2.00 |
| X2 | 1.20 |
| Y2 | 2.00 |
| C1 | 2.30 |
| C2 | 6.30 |

## DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

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