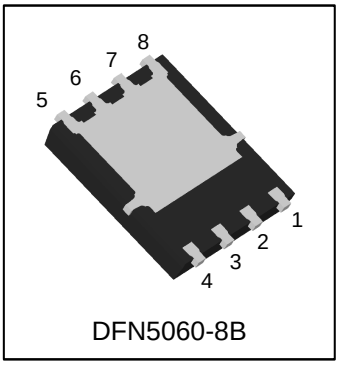
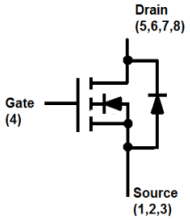
# LN7910DT1WG

N-Channel Power Trench MOSFET



DFN5060-8B




## 1. FEATURES

- Advanced Package and Silicon combination for low RDS(on) and high efficiency.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

## 2. APPLICATIONS

- DC-DC Conversion

## 3. DEVICE MARKING AND RESISTOR VALUES

| Device | Marking | Shipping |
|---|---|---|
| LN7910DT1WG | LN7910 | 3000/Tape&Reel |

## 4. MAXIMUM RATINGS(Ta = 25ºC)

| Parameter | | Symbol | Limits | Unit |
|---|---|---|---|---|
| Drain-to-Source Voltage | | VDS | 150 | V |
| Gate-to-Source Voltage | | VGS | ±20 | V |
| Continuous Drain Current | TC=25℃ | ID | 60 | A |
| | TC=75℃ | | 53 | A |
| | TA=25℃ | | 12.4 | A |
| | TA=75℃ | | 11 | A |
| Pulsed Drain Current | | IDM | 48 | A |
| Avalanche Current(L=0.1mH) | | IAS | 28 | A |
| Avalanche Energy(L=0.1mH) | | EAS | 39.2 | mJ |
| Power Dissipation | TC=25℃ | PD | 104 | W |
| | TA=25℃ | | 2.5 | |
| Operating Junction and Storage Temperature Range | | Tj/Tstg | -55~+150 | ℃ |

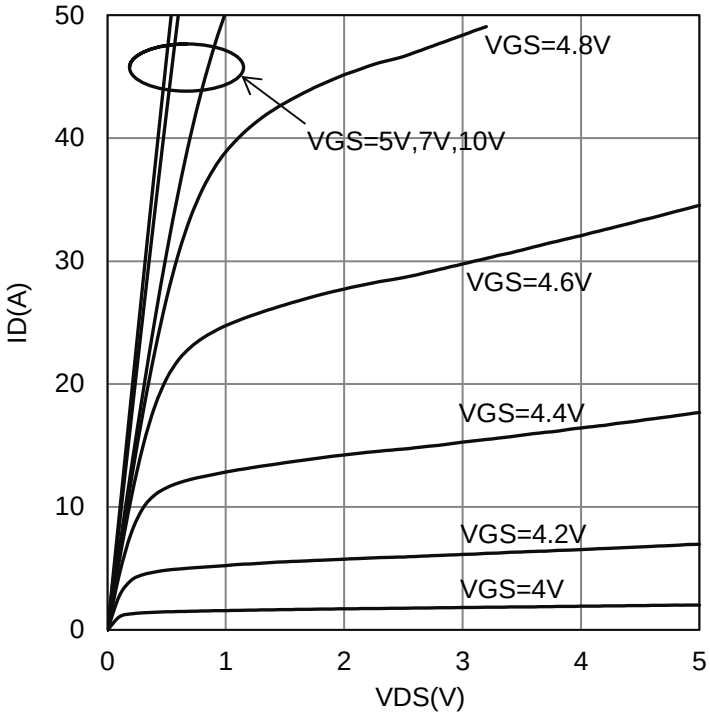
## 5. THERMAL CHARACTERISTICS

| Parameter | Symbol | Max | Unit |
|---|---|---|---|
| Junction-to-Ambient | RθJA | 50 | ℃/W |
| Junction-to-Case | RθJC | 1.2 | |

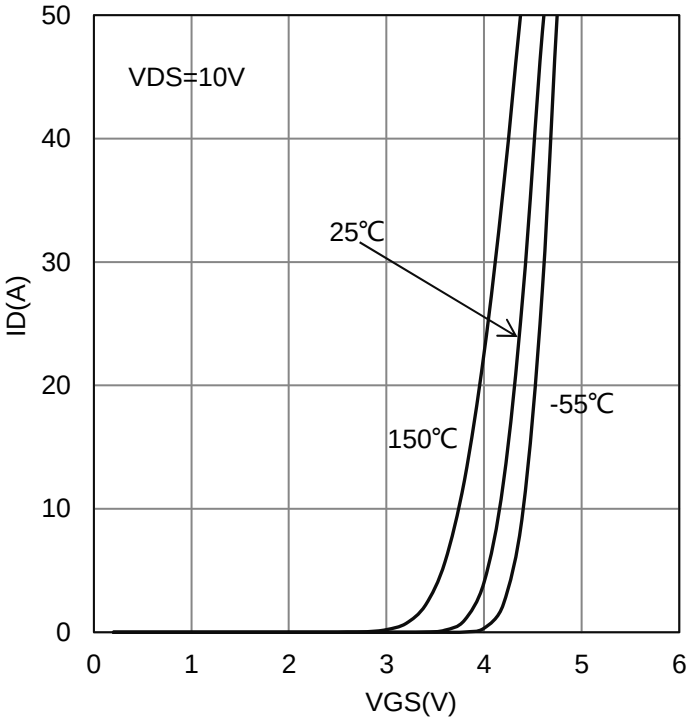
## 6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| Characteristic | | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| STATIC | | | | | | |
| Drain to Source Breakdown Voltage (VGS =0V, ID =250μA) | | BVDSS | 150 | - | - | V |
| Drain-to-Source Leakage Current (VDS =120V, VGS =0V) | | IDSS | - | - | 1 | uA |
| Gate-Body leakage current (VDS =0V, VGS = ±20V) | | IGSS | - | - | ±100 | nA |
| Gate Threshold Voltage (VDS = VGS , ID = 250μA) | | VGS(th) | 2 | 3 | 4 | V |
| Drain-to-Source On-Resistance (VGS = 10 V, ID = 15 A)<br>(VGS = 6 V, ID = 7 A) | | RDS(ON) | -<br>- | 9.5<br>11.5 | 11.5<br>15 | mΩ |
| DYNAMIC | | | | | | |
| Total Gate Charge | (VDS=75V,VGS 10V,ID=20A) | Qg | - | 42 | - | nC |
| Gate to Source Charge | | Qgs | - | 13.7 | - | |
| Gate to Drain Charge | | Qgd | - | 5.7 | - | |
| Turn-on Delay Time | (VDD = 75V, ID = 7.5A, RG = 10 Ω,VGS = 10V) | td(on) | - | 30 | - | nS |
| Rise Time | | tr | - | 30 | - | |
| Turn-Off Delay Time | | td(off) | - | 72 | - | |
| Fall Time | | tf | - | 37 | - | |
| Input Capacitance | (VGS = 0V ,VDS = 75V, f = 1MHz) | Ciss | - | 3407 | - | pF |
| Output Capacitance | | Coss | - | 256 | - | |
| Reverse Transfer Capacitance | | Crss | - | 8 | - | |
| Diode Forward Voltage (VGS = 0 V, IS = 20 A) | | VSD | - | 0.8 | 1.2 | V |
| Gate Resistance (VDS=0V,VGS=0V,f=1.0MHz) | | Rg | - | 2.8 | - | Ω |

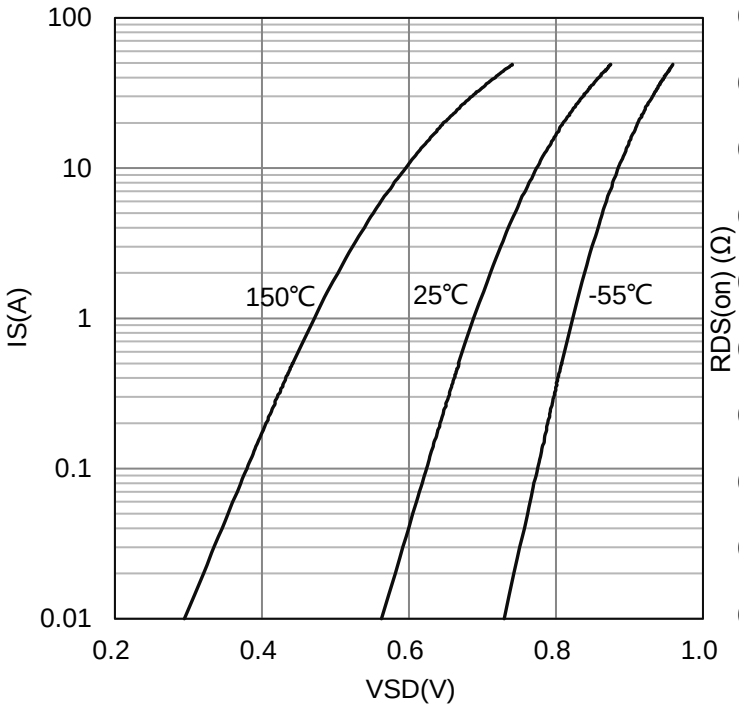
## 7.ELECTRICAL CHARACTERISTICS CURVES



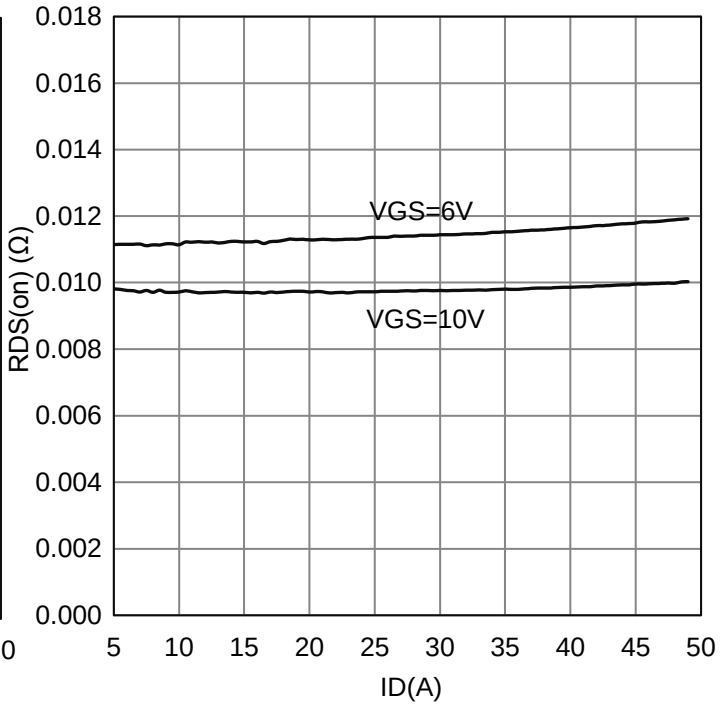

ID vs. VDS




ID vs. VGS

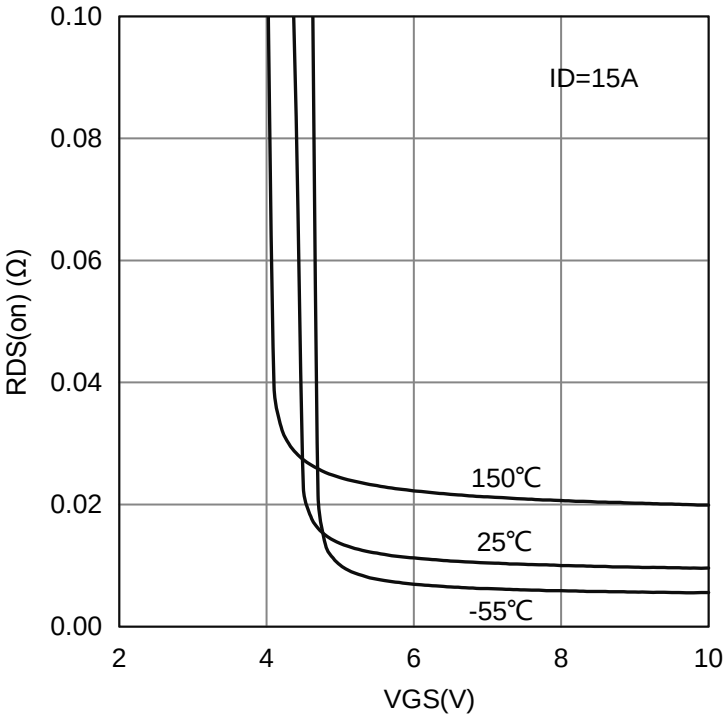



IS vs. VSD

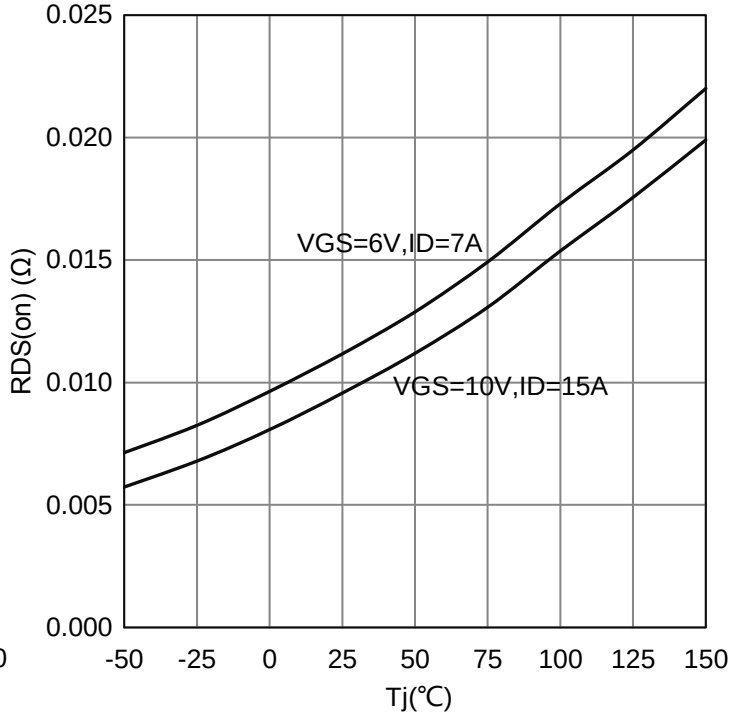



RDS(on) vs. ID

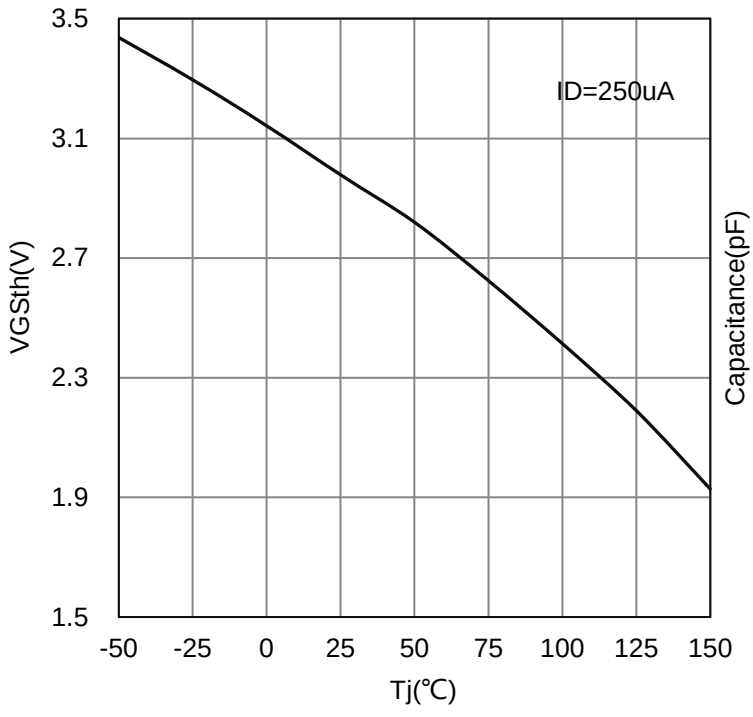
## 7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



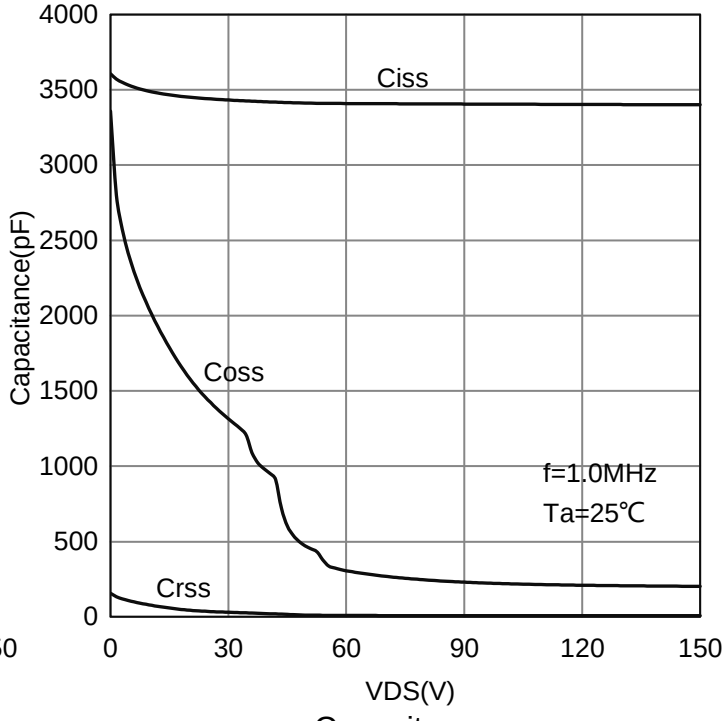

RDS(on) vs. VGS




RDS(on) vs. Tj

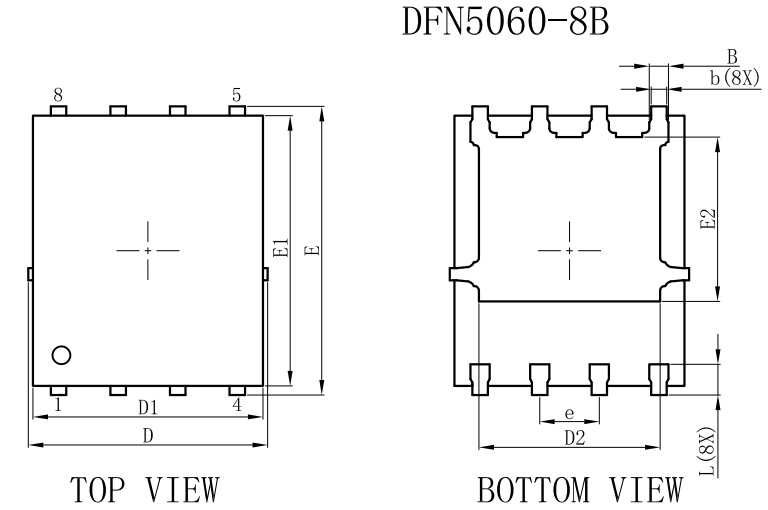



VGSth vs. Tj

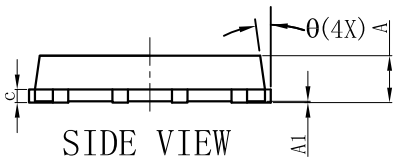



Capacitance

## 8.OUTLINE AND DIMENSIONS



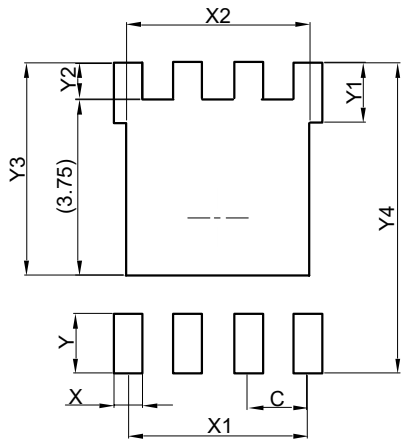

| DFN5060-8B | | | |
|---|---|---|---|
| DIM | MIN | NOR | MAX |
| A | 0.90 | 1.00 | 1.10 |
| A1 | 0.00 | 0.02 | 0.05 |
| E | 6.00 | 6.15 | 6.30 |
| E1 | 5.66 | 5.76 | 5.86 |
| E2 | 3.40 | 3.50 | 3.60 |
| D | 4.95 | 5.10 | 5.25 |
| D1 | 4.80 | 4.90 | 5.00 |
| D2 | 3.76 | 3.86 | 3.96 |
| b | 0.30 | 0.35 | 0.40 |
| B | 0.36 | 0.41 | 0.46 |
| L | 0.56 | 0.66 | 0.76 |
| e | 1.27BSC | | |
| c | 0.254REF. | | |
| θ | 0° | - | 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 0.05mm per side.
5. Offcenter Max0.038mm; Mismatch Max 0.038mm.

## 9.SOLDERING FOOTPRINT




| DFN5060-8B | |
|---|---|
| DIM | (mm) |
| C | 1.27 |
| X | 0.61 |
| X1 | 3.81 |
| X2 | 3.91 |
| Y | 1.27 |
| Y1 | 1.27 |
| Y2 | 0.77 |
| Y3 | 4.52 |
| Y4 | 6.61 |

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