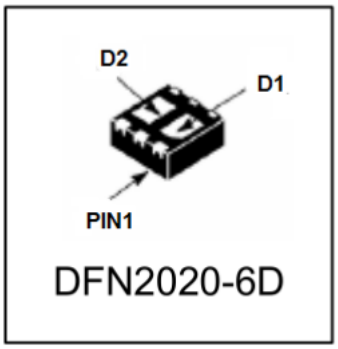
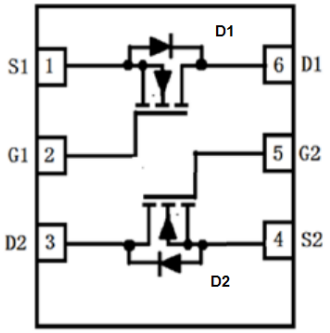
# LN2506DT1G
# S-LN2506DT1G

30V N-Channel Enhancement-Mode MOSFET




## 1. FEATURES

- VDS= 30V
- RDS(ON), VGS@10V, IDS@5.8A = 41mΩ
- RDS(ON), VGS@4.5V, IDS@5.0A = 45mΩ
- RDS(ON), VGS@2.5V, IDS@2.0A = 90mΩ
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.




## 2. APPLICATIONS

- Advanced trench process technology
- High density cell design for ultra low on-resistance

## 3. DEVICE MARKING AND ORDERING INFORMATION

| Device | Marking | Shipping |
|---|---|---|
| LN2506DT1G | 3B | 4000/Tape&Reel |

## 4. MAXIMUM RATINGS(Ta = 25ºC)

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Drain–Source Voltage | VDSS | 30 | V |
| Gate–to–Source Voltage – Continuous | VGS | ±12 | V |
| Drain Current<br>– Continuous TA = 25°C<br>– Pulsed(Note 1) | <br>ID<br>IDM | <br>5.8<br>30 | A |

## 5. THERMAL CHARACTERISTICS

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Maximum Power Dissipation | PD | 1.4 | W |
| Thermal Resistance, Junction–to–Ambient(Note 2) | RΘJA | 140 | ºC/W |
| Junction and Storage temperature | TJ,Tstg | −55~+150 | ° C |

1. Repetitive Rating: Pulse width limited by the Maximum junction temperation.
2. 1-in² 2oz Cu PCB board.

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

OFF CHARACTERISTICS

| Characteristic | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA) | V(BR)DSS | 30 | - | - | V |
| Zero Gate Voltage Drain Current (VDS=30V, VGS=0V) | IDSS | - | - | 1 | μA |
| Gate–Body Leakage Current, Forward (VDS = 0 V, VGS = 12 V) | IGSSF | - | - | 100 | nA |
| Gate–Body Leakage Current, Reverse (VDS = 0 V, VGS = -12 V) | IGSSR | - | - | -100 | nA |
| Forward Transconductance (VDS = 5.0 V, ID = 5 A) | gfs | 10 | 15 | - | S |

ON CHARACTERISTICS (Note 3)

| | | | | | |
|---|---|---|---|---|---|
| Gate Threshold Voltage (VDS = VGS, ID = 250μA) | VGS(th) | 0.7 | - | 1.4 | V |
| Static Drain–Source On–State Resistance | RDS(on) | | | | mΩ |
| (VGS = 10 V, ID =5.8 A) | | - | 31 | 41 | |
| (VGS = 4.5 V, ID =5 A) | | - | 34 | 45 | |
| (VGS = 2.5 V, ID = 2 A) | | - | 45 | 90 | |

DYNAMIC CHARACTERISTICS

| | | | | | |
|---|---|---|---|---|---|
| Total Gate Charge (VGS = 4.5 V, ID = 5.8A,VDS= 15 V) | Qg | - | 11 | 22 | nC |
| Gate-Source Charge (VGS = 4.5 V, ID = 5.8A,VDS= 15 V) | Qgs | - | 1.6 | - | nC |
| Gate-Drain Charge (VGS = 4.5 V, ID = 5.8A,VDS= 15 V) | Qgd | - | 2.8 | - | nC |
| Input Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V) | Ciss | - | 513.51 | - | pF |
| Output Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V) | Coss | - | 80.85 | - | pF |
| Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V) | Crss | - | 54.87 | - | pF |

SWITCHING CHARACTERISTICS

| | | | | | | |
|---|---|---|---|---|---|---|
| Turn-On Delay Time | (VDD = 15V, RL = 2.7Ω ID = 1A, VGEN = 10V,RG = 3Ω ) | td(on) | - | 7 | 14 | ns |
| Rise Time | | tr | - | 15 | 30 | |
| Turn-Off Delay Time | | td(off) | - | 38 | 76 | |
| Fall Time | | tf | - | 3 | 6 | |

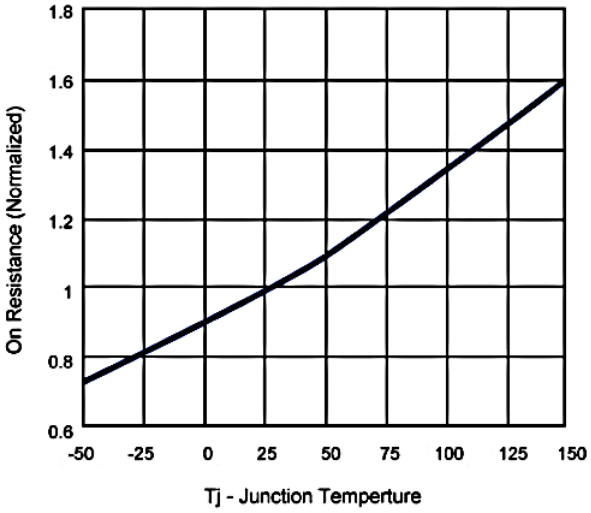
SOURCE–DRAIN DIODE CHARACTERISTICS

| | | | | | |
|---|---|---|---|---|---|
| Forward Voltage (VGS = 0 V, ISD = 3 A) | VSD | - | - | 1.2 | V |
| Max.Diode Forward Current | IS | - | - | 2.5 | A |

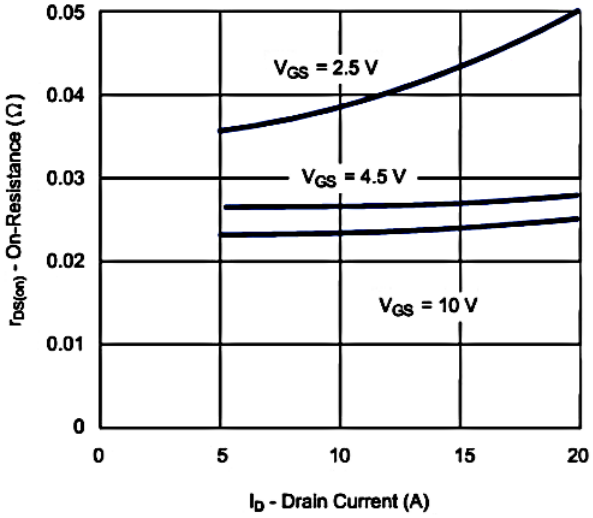
3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

## 7. ELECTRICAL CHARACTERISTICS CURVES

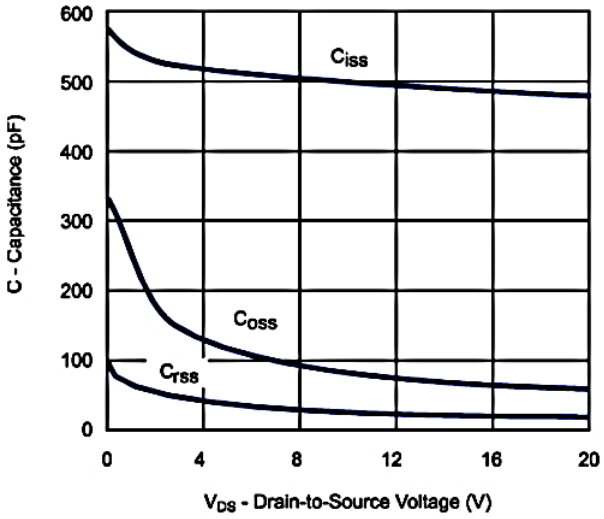
On Resistance vs. Junction Temperture



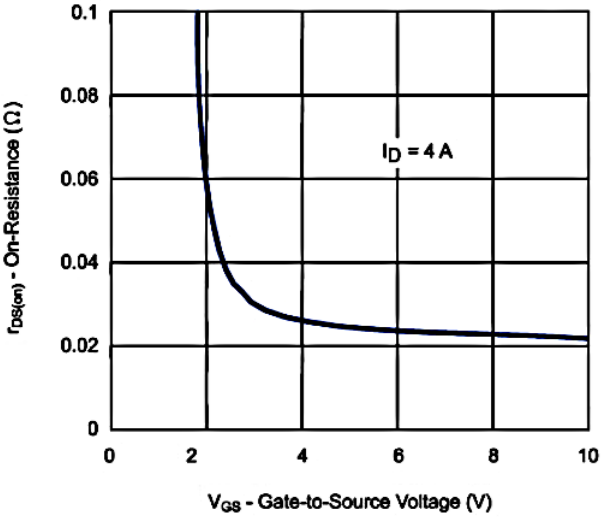

On-Resistance vs. Drain Current



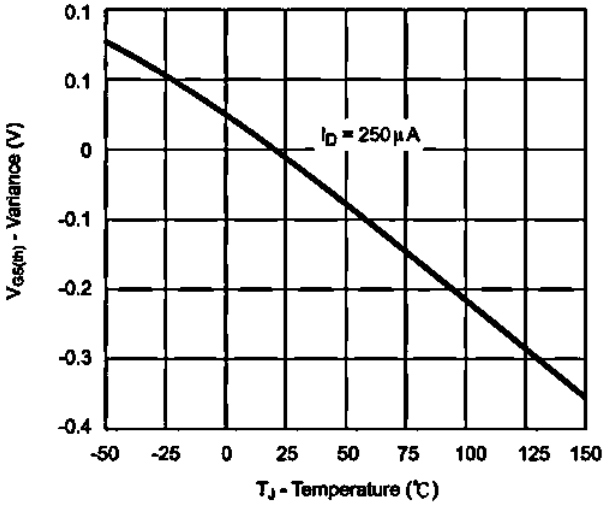

Capacitance



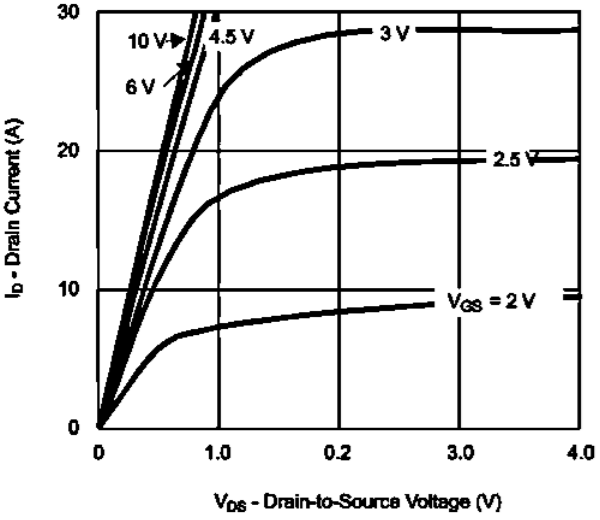

On-Resistance vs. Gate-to-Source Voltage




Threshold Voltage

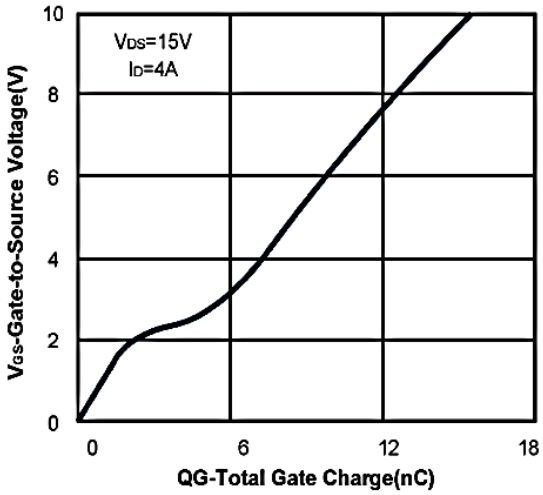



On-Region Characteristics

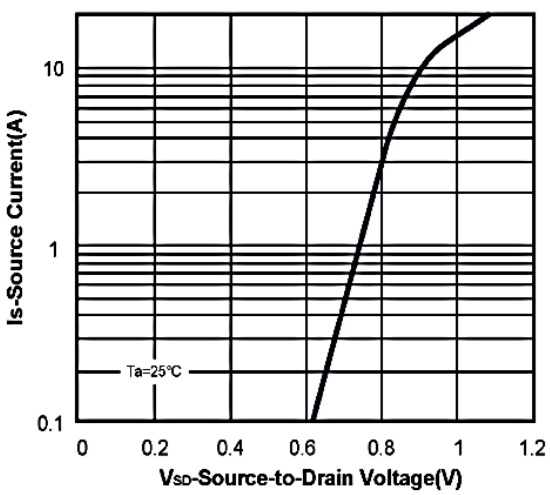


## 7. ELECTRICAL CHARACTERISTICS CURVES（Con.）

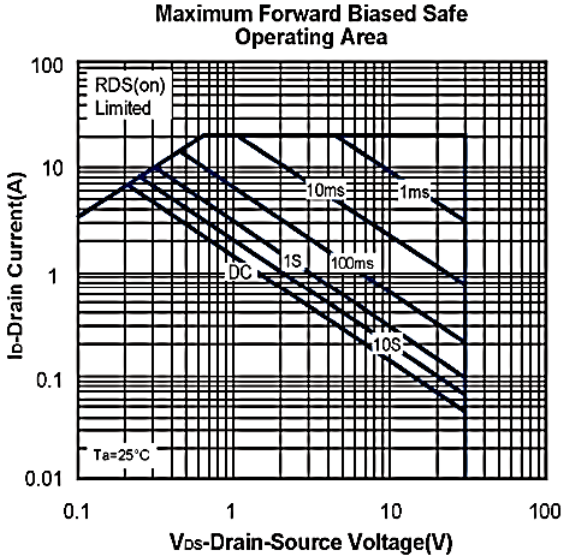
Gate Charge



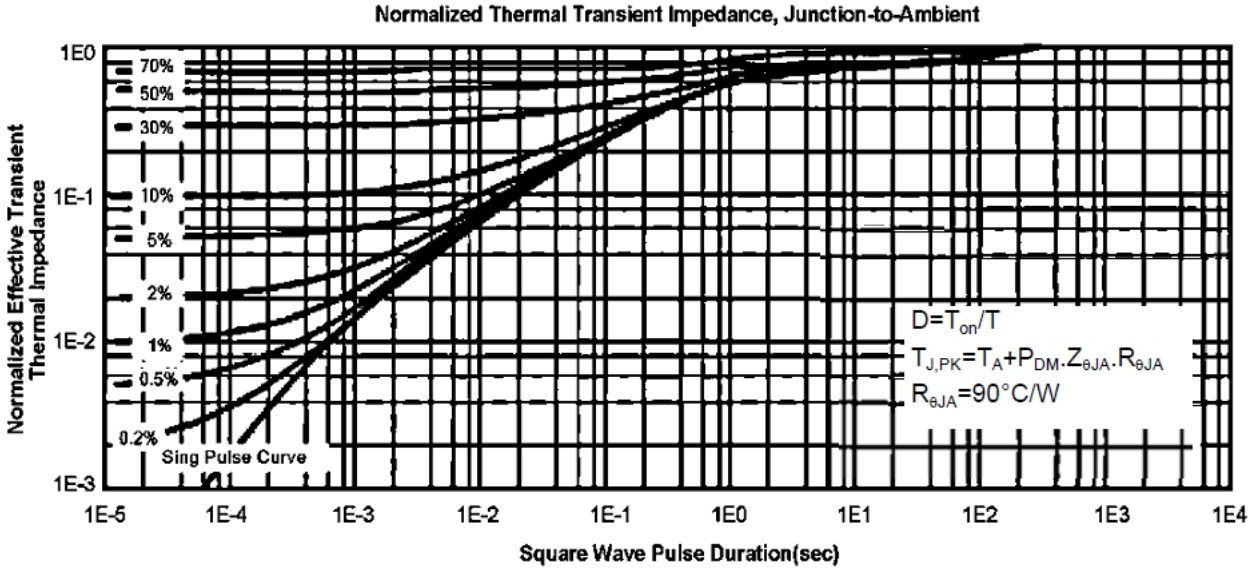

Body-diode characteristics



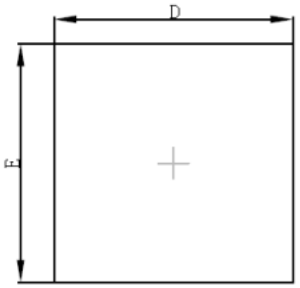

Maximum Forward Biased Safe Operating Area



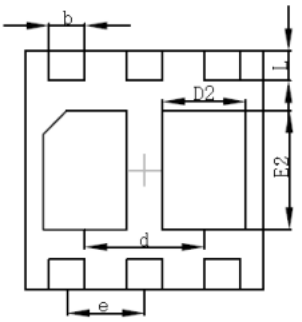

Normalized Thermal Transient Impedance, Junction-to-Ambient



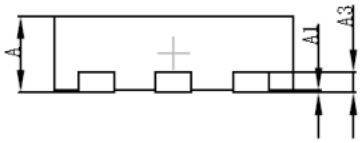
## 8.OUTLINE AND DIMENSIONS




TOP VIEW



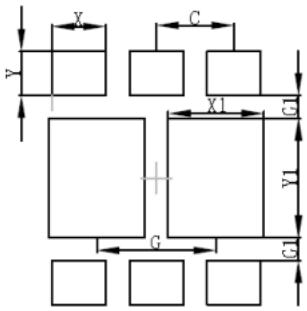

BOTTOM VIEW




SIDE VIEW

| DFN2020 6D | | | |
|---|---|---|---|
| Dim | Min | Typ | Max |
| D | 1.95 | 2.00 | 2.05 |
| E | 1.95 | 2.00 | 2.05 |
| e | - | 0.65 | - |
| L | 0.20 | 0.25 | 0.30 |
| b | 0.25 | 0.30 | 0.35 |
| d | - | 1.00 | - |
| A | 0.60 | 0.65 | 0.70 |
| A1 | 0 | 0.02 | 0.05 |
| A3 | - | 0.152 | - |
| E2 | 0.95 | 1.00 | 1.05 |
| D2 | 0.65 | 0.70 | 0.75 |
| All Dimensions in mm | | | |

## 9.SOLDERING FOOTPRINT




| Dimensions | (mm) |
|---|---|
| X | 0.45 |
| Y | 0.37 |
| X1 | 0.80 |
| Y1 | 1.00 |
| C | 0.65 |
| G | 1.00 |
| G1 | 0.19 |

单击下面可查看定价，库存，交付和生命周期等信息

>>LRC(乐山无线电)