

# LP0404N3T5G

20V, P-Channel (D-S) MOSFET

## 1. FEATURES

- $V_{DS} = -20V$   
 $R_{DS(ON)} \leq 0.48\Omega, V_{GS@-4.5V}, I_{DS@-780mA}$   
 $R_{DS(ON)} \leq 0.67\Omega, V_{GS@-2.5V}, I_{DS@-660mA}$   
 $R_{DS(ON)} \leq 0.95\Omega, V_{GS@-1.8V}, I_{DS@-100mA}$   
 $R_{DS(ON)} \leq 2.2\Omega, V_{GS@-1.5V}, I_{DS@-100mA}$
- Super high density cell design for extremely low  $R_{DS(ON)}$ .
- Exceptional on-resistance and maximum DC current capability.
- 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

- Power Management in Note book
- Portable Equipment
- Battery Powered System

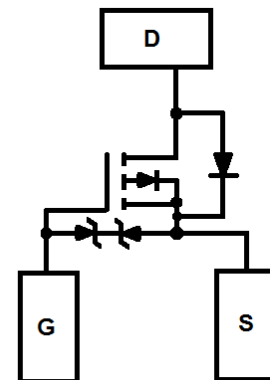
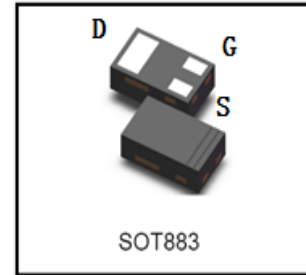
## 3. DEVICE MARKING AND ORDERING INFORMATION

| Device      | Marking | Shipping        |
|-------------|---------|-----------------|
| LP0404N3T5G | T5      | 10000/Tape&Reel |

## 4. MAXIMUM RATINGS( $T_a = 25^\circ C$ )

| Parameter                              | Symbol    | Limits  | Unit |
|--|-----------|---------|------|
| Drain-to-Source Voltage                | $V_{DSS}$ | -20     | V    |
| Gate-to-Source Voltage                 | $V_{GS}$  | $\pm 6$ | V    |
| Drain Current (Note 1)<br>Steady State | $I_D$     | -1.4    | A    |

Note 1: Surface Mounted on 1" x 1" FR4 Board.

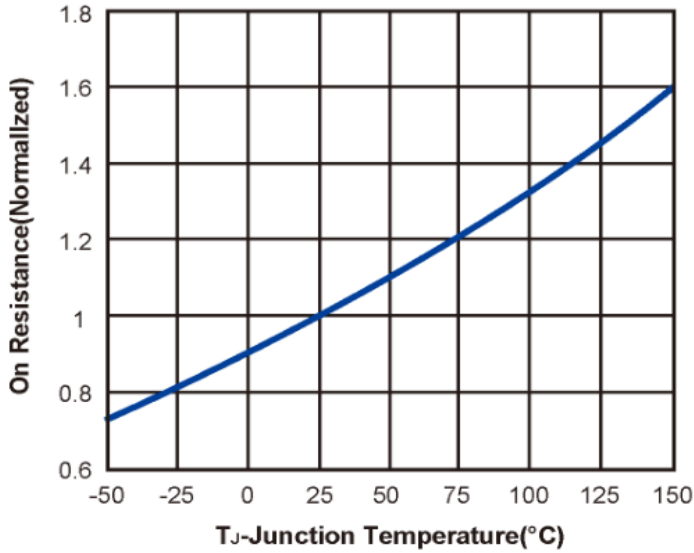


**5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)**

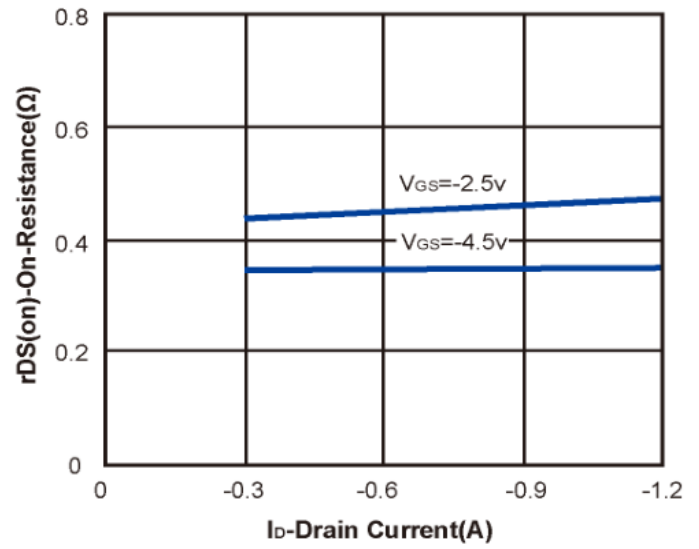
| Characteristic  | Symbol  | Min.    | Typ. | Max. | Unit |
|---|---|---------|------|------|------|
| <b>Static</b>   |   |         |      |      |      |
| Drain-Source Breakdown Voltage<br>(VGS = 0V, ID = -250uA) | V(BR)DSS  | -20     | -    | -    | V    |
| Gate Threshold Voltage<br>(VDS =VGS , ID = -250μA )       | VGS(th)   | -0.4    | -    | -1.2 | V    |
| Gate Leakage Current<br>(VDS =0V, VGS =±4.5V )            | IGSS  | -       | -    | ±10  | μA   |
| Zero Gate Voltage Drain Current<br>(VDS =-16V, VGS =0V )  | IDSS  | -       | -    | -1   | μA   |
| Drain-Source On-Resistance<br>(VGS=-4.5V,ID=-780mA)       | RDS(ON)   | -       | -    | 0.48 | Ω    |
| Drain-Source On-Resistance<br>(VGS=-2.5V,ID=-660mA)       |   | -       | -    | 0.67 |      |
| Drain-Source On-Resistance<br>(VGS=-1.8V,ID=-100mA)       |   | -       | -    | 0.95 |      |
| Drain-Source On-Resistance<br>(VGS=-1.5V,ID=-100mA)       |   | -       | -    | 2.2  |      |
| Diode Forward Voltage<br>(IS =-350mA, VGS =0V)            | VSD   | -       | -    | -1.2 | V    |
| <b>Dynamic</b>  |   |         |      |      |      |
| Total Gate Charge   | (VDS =-16V,<br>VGS =-4.5V, ID<br>=-200mA)                   | Qg      | -    | 2.8  | nC   |
| Gate-Source Charge  |   | Qgs     | -    | 2.1  |      |
| Gate-Drain Charge   |   | Qgd     | -    | 0.5  |      |
| Turn-On Delay Time  | (VDD =-10V, RL<br>=50Ω,VGEN =-<br>5V,RG =10Ω,ID<br>=-200mA) | td(on)  | -    | 51.3 | ns   |
| Rise Time   |   | tr      | -    | 24.2 |      |
| Turn-Off Delay Time                                       |   | td(off) | -    | 246  |      |
| Fall Time   |   | tf      | -    | 81.2 |      |
| Input Capacitance   | (VDS = -16 V,<br>VGS = 0 V, f = 1<br>MHz)                   | Ciss    | -    | 152  | pF   |
| Output Capacitance  |   | Coss    | -    | 18.5 |      |
| Reverse Transfer Capacitance                              |   | Crss    | -    | 6    |      |

Note 2: Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.

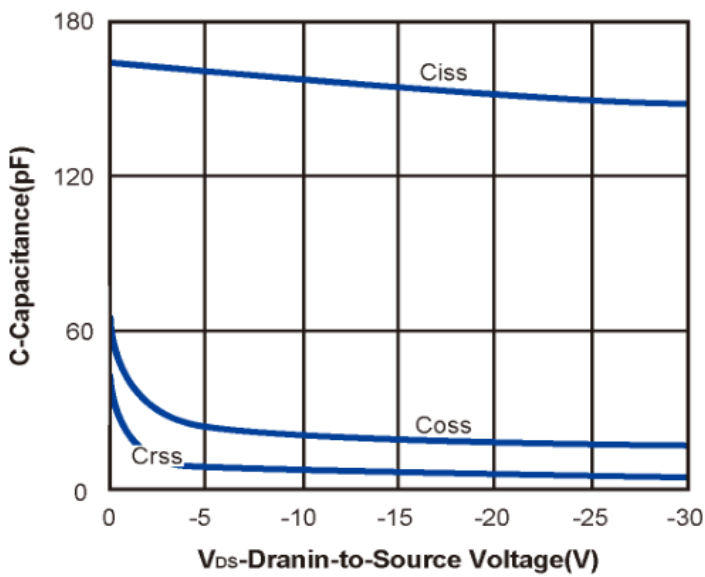
## 6. ELECTRICAL CHARACTERISTICS CURVES



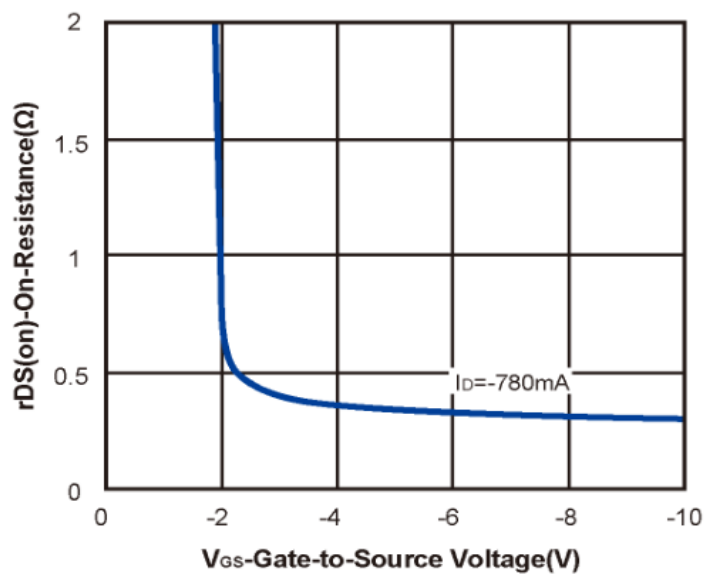
On Resistance vs. Junction Temperature



On Resistance vs. Drain Current

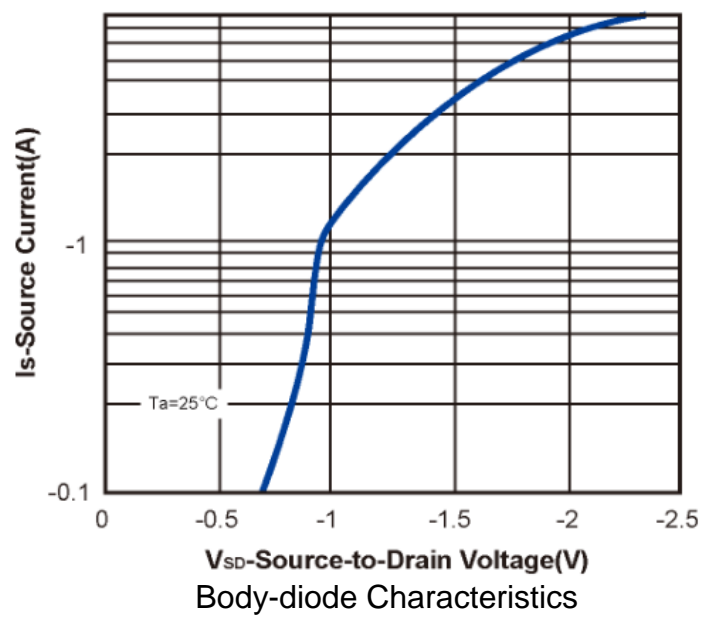
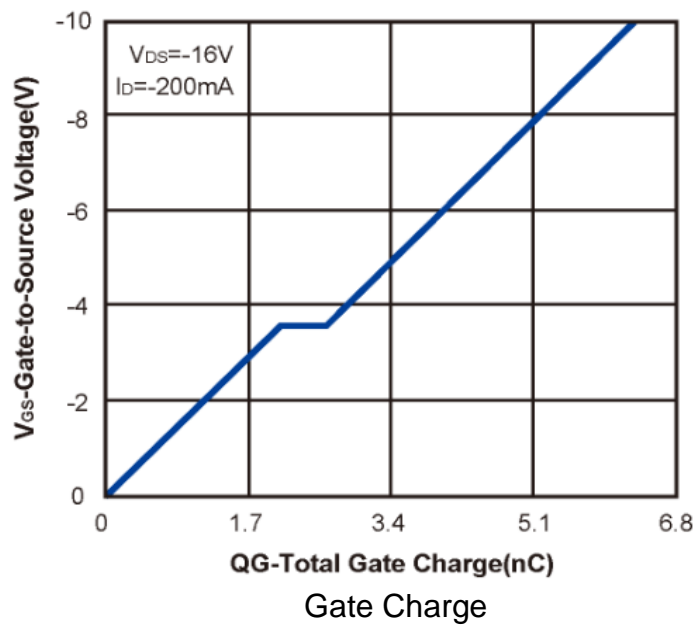
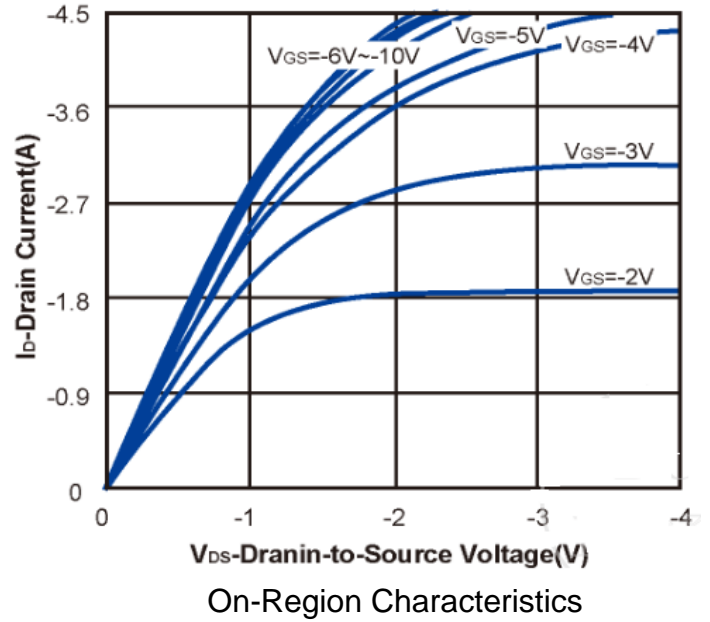
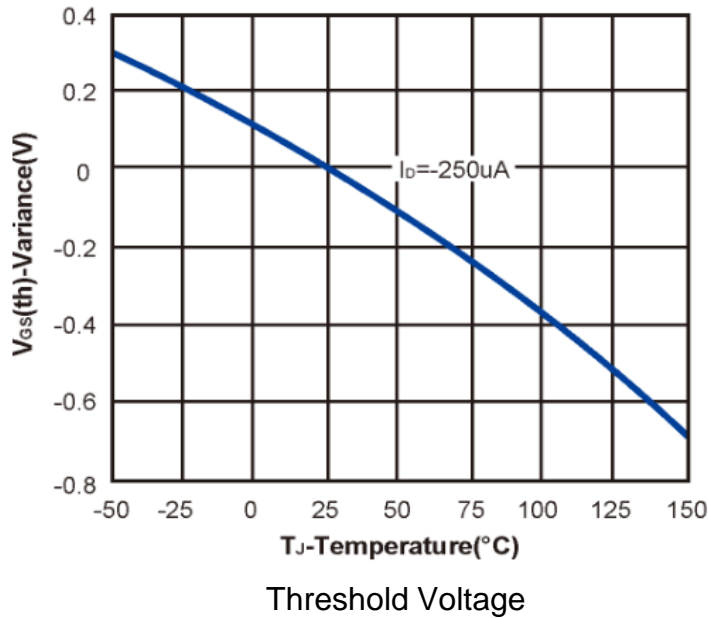


Capacitance

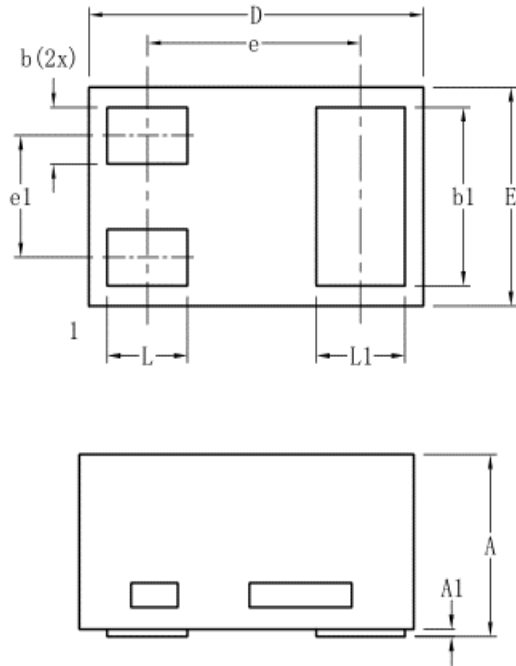


On Resistance vs. Gate to Source Voltage

6. ELECTRICAL CHARACTERISTICS CURVES(Con.)

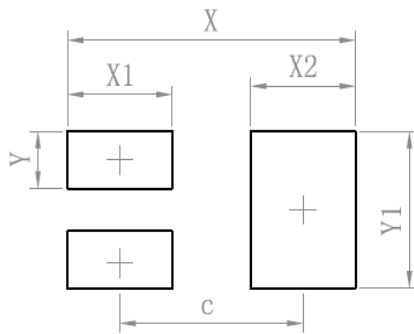


### 7. OUTLINE AND DIMENSIONS



| SOT883               |      |      |      |
|----------------------|------|------|------|
| DIM                  | MIN  | TYP  | MAX  |
| D                    | 1.05 | 1.00 | 0.95 |
| E                    | 0.65 | 0.60 | 0.50 |
| e                    | -    | 0.64 | -    |
| e1                   | -    | 0.34 | -    |
| L                    | 0.19 | 0.24 | 0.29 |
| L1                   | 0.22 | 0.27 | 0.32 |
| b                    | 0.10 | 0.15 | 0.20 |
| b1                   | 0.44 | 0.49 | 0.54 |
| A                    | 0.43 | 0.48 | 0.53 |
| A1                   | 0    | -    | 0.05 |
| All Dimensions in mm |      |      |      |

### 8. SOLDERING FOOTPRINT



| Dimensions | (mm) |
|------------|------|
| c          | 0.70 |
| X          | 1.10 |
| X1         | 0.40 |
| X2         | 0.40 |
| Y          | 0.20 |
| Y1         | 0.55 |