

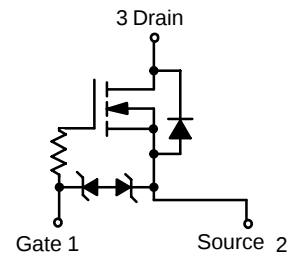
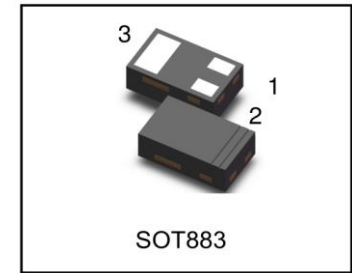
# LMN2500N3T5G

## S-LMN2500N3T5G

20V Single N-channel Trench MOSFET

### 1. FEATURES

- Fast switching
- Low RDS(ON)
- Trench MOSFET technology
- 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

- Low Side Load Switch
- Level Shift Circuits
- DC-DC Converter
- Portable Applications i.e. DSC, PDA, Cell Phone, etc.

### 3. DEVICE MARKING AND ORDERING INFORMATION

| Device       | Marking | Shipping        |
|--------------|---------|-----------------|
| LMN2500N3T5G | MN      | 10000/Tape&Reel |

### 4. MAXIMUM RATINGS(Ta = 25°C)

| Parameter                                        |           | Symbol    | Value    | Unit |
|--------------------------------------------------|-----------|-----------|----------|------|
| Drain-Source Voltage                             |           | VDS       | 20       | V    |
| Gate-Source Voltage                              |           | VGS       | ±10      |      |
| Drain Current(Steady State)(Note 1)              | TA = 25°C | ID        | 1000     | mA   |
|                                                  | TA = 70°C |           | 800      |      |
| Power Dissipation(Steady State) (Note1)          |           | PD        | 950      | mW   |
| Pulsed Drain Current (tp = 10 μs)                |           | IDM       | 4        | A    |
| Operating Junction and Storage Temperature Range |           | TJ , Tstg | -55~+150 | °C   |

### 5. THERMAL CHARACTERISTICS

| Parameter                                  | Symbol | Limits | Unit |
|--------------------------------------------|--------|--------|------|
| Junction-to-Ambient – Steady State(Note 1) | RθJA   | 134    | °C/W |

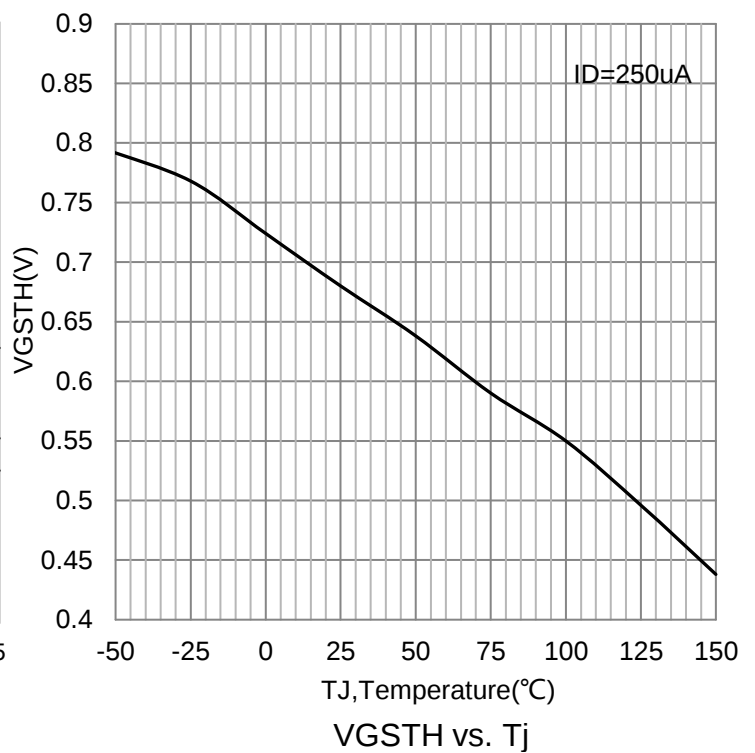
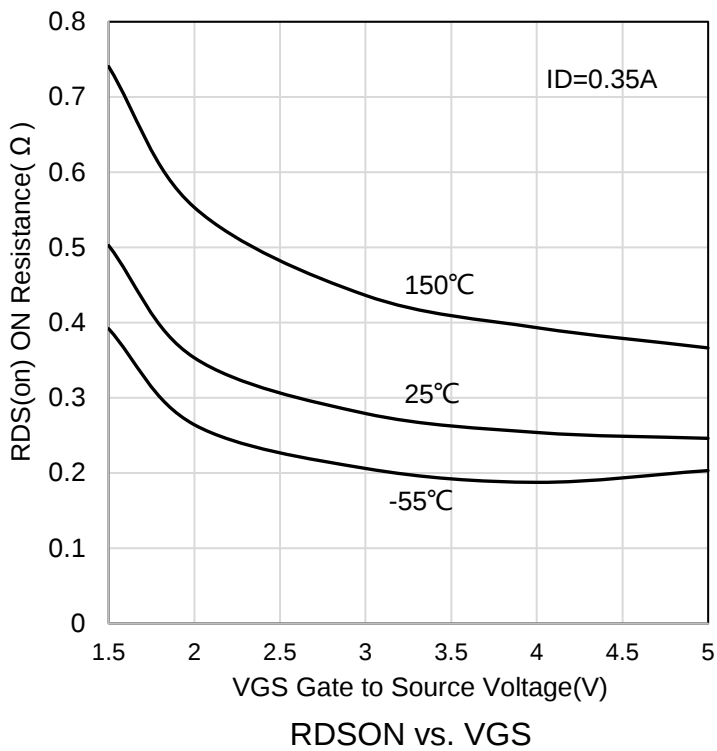
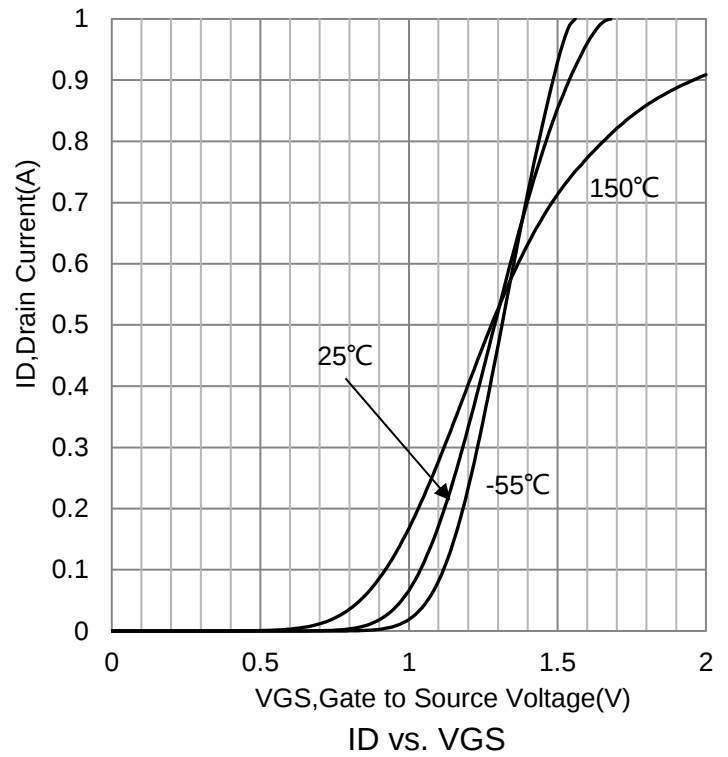
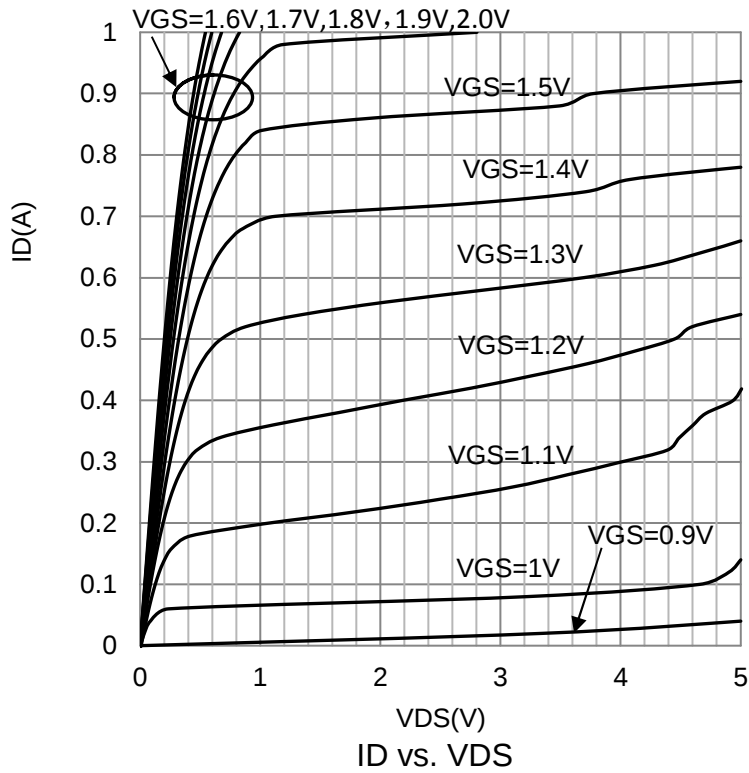
1. Surface-mounted on FR4 board using 1 in sq pad size (Cu area = 1.127 insq [1 oz] including traces)

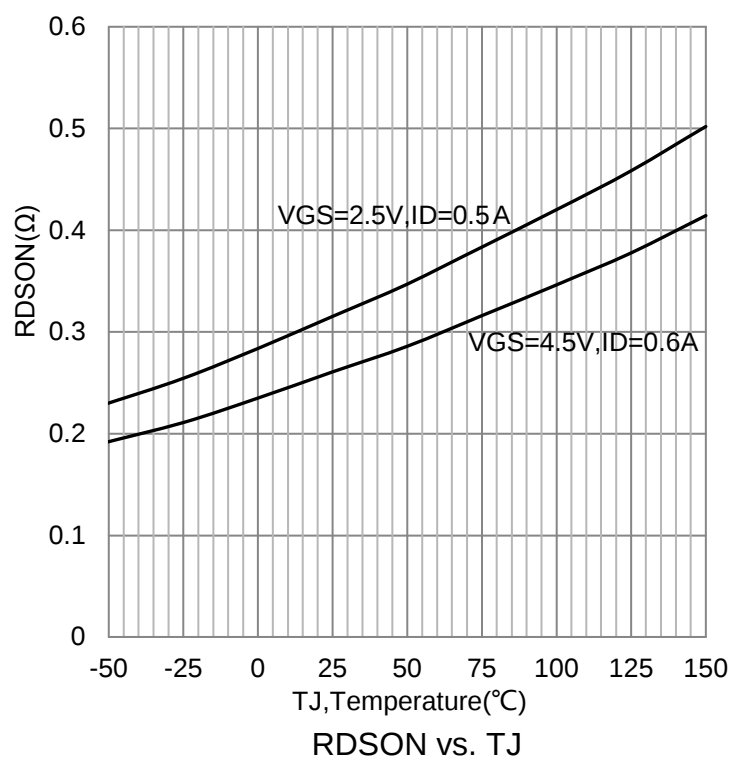
### 6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| Characteristic                                                                                            |                                                          | Symbol   | Min. | Typ.              | Max.            | Unit |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------|------|-------------------|-----------------|------|
| Static                                                                                                    |                                                          |          |      |                   |                 |      |
| Drain-Source Breakdown Voltage<br>(VGS =0V, ID =250μA)                                                    |                                                          | V(BR)DSS | 20   |                   |                 | V    |
| Gate Threshold Voltage<br>(VDS =VGS , ID =250μA)                                                          |                                                          | VGS(th)  | 0.45 |                   | 0.9             | V    |
| Gate-Body Leakage Current<br>(VDS =0V, VGS =±4.5V)                                                        |                                                          | IGSS     |      |                   | ±1.0            | μA   |
| Zero Gate Voltage Drain Current<br>(VDS =20V, VGS =0V)                                                    |                                                          | IDSS     |      |                   | 100             | nA   |
| Drain-Source On-Resistance<br>(VGS =4.5V, ID = 0.6A)<br>(VGS =2.5V, ID = 0.5A)<br>(VGS =1.8V, ID = 0.35A) |                                                          | RDS(ON)  |      | 0.3<br>0.4<br>0.7 | 0.4<br>0.5<br>1 | Ω    |
| Diode Forward Voltage<br>(IS =0.15A, VGS =0V)                                                             |                                                          | VSD      |      | 0.7               | 1.2             | V    |
| Dynamic                                                                                                   |                                                          |          |      |                   |                 |      |
| Total Gate Charge                                                                                         | (VDS =10V, VGS =4.5V, ID =0.25A)                         | Qg       |      | 736.3             |                 | pC   |
| Gate-Source Charge                                                                                        |                                                          | Qgs      |      | 320               |                 |      |
| Gate-Drain Charge                                                                                         |                                                          | Qgd      |      | 116.6             |                 |      |
| Input Capacitance                                                                                         | (VDS =16V, VGS =0V, f=1MHz)                              | Ciss     |      | 60.67             |                 | pF   |
| Output Capacitance                                                                                        |                                                          | Coss     |      | 9.68              |                 |      |
| Reverse Transfer Capacitance                                                                              |                                                          | Crss     |      | 5.37              |                 |      |
| Turn-On Delay Time                                                                                        | (VDS = 4.5 V, RL = 47Ω, ID=200 mA, VDD = 10 V, RG = 10Ω) | td(on)   |      | 5.1               |                 | ns   |
| Rise Time                                                                                                 |                                                          | tr       |      | 7.4               |                 |      |
| Turn-Off Delay Time                                                                                       |                                                          | td(off)  |      | 26.7              |                 |      |
| Fall Time                                                                                                 |                                                          | tf       |      | 12.3              |                 |      |

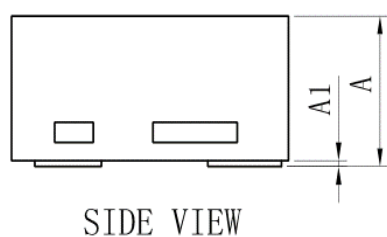
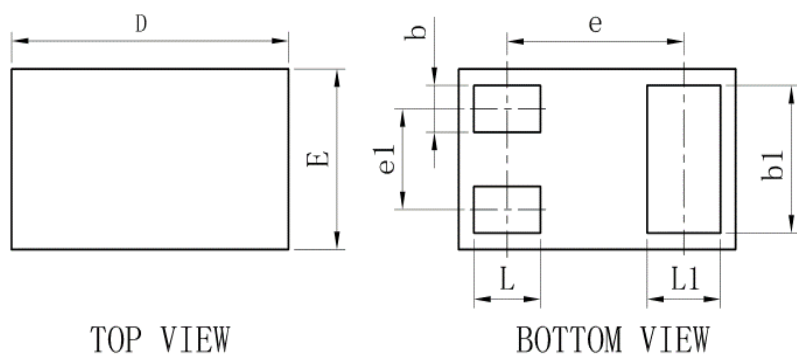
2.Pulse test; pulse width ≤300 μs, duty cycle ≤2%.

### 7.ELECTRICAL CHARACTERISTICS CURVES



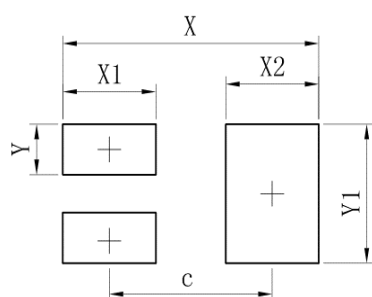
**7.ELECTRICAL CHARACTERISTICS CURVES(Con.)**


### 8.OUTLINE AND DIMENSIONS



| SOT883               |      |      |      |
|----------------------|------|------|------|
| DIM                  | MIN  | TYP  | MAX  |
| D                    | 0.95 | 1.00 | 1.05 |
| E                    | 0.55 | 0.60 | 0.65 |
| 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 |      |      |      |

### 9.SOLDERING FOOTPRINT



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

## **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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