



# SLS20N03 N-channel MOSFET

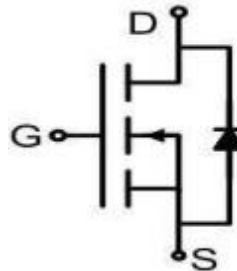
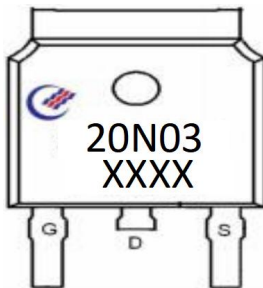
## 主要特征/Features

- ◇ Surface Mount TO-252-2L Package ;
- ◇ TrenchFET Power MOSFET;
- ◇ High Power and current handing capability;
- ◇ RoHS compliant / Green EMC;

## 应用/Application

**PWM Application**  
**Load Switch**  
**Power Management**

## 印字/MARKING 等效电路/Equivalent Circuit



## 极限参数/Absolute Maximum Ratings(TA=25°C unless otherwise noted)

| Symbol                            | Parameter  | SLS20N03T   | Units |
|-----------------------------------|--|-------------|-------|
| V <sub>DSS</sub>                  | Drain-Source Voltage   | 30          | V     |
| I <sub>D</sub>                    | Drain Current<br>- Continuous (T <sub>C</sub> = 25°C)<br>- Continuous (T <sub>C</sub> = 100°C) | 20          | A     |
|                                   |  | 13          | A     |
| I <sub>DM</sub>                   | Drain Current - Pulsed (Note 1)  | 80          | A     |
| V <sub>GSS</sub>                  | Gate-Source Voltage  | ±20         | V     |
| E <sub>AS</sub>                   | Single Pulsed Avalanche Energy   | 52          | mJ    |
| P <sub>D</sub>                    | Power Dissipation (T <sub>C</sub> = 25°C)  | 3.4         | W     |
| R <sub>θJC</sub>                  | Thermal Resistance, Junction to Case   | 37          | °C/W  |
| T <sub>J</sub> , T <sub>STG</sub> | Operating and Storage Temperature Range  | -55 to +150 | °C    |
| T <sub>L</sub>                    | Maximum lead temperature for soldering purposes,<br>1/8" from case for 5 seconds               | 300         | °C    |



电性能参数/Electrical Characteristics (TA=25°C unless otherwise noted )

| Symbol  | Parameter  | Test Conditions                 | Min | Typ  | Max  | Units      |
|---|--|---------------------------------|-----|------|------|------------|
| <b>Off Characteristics</b>                                    |  |                                 |     |      |      |            |
| BVDSS   | Drain-Source Breakdown Voltage                                     | VGS = 0 V, ID = 250 $\mu$ A     | 30  | --   | --   | V          |
| IDSS  | Zero Gate Voltage Drain Current                                    | VDS =30 V, VGS = 0 V            | --  | --   | 1    | $\mu$ A    |
| IGSSF   | Gate-Body Leakage Current, Forward                                 | VGS = 20V, VDS = 0 V            | --  | --   | 100  | nA         |
| IGSSR   | Gate-Body Leakage Current, Reverse                                 | VGS = -20 V, VDS = 0 V          | --  | --   | -100 | nA         |
| <b>On Characteristics</b>                                     |  |                                 |     |      |      |            |
| VGS(th)   | Gate Threshold Voltage   | VDS = VGS , ID = 250 $\mu$ A    | 1   | 1.6  | 2.2  | V          |
| RDS(on)   | Static Drain-Source  | VGS =10 V, ID = 20A             | --  | 10.8 | 13   | m $\Omega$ |
|   | On-Resistance  | VGS =4.5 V, ID = 10A            | --  | 14.3 | 19   |            |
| <b>Dynamic Characteristics</b>                                |  |                                 |     |      |      |            |
| Ciss  | Input Capacitance  | VDS = 15 V, VGS = 0 V,          | --  | 865  | -    | $\mu$ F    |
| Coss  | Output Capacitance   | f = 1.0 MHz                     | --  | 105  | -    | $\mu$ F    |
| Crss  | Reverse Transfer Capacitance                                       |                                 | --  | 86   | -    | $\mu$ F    |
| <b>Switching Characteristics</b>                              |  |                                 |     |      |      |            |
| td(on)  | Turn-On Delay Time   |                                 | --  | 5    | --   | ns         |
| tr  | Turn-On Rise Time  | VGS=10V, VDS=15V,               | --  | 4    | --   | ns         |
| td(off)   | Turn-Off Delay Time  | RL = 3 $\Omega$ ,ID=10A Tj=25°C | --  | 22   | --   | ns         |
| tf  | Turn-Off Fall Time   |                                 | --  | 6    | --   | ns         |
| Qg  | Total Gate Charge  | VDS =15V, ID =10A,              | --  | 17.2 | --   | nC         |
| Qgs   | Gate-Source Charge   | VGS = 10V                       | --  | 2.7  | --   | nC         |
| Qgd   | Gate-Drain Charge  |                                 | --  | 4    | --   | nC         |
| <b>Drain-Source Diode Characteristics and Maximum Ratings</b> |  |                                 |     |      |      |            |
| IS  | Maximum Continuous Drain-Source Diode Forward Current              |                                 | --  | --   | 20   | A          |
| ISM   | Maximum Pulsed Drain-Source Diode Forward Current                  |                                 | --  | --   | 80   | A          |
| VSD   | Drain to Source Diode Forward Voltage,VGS = 0V, ISD =10A,TJ = 25°C |                                 | --  | --   | 1.2  | V          |

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T J =25°C , V DD =15V, VG =10V,L=0.5mH.
3. Pulse Test: Pulse Width $\leq$ 300 $\mu$ s, Duty Cycle $\leq$ 0.5%



典型特性/Typical Performance Characteristics

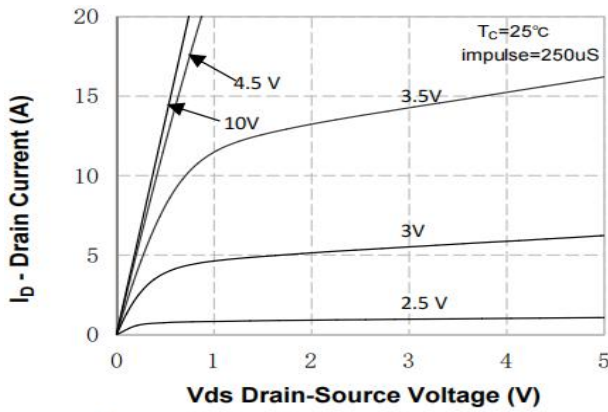


Figure 1. On-Region Characteristics

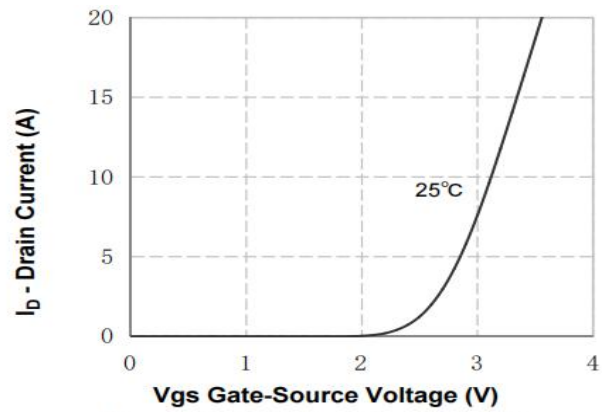


Figure 2. Transfer Characteristics

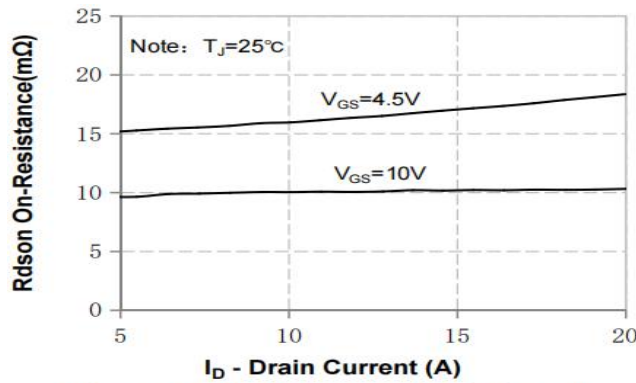


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

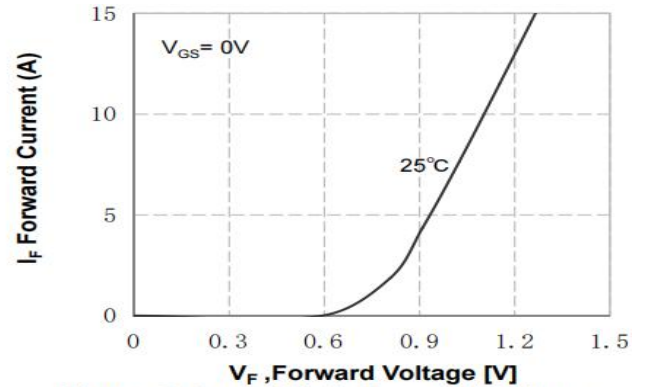


Figure 4. Body Diode Forward Voltage Variation vs Source Current

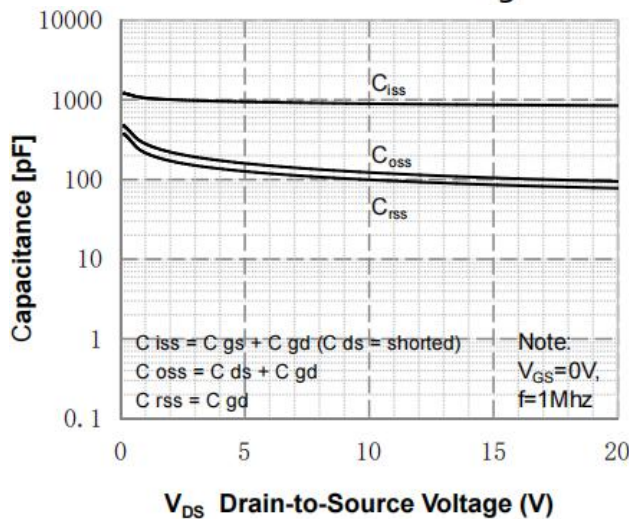


Figure 5. Capacitance Characteristics

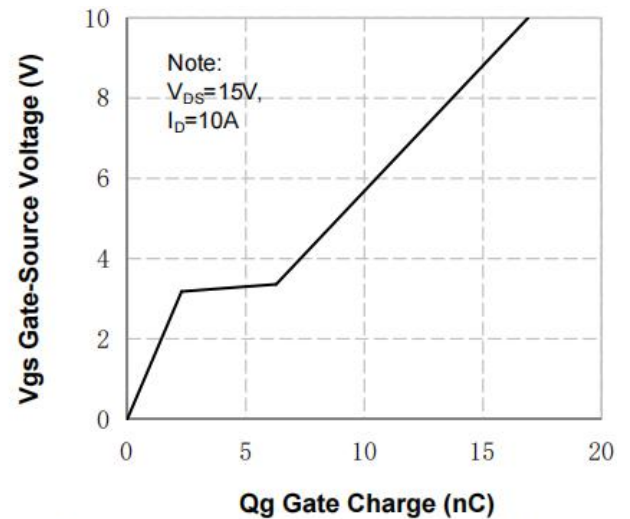


Figure 6. Gate Charge Characteristics

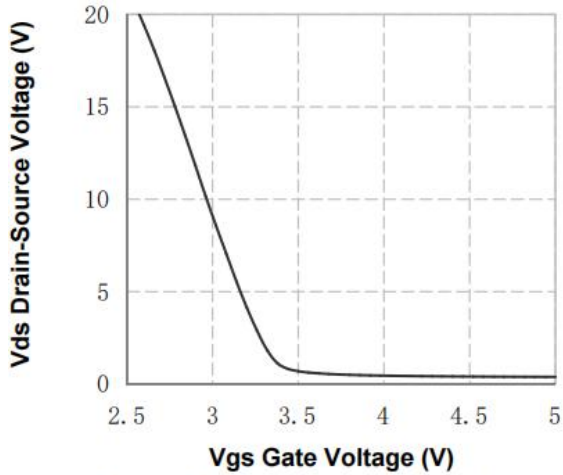


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

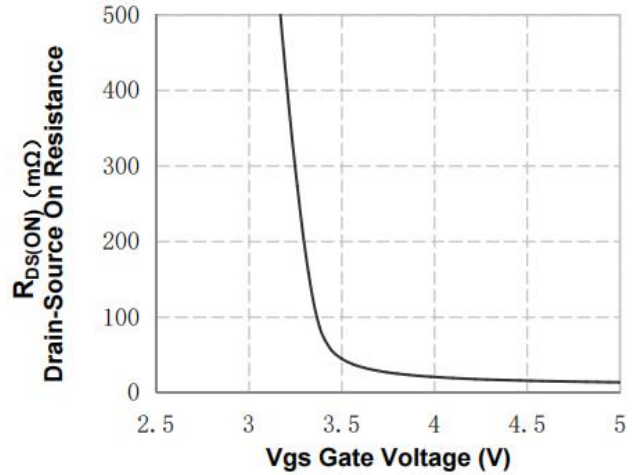


Figure 8. On-Resistance vs Gate Voltage

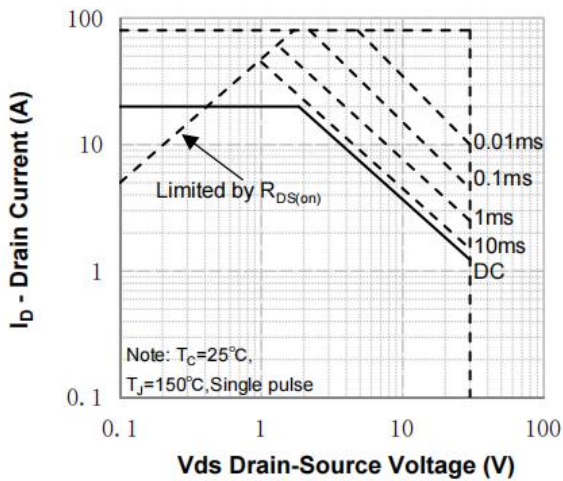


Figure 9. Maximum Safe Operating Area

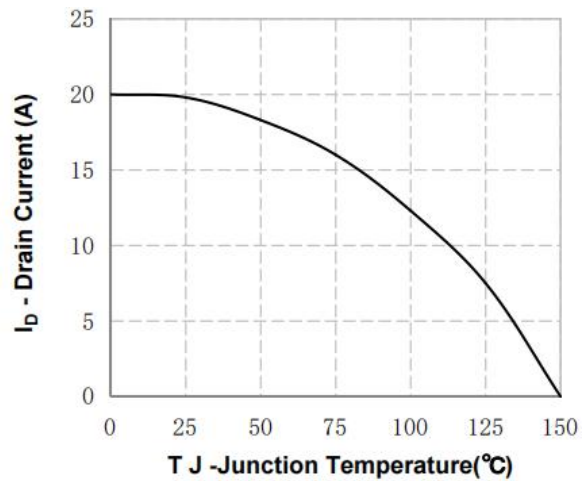


Figure 10. Maximum Continuous Drain Current vs Case Temperature

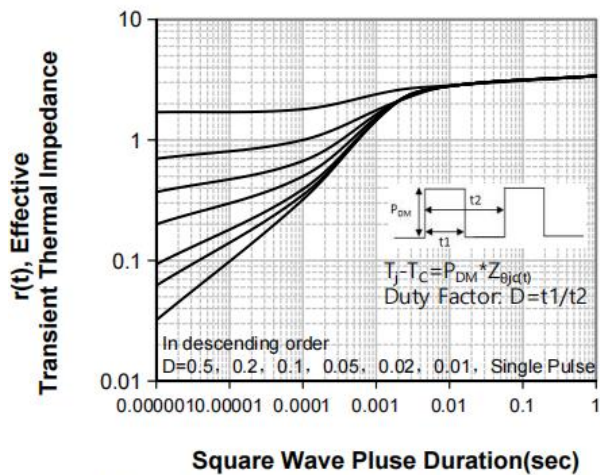
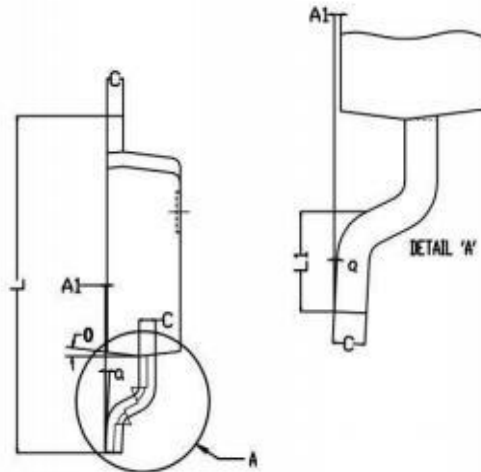
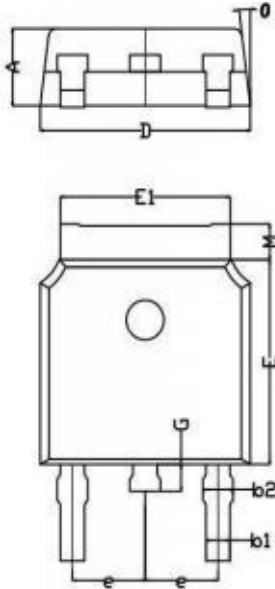


Figure 11. Transient Thermal Response Curve

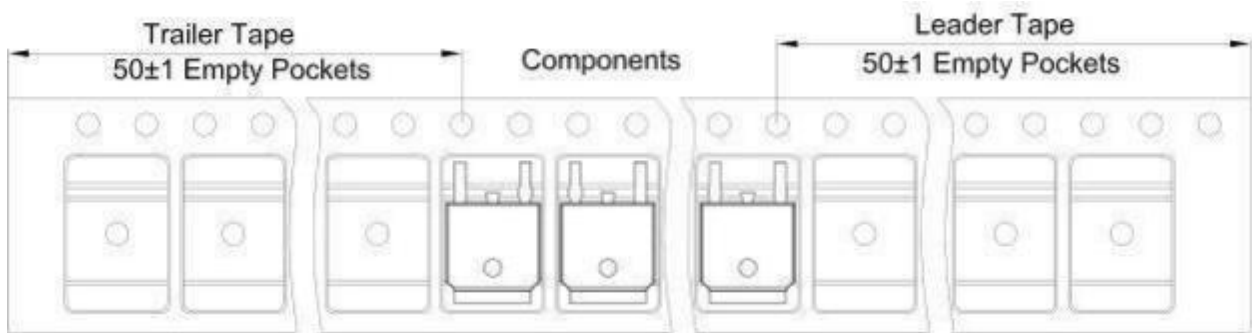


成品外观尺寸/T0-252-2L Package Information



| Symbol | Dim in mm |       |       |
|--------|-----------|-------|-------|
|        | Min       | Nom   | Max   |
| A      | 2.25      | 2.30  | 2.35  |
| L1     | 2.90      | 3.00  | 3.10  |
| b1     | 0.71      | 0.75  | 0.81  |
| b2     | 1.01      | 0.95  | 0.91  |
| C      | 0.45      | 0.51  | 0.55  |
| D      | 6.55      | 6.60  | 6.65  |
| e      | 2.29(28C) |       |       |
| E      | 5.05      | 5.10  | 5.15  |
| E1     | 5.23      | 5.33  | 5.43  |
| L      | 9.84      | 10.04 | 10.24 |
| A1     | 0.00      | 0.05  | 0.10  |
| M      | 1.01      | 1.05  | 1.11  |
| G      | 0.70      | 0.80  | 0.90  |
| o      | 0°        | 5°    | 10°   |
| a      | 0°        | 3°    | 6°    |

出货规范/Shipping Specifications



| Reel     | Reel Size | Box      | Box Size(mm) | Carton  | Carton size(mm) |
|----------|-----------|----------|--------------|---------|-----------------|
| 2500 Pcs | 13 inch   | 2500 Pcs | 340×336×29   | 25 KPcs | 353×345×365     |