



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

## 3LN01M — General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

### Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter                   | Symbol           | Conditions             | Ratings     | Unit |
|-----------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |                        | 30          | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |                        | ±10         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |                        | 0.15        | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1% | 0.6         | A    |
| Allowable Power Dissipation | P <sub>D</sub>   |                        | 0.15        | W    |
| Channel Temperature         | T <sub>ch</sub>  |                        | 150         | °C   |
| Storage Temperature         | T <sub>stg</sub> |                        | -55 to +150 | °C   |

Electrical Characteristics at Ta=25°C

| Parameter                                  | Symbol               | Conditions                                  | Ratings |      |      | Unit |
|--|----------------------|---|---------|------|------|------|
|  |                      |   | min     | typ  | max  |      |
| Drain-to-Source Breakdown Voltage          | V <sub>(BR)DSS</sub> | I <sub>D</sub> =1mA, V <sub>GS</sub> =0V    | 30      |      |      | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =30V, V <sub>GS</sub> =0V   |         |      | 1    | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V   |         |      | ±10  | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> =10V, I <sub>D</sub> =100μA | 0.4     |      | 1.3  | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =10V, I <sub>D</sub> =80mA  | 0.15    | 0.22 |      | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =80mA, V <sub>GS</sub> =4V   |         | 2.9  | 3.7  | Ω    |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =40mA, V <sub>GS</sub> =2.5V |         | 3.7  | 5.2  | Ω    |
|  | R <sub>DS(on)3</sub> | I <sub>D</sub> =10mA, V <sub>GS</sub> =1.5V |         | 6.4  | 12.8 | Ω    |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =10V, f=1MHz                |         | 7.0  |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     | V <sub>DS</sub> =10V, f=1MHz                |         | 5.9  |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     | V <sub>DS</sub> =10V, f=1MHz                |         | 2.3  |      | pF   |

Marking : YA

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**SANYO Semiconductor Co., Ltd.**

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# 3LN01M

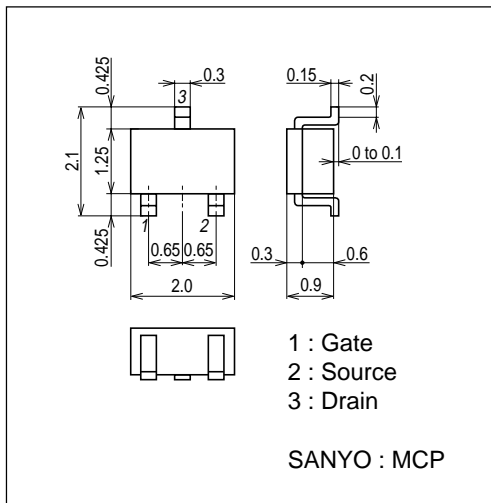
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| Parameter                     | Symbol       | Conditions                          | Ratings |      |     | Unit |
|-------------------------------|--------------|-------------------------------------|---------|------|-----|------|
|                               |              |                                     | min     | typ  | max |      |
| Turn-ON Delay Time            | $t_{d(on)}$  | See specified Test Circuit.         |         | 19   |     | ns   |
| Rise Time                     | $t_r$        | See specified Test Circuit.         |         | 65   |     | ns   |
| Turn-OFF Delay Time           | $t_{d(off)}$ | See specified Test Circuit.         |         | 155  |     | ns   |
| Fall Time                     | $t_f$        | See specified Test Circuit.         |         | 120  |     | ns   |
| Total Gate Charge             | $Q_g$        | $V_{DS}=10V, V_{GS}=10V, I_D=150mA$ |         | 1.58 |     | nC   |
| Gate-to-Source Charge         | $Q_{gs}$     | $V_{DS}=10V, V_{GS}=10V, I_D=150mA$ |         | 0.26 |     | nC   |
| Gate-to-Drain "Miller" Charge | $Q_{gd}$     | $V_{DS}=10V, V_{GS}=10V, I_D=150mA$ |         | 0.31 |     | nC   |
| Diode Forward Voltage         | $V_{SD}$     | $I_S=150mA, V_{GS}=0V$              |         | 0.87 | 1.2 | V    |

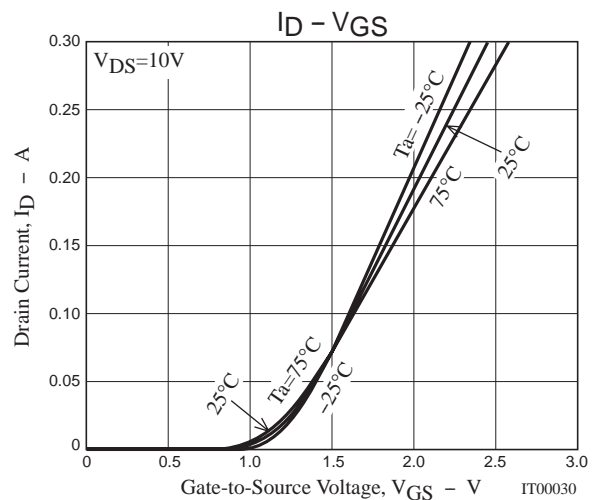
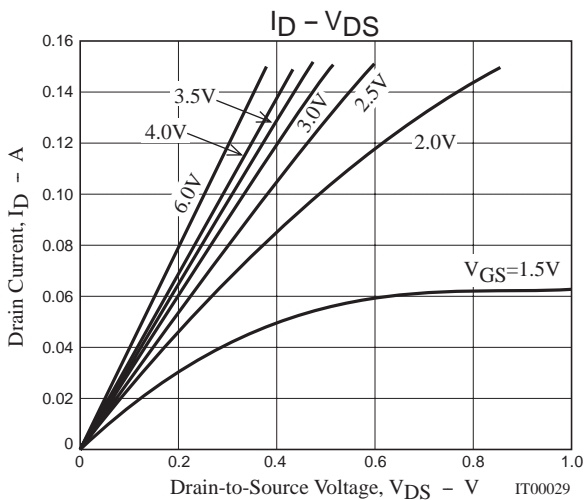
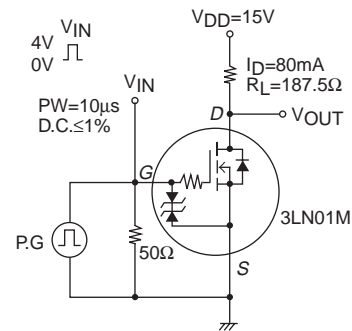
## Package Dimensions

unit : mm

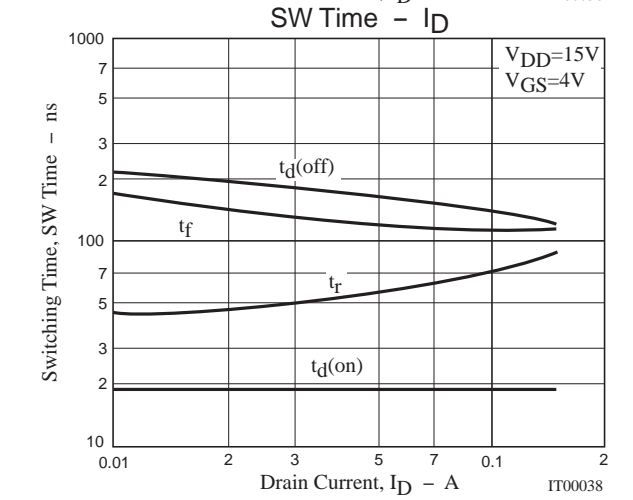
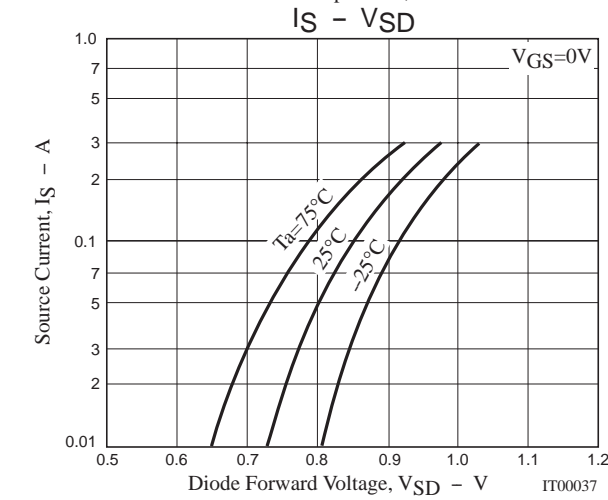
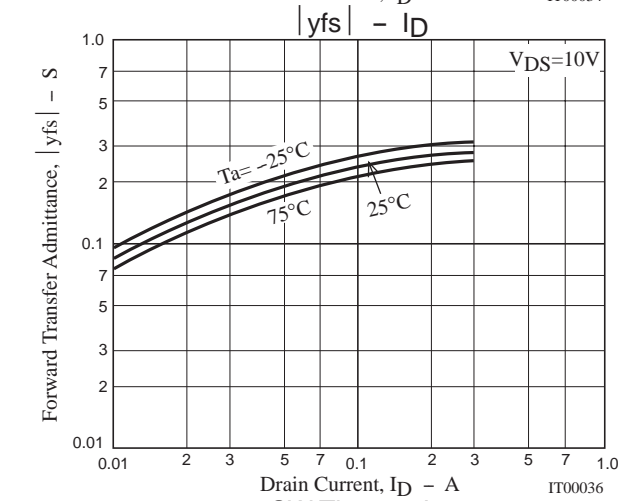
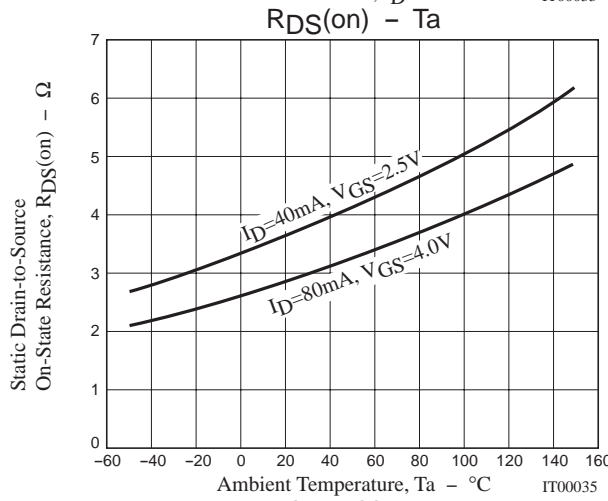
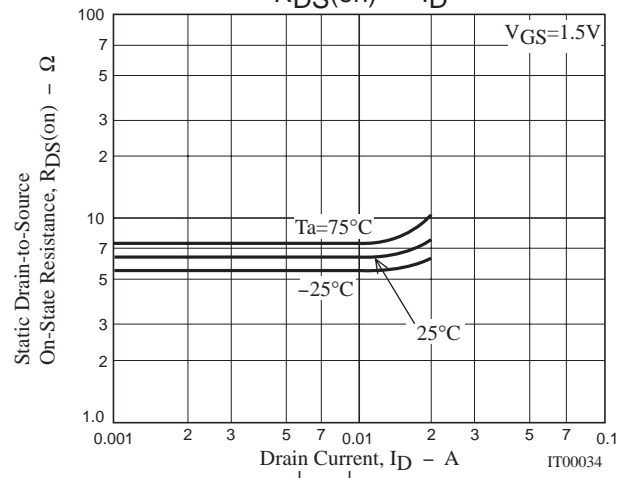
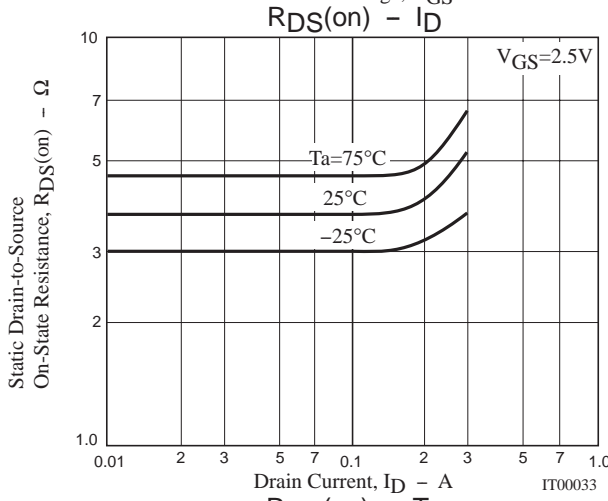
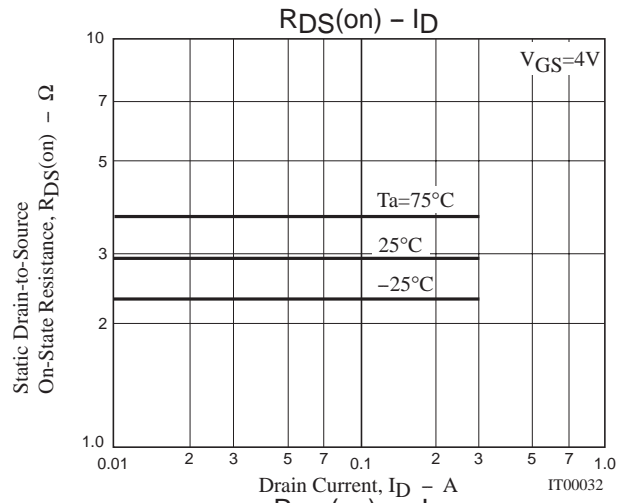
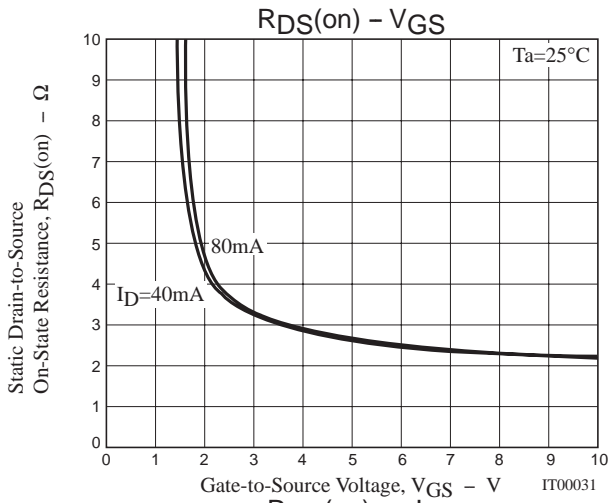
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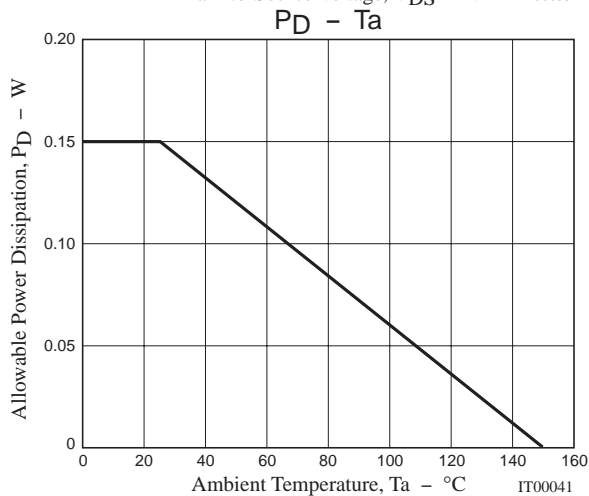
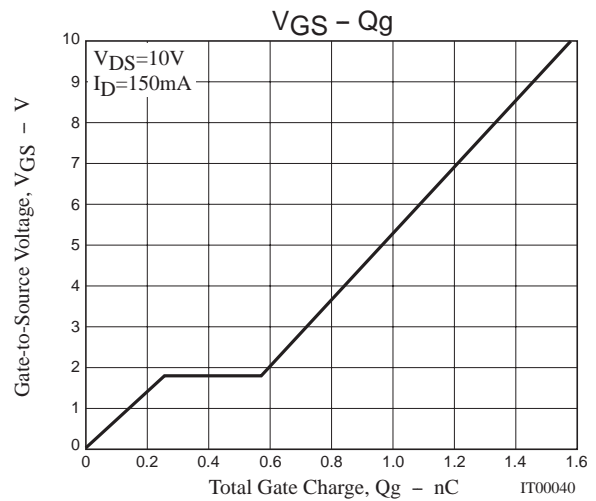
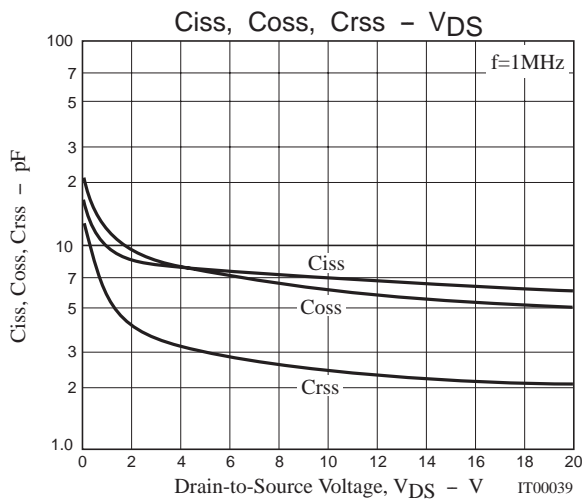
## Switching Time Test Circuit



# 3LN01M



## 3LN01M



Note on usage : Since the 3LN01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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