



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

3LP01S — General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | Unit |
|-----------------------------|-----------|---|---------|-------------|------------------|
| Drain-to-Source Voltage | V_{DSS} | | | -30 | V |
| Gate-to-Source Voltage | V_{GSS} | | | ± 10 | V |
| Drain Current (DC) | I_D | | | -0.1 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | | -0.4 | A |
| Allowable Power Dissipation | P_D | | | 0.15 | W |
| Channel Temperature | T_{ch} | | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | | -55 to +150 | $^\circ\text{C}$ |

Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------------------|--|---------|-----|----------|---------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=-1\text{mA}$, $V_{GS}=0\text{V}$ | -30 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-30\text{V}$, $V_{GS}=0\text{V}$ | | | -1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(\text{off})}$ | $V_{DS}=-10\text{V}$, $I_D=-100\mu\text{A}$ | -0.4 | | -1.4 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=-10\text{V}$, $I_D=-50\text{mA}$ | 80 | 110 | | mS |
| Static Drain-to-Source On-State Resistance | $R_{DS(\text{on})1}$ | $I_D=-50\text{mA}$, $V_{GS}=-4\text{V}$ | | 8 | 10.4 | Ω |
| | $R_{DS(\text{on})2}$ | $I_D=-30\text{mA}$, $V_{GS}=-2.5\text{V}$ | | 11 | 15.4 | Ω |
| | $R_{DS(\text{on})3}$ | $I_D=-1\text{mA}$, $V_{GS}=-1.5\text{V}$ | | 27 | 54 | Ω |
| Input Capacitance | C_{iss} | $V_{DS}=-10\text{V}$, $f=1\text{MHz}$ | | 7.5 | | pF |
| Output Capacitance | C_{oss} | $V_{DS}=-10\text{V}$, $f=1\text{MHz}$ | | 5.7 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=-10\text{V}$, $f=1\text{MHz}$ | | 1.8 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 24 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 55 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit. | | 120 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 130 | | ns |

Marking : XA

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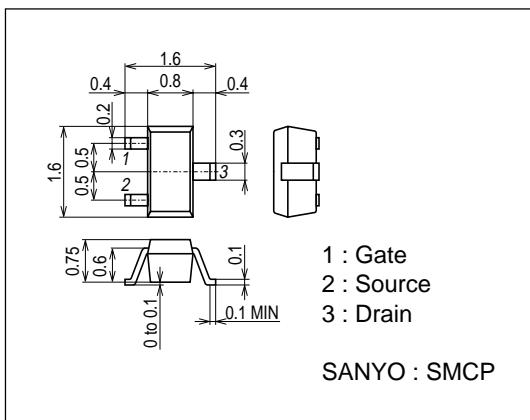
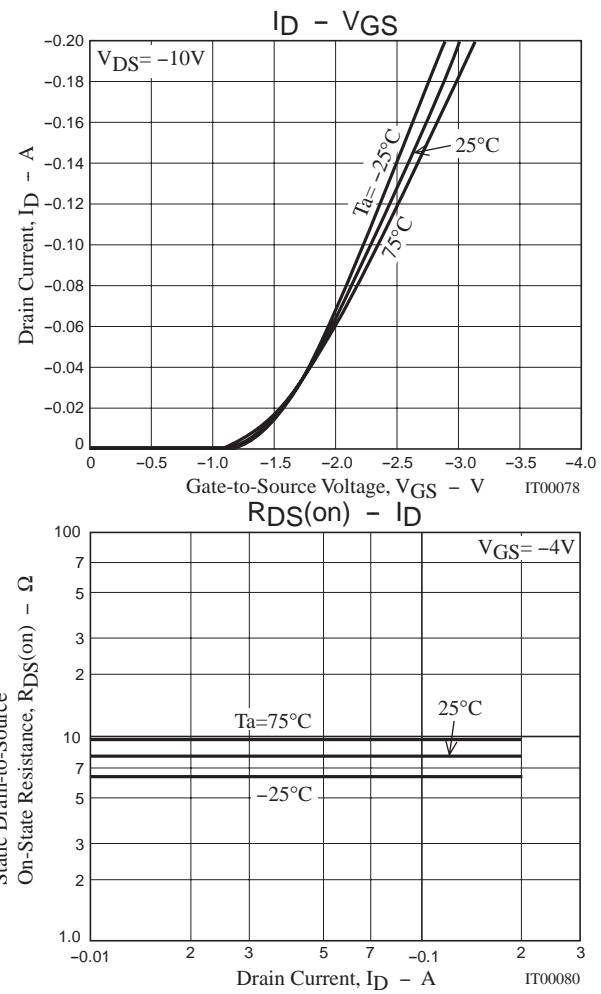
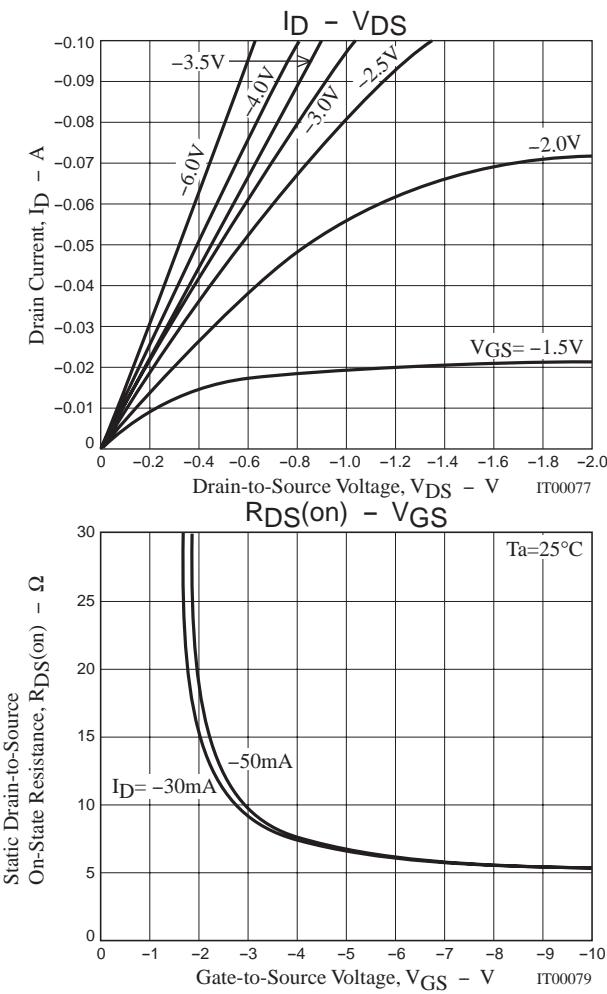
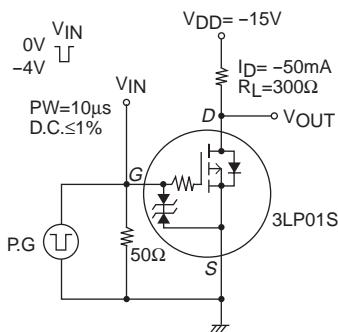
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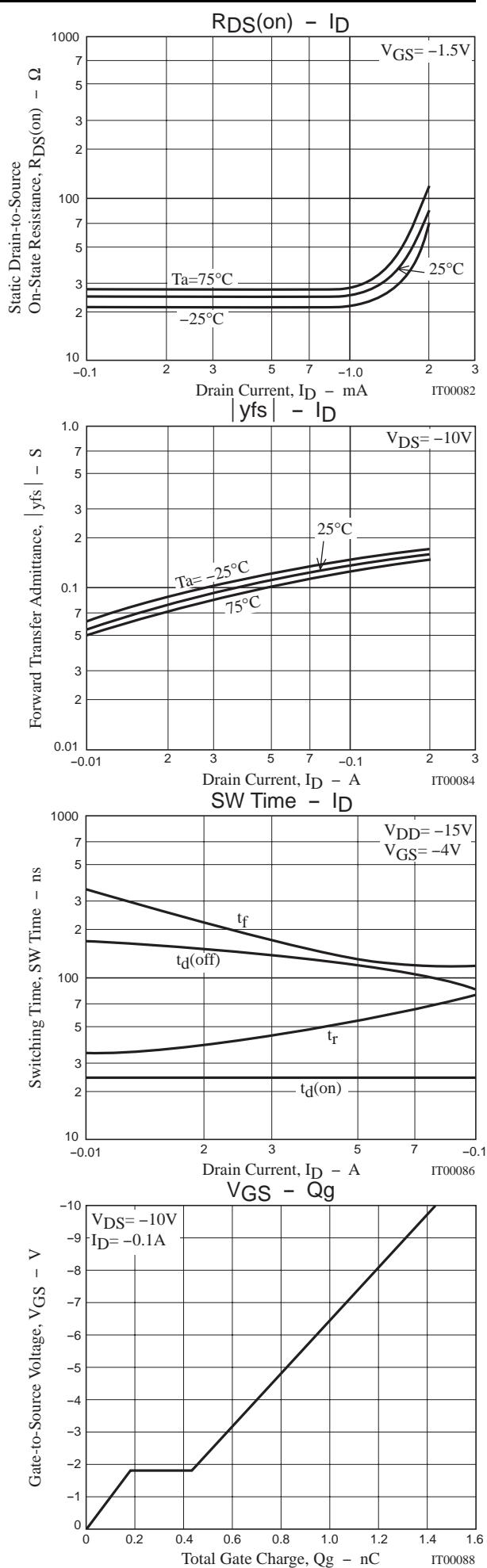
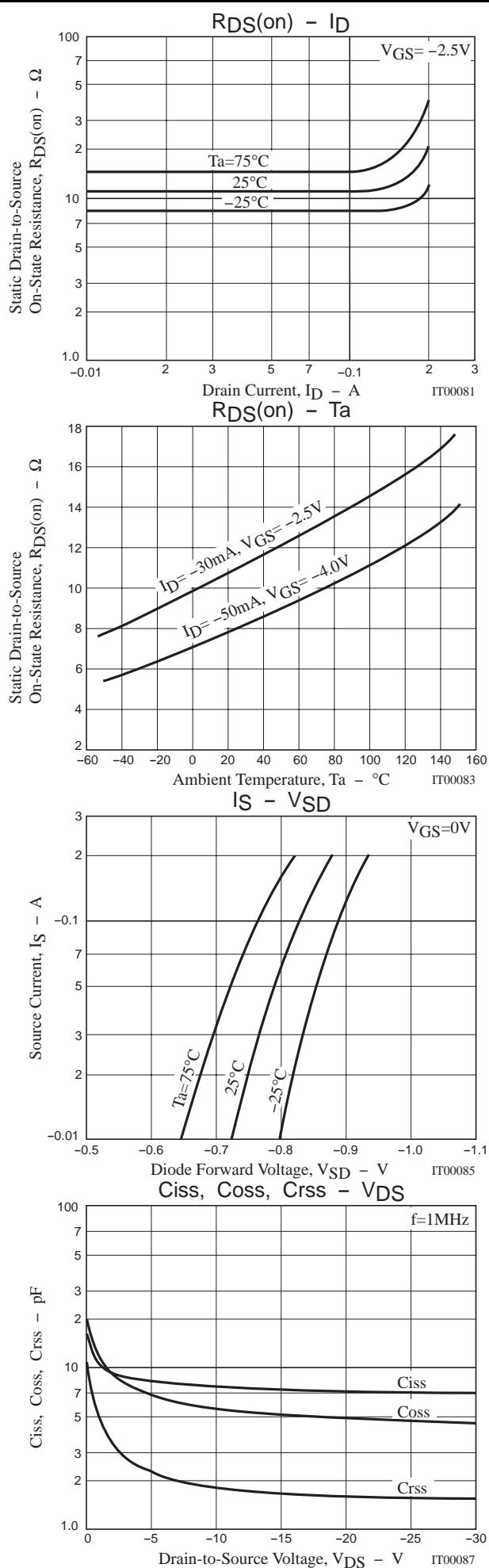
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|--------|--|---------|-------|------|------|
| | | | min | typ | max | |
| Total Gate Charge | Qg | $V_{DS}=-10V, V_{GS}=-10V, I_D=-100mA$ | | 1.43 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}=-10V, V_{GS}=-10V, I_D=-100mA$ | | 0.18 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | $V_{DS}=-10V, V_{GS}=-10V, I_D=-100mA$ | | 0.25 | | nC |
| Diode Forward Voltage | VSD | $I_S=-100mA, V_{GS}=0V$ | | -0.83 | -1.2 | V |

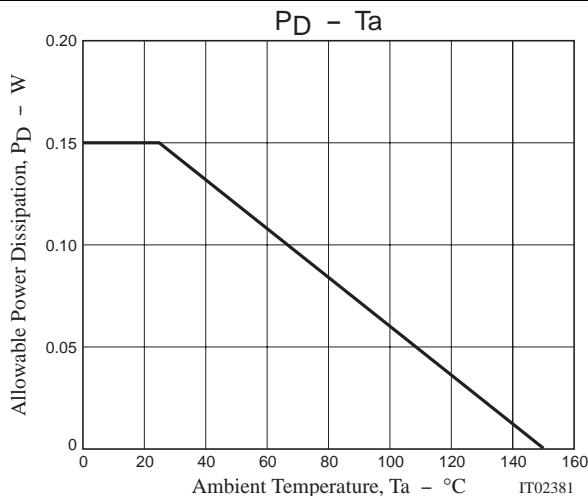
Package Dimensions

unit : mm

7027-004

**Switching Time Test Circuit**





Note on usage : Since the 3LP01S is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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