

**3LP02M**

Ultrahigh-Speed Switching Applications

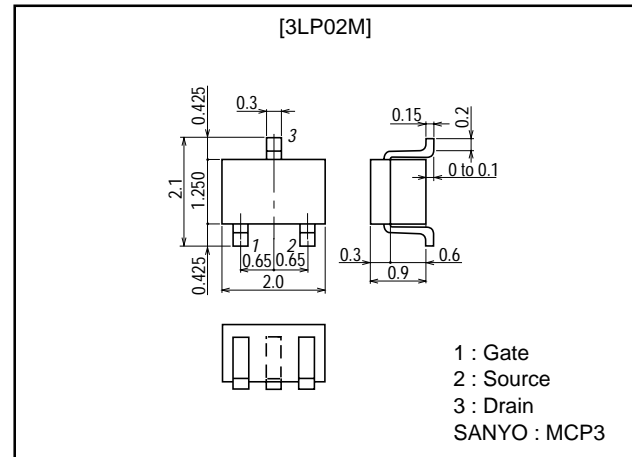
Features

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

Package Dimensions

unit:mm

2158



Specifications

Absolute Maximum Ratings at Ta = 25°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 | | -0.2 | A |
| Drain Current (pulse) | I_{DP} | $PW \leq 10 \mu s$, duty cycle $\leq 1\%$ | -0.8 | A |
| Allowable Power Dissipation | P_D | | 0.15 | W |
| Channel Temperature | T_{ch} | | 150 | °C |
| Storage Temperature | T_{stg} | | -55 to +150 | °C |

Electrical Characteristics at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------------------------|---------------|--------------------------------------|---------|-----|------|----------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = -1mA$, $V_{GS} = 0$ | -30 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -30V$, $V_{GS} = 0$ | | | -10 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 8V$, $V_{DS} = 0$ | | | ±10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = -10V$, $I_D = -100 \mu A$ | -0.4 | | -1.4 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = -10V$, $I_D = -100mA$ | 0.21 | 0.3 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -100mA$, $V_{GS} = -4V$ | | 2.4 | 3.1 | Ω |
| | $R_{DS(on)2}$ | $I_D = -50mA$, $V_{GS} = -2.5V$ | | 3.5 | 4.9 | Ω |
| | $R_{DS(on)3}$ | $I_D = -10mA$, $V_{GS} = -1.5V$ | | 10 | 20 | Ω |

Marking : XD

Continued on next page.

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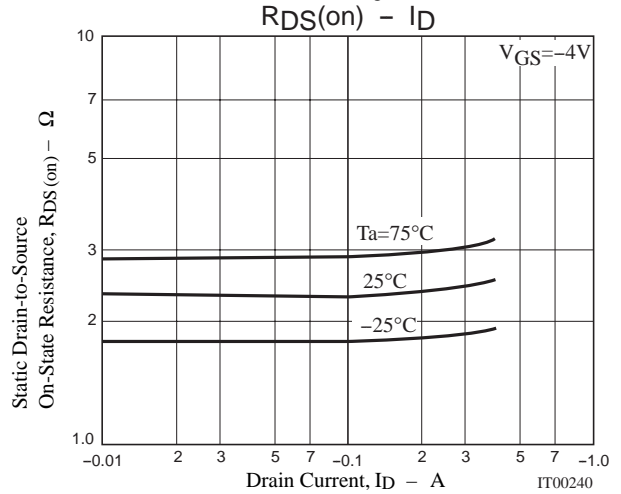
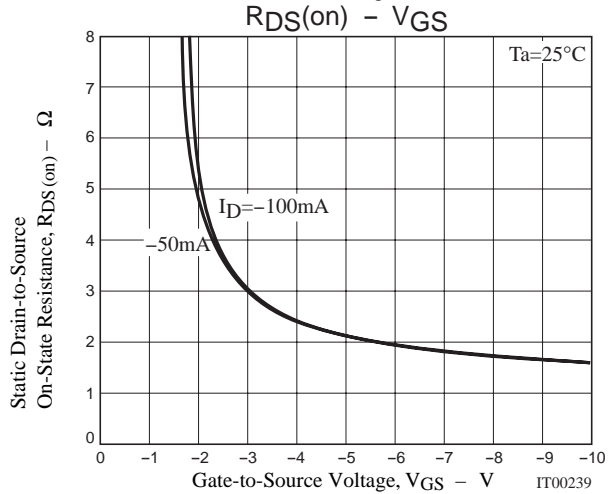
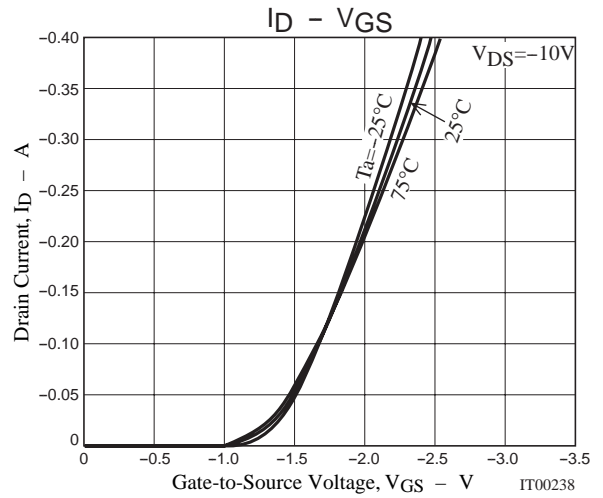
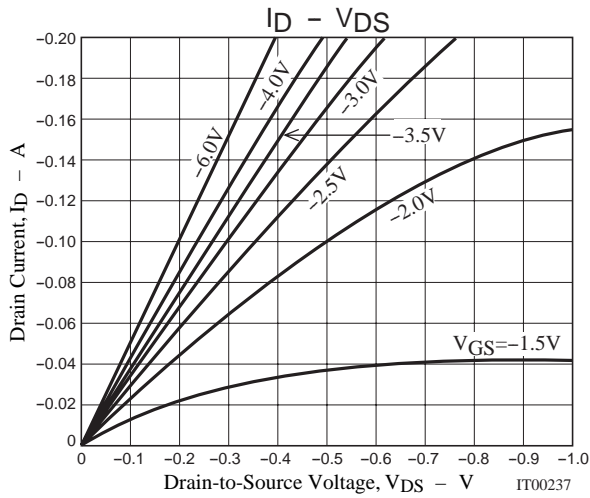
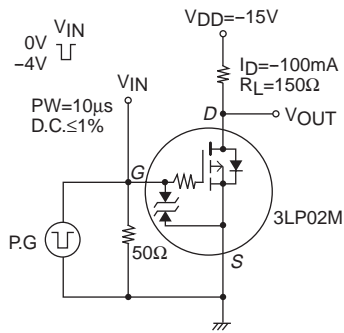
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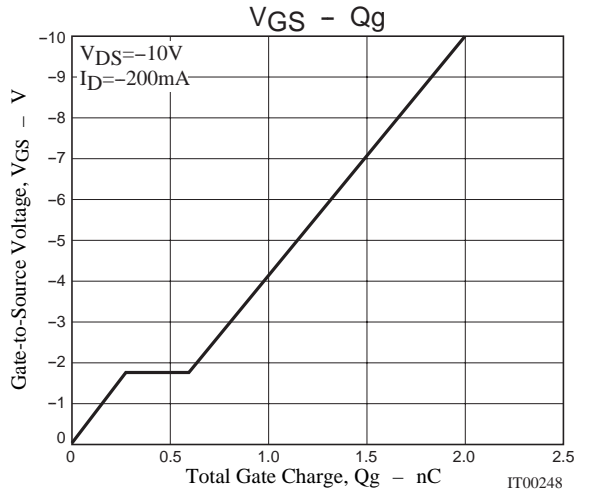
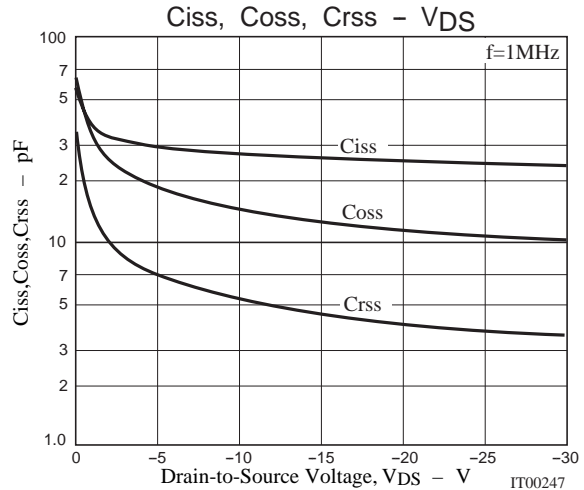
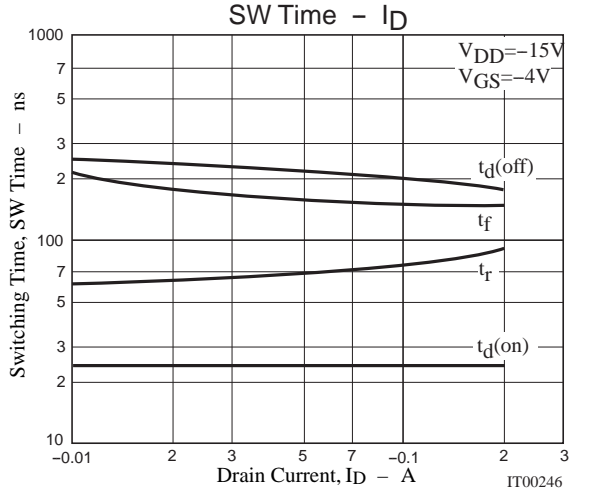
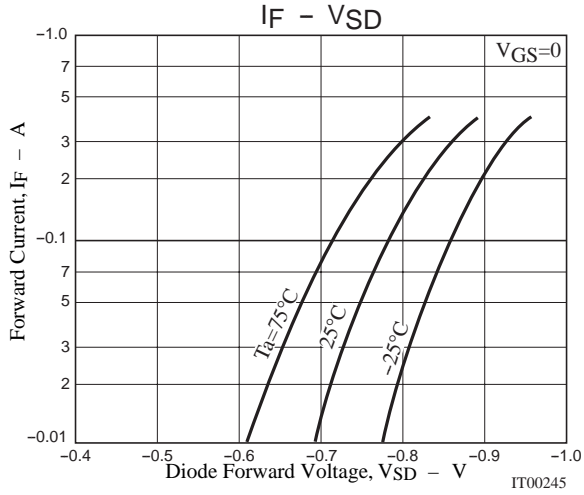
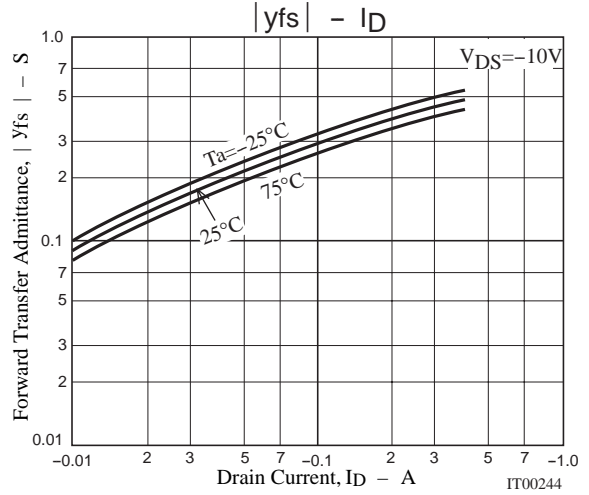
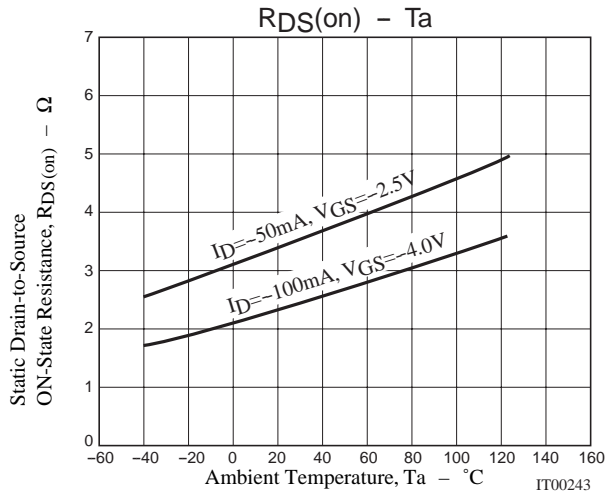
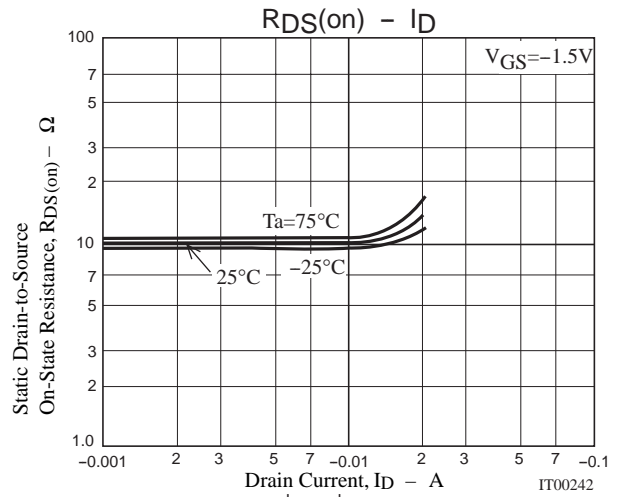
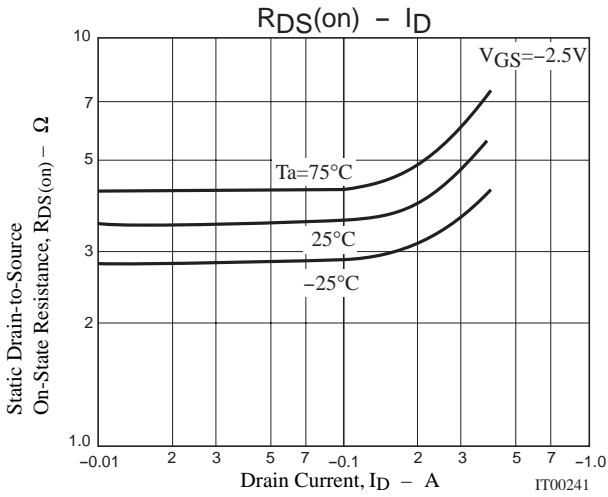
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|--------------|----------------------------------------|---------|-------|------|------|
| | | | min | typ | max | |
| Input Capacitance | Ciss | $V_{DS}=-10V, f=1MHz$ | | 28 | | pF |
| Output Capacitance | Coss | $V_{DS}=-10V, f=1MHz$ | | 15 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}=-10V, f=1MHz$ | | 5.2 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit | | 24 | | ns |
| Rise Time | t_r | See specified Test Circuit | | 75 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit | | 200 | | ns |
| Fall Time | t_f | See specified Test Circuit | | 150 | | ns |
| Total Gate Charge | Qg | $V_{DS}=-10V, V_{GS}=-10V, I_D=-200mA$ | | 2 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}=-10V, V_{GS}=-10V, I_D=-200mA$ | | 0.25 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | $V_{DS}=-10V, V_{GS}=-10V, I_D=-200mA$ | | 0.35 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=-200mA, V_{GS}=0$ | | -0.82 | -1.2 | V |

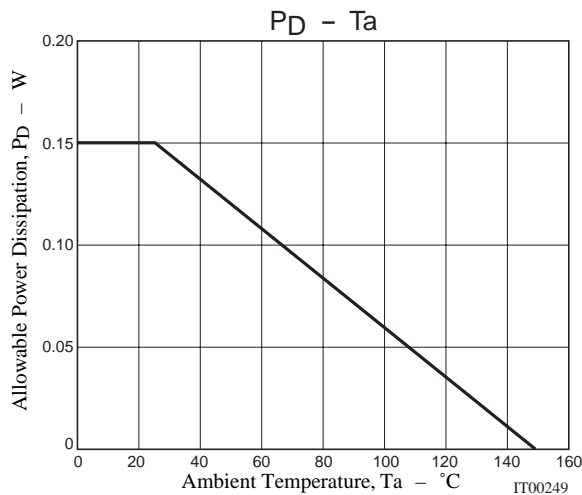
Switching Time Test Circuit



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