

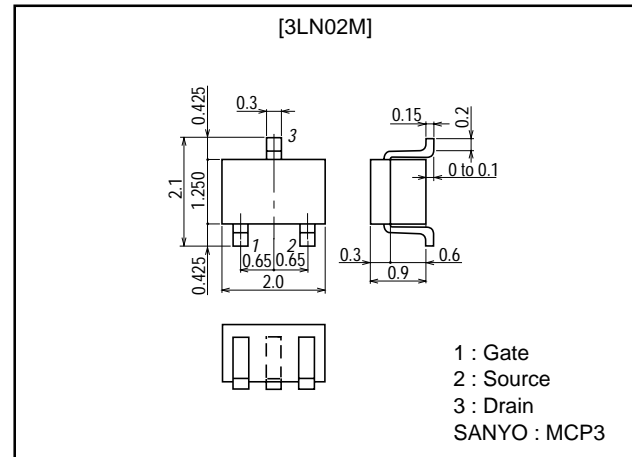
**3LN02M****Ultrahigh-Speed Switching Applications****Features**

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

Package Dimensions

unit:mm

2158

**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 | | 0.3 | A |
| Drain Current (pulse) | I_{DP} | $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | 1.2 | 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 | $V_{(BR)DSS}$ | $I_D = 1\text{mA}$, $V_{GS} = 0$ | 30 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 30\text{V}$, $V_{GS} = 0$ | | | 10 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 8\text{V}$, $V_{DS} = 0$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = 10\text{V}$, $I_D = 100\mu\text{A}$ | 0.4 | | 1.3 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = 10\text{V}$, $I_D = 150\text{mA}$ | 0.4 | 0.56 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = 150\text{mA}$, $V_{GS} = 4\text{V}$ | | 0.9 | 1.2 | Ω |
| | $R_{DS(on)2}$ | $I_D = 80\text{mA}$, $V_{GS} = 2.5\text{V}$ | | 1.2 | 1.7 | Ω |
| | $R_{DS(on)3}$ | $I_D = 10\text{mA}$, $V_{GS} = 1.5\text{V}$ | | 2.6 | 5.2 | Ω |

Marking : YD

Continued on next page.

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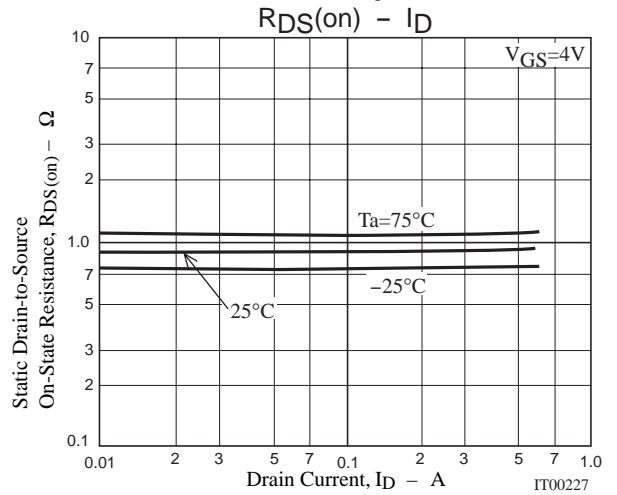
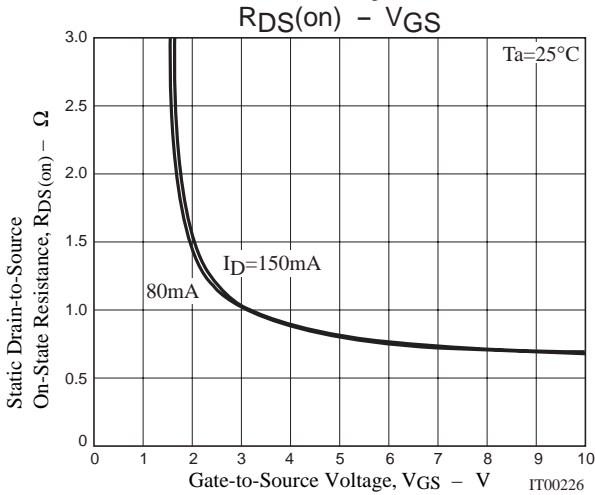
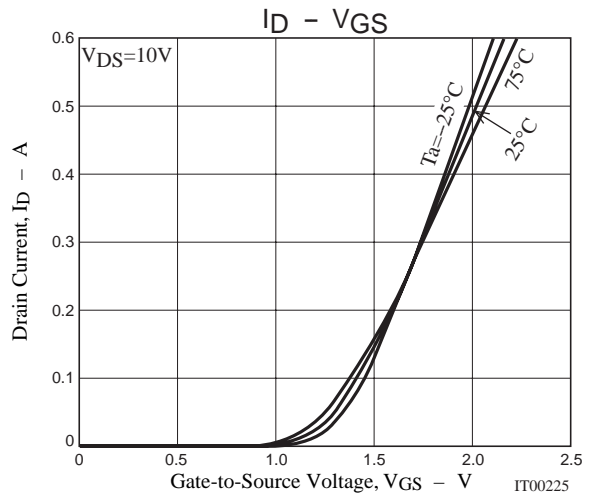
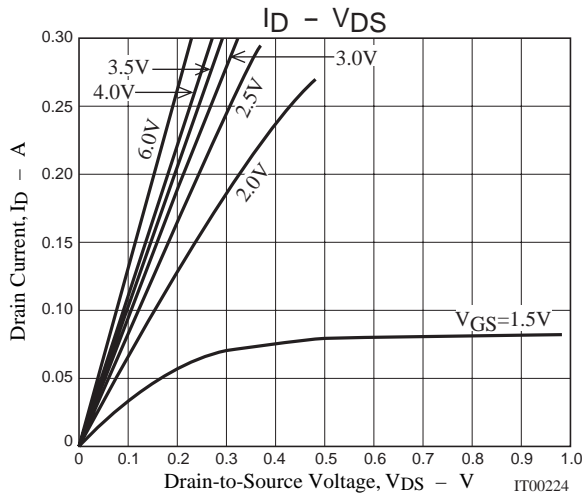
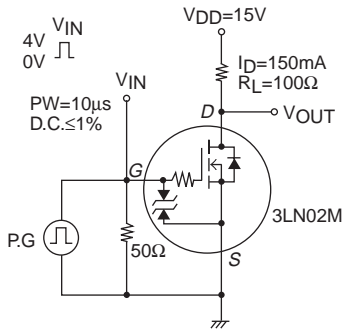
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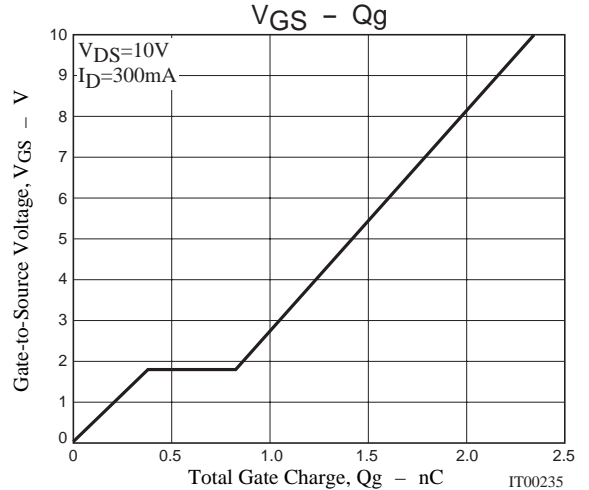
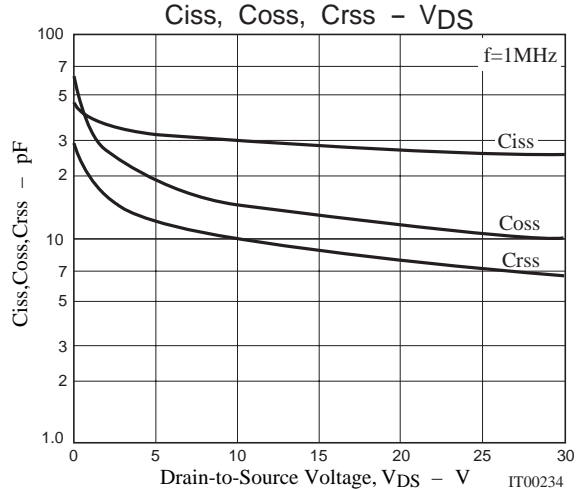
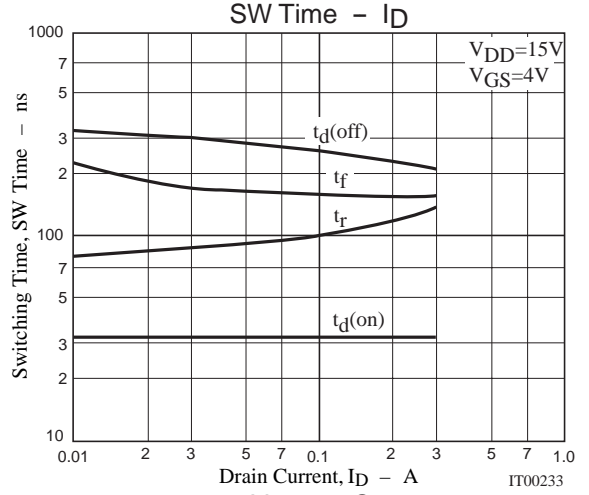
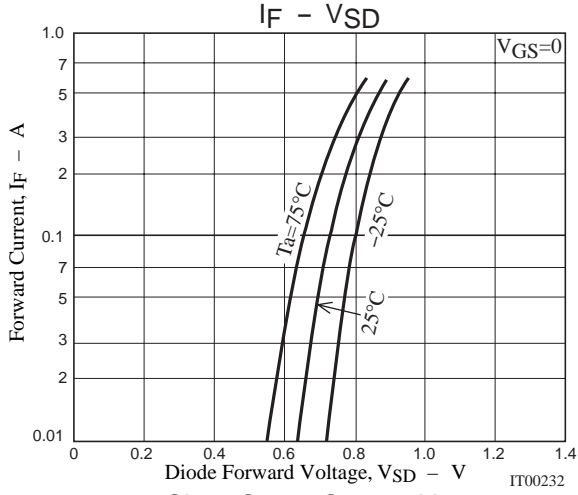
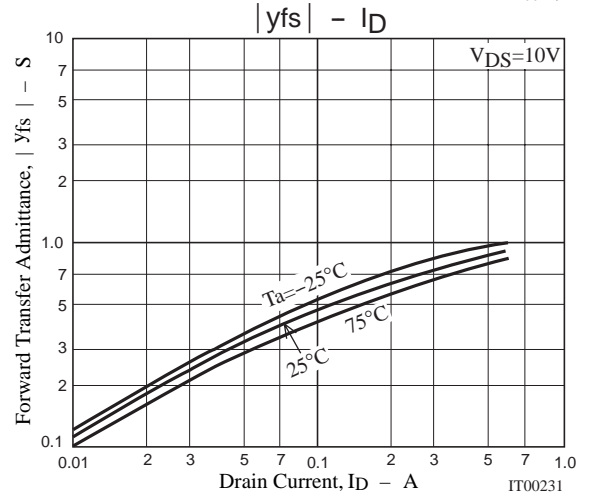
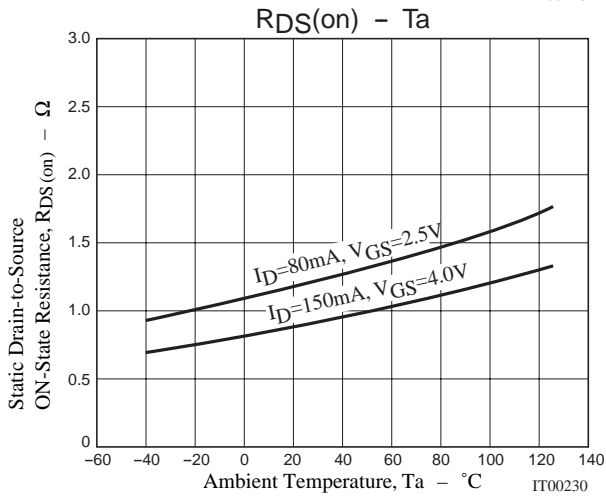
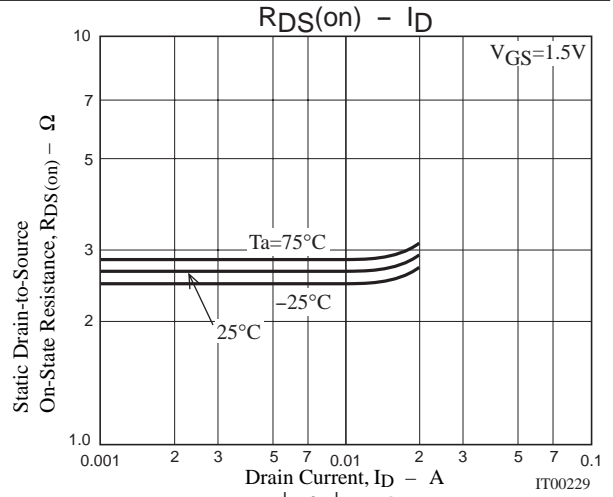
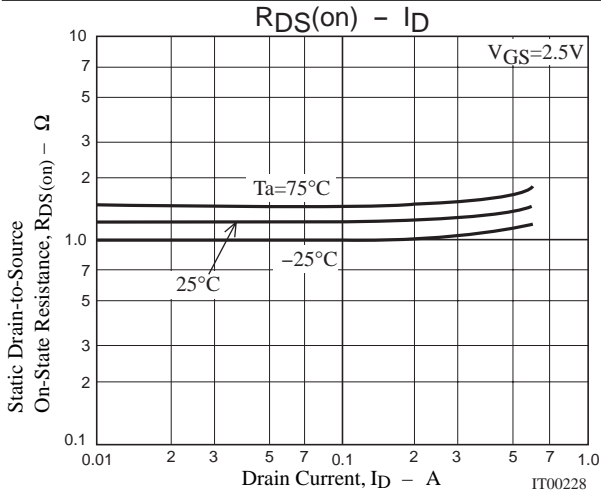
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|--------------|-------------------------------------|---------|------|-----|------|
| | | | min | typ | max | |
| Input Capacitance | C_{iss} | $V_{DS}=10V, f=1MHz$ | | 30 | | pF |
| Output Capacitance | C_{oss} | $V_{DS}=10V, f=1MHz$ | | 15 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=10V, f=1MHz$ | | 10 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit | | 32 | | ns |
| Rise Time | t_r | See specified Test Circuit | | 110 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit | | 250 | | ns |
| Fall Time | t_f | See specified Test Circuit | | 160 | | ns |
| Total Gate Charge | Q_g | $V_{DS}=10V, V_{GS}=10V, I_D=300mA$ | | 2.34 | | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS}=10V, V_{GS}=10V, I_D=300mA$ | | 0.38 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | $V_{DS}=10V, V_{GS}=10V, I_D=300mA$ | | 0.45 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=300mA, V_{GS}=0$ | | 0.8 | 1.2 | V |

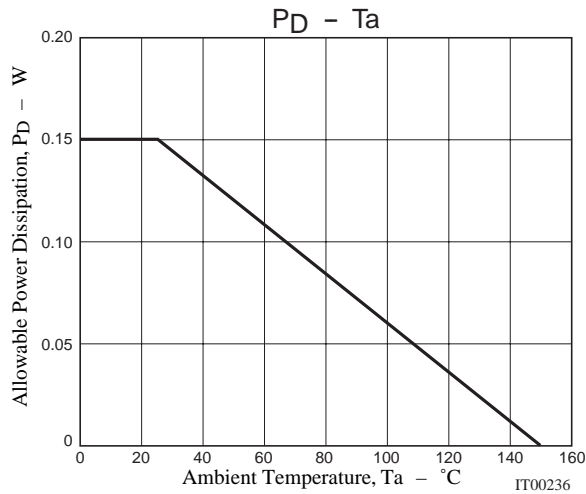
Switching Time Test Circuit



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