

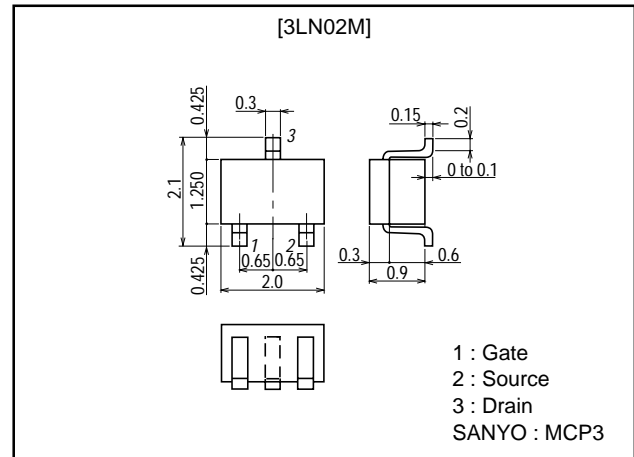
**3LN02M****Ultrahigh-Speed Switching Applications****Features**

- 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	$V_{GSS}$		$\pm 10$	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	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}$ , $V_{DS} = 0$			$\pm 10$	$\mu\text{A}$
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	$\Omega$
	$R_{DS(on)2}$	$I_D = 80\text{mA}$ , $V_{GS} = 2.5\text{V}$		1.2	1.7	$\Omega$
	$R_{DS(on)3}$	$I_D = 10\text{mA}$ , $V_{GS} = 1.5\text{V}$		2.6	5.2	$\Omega$

Marking : YD

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**SANYO Electric Co., Ltd. Semiconductor Company**

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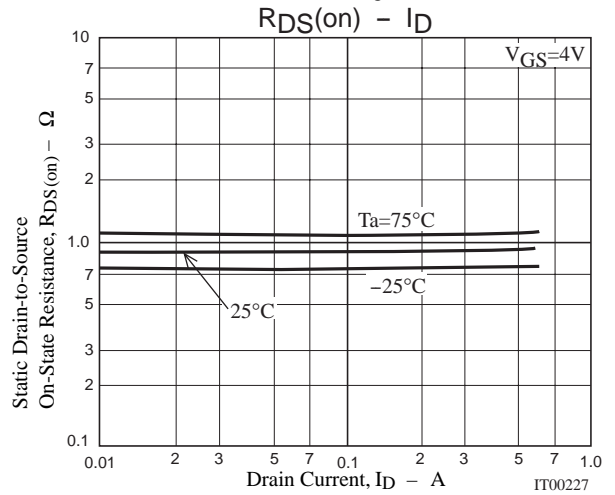
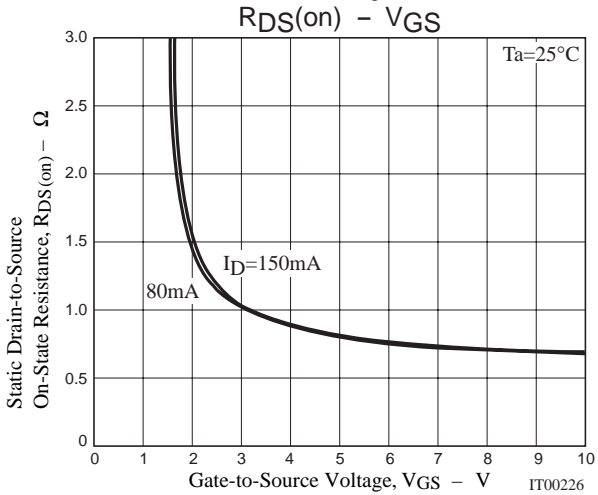
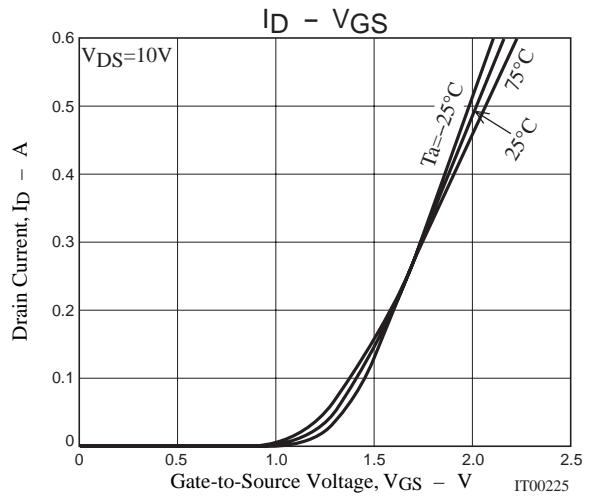
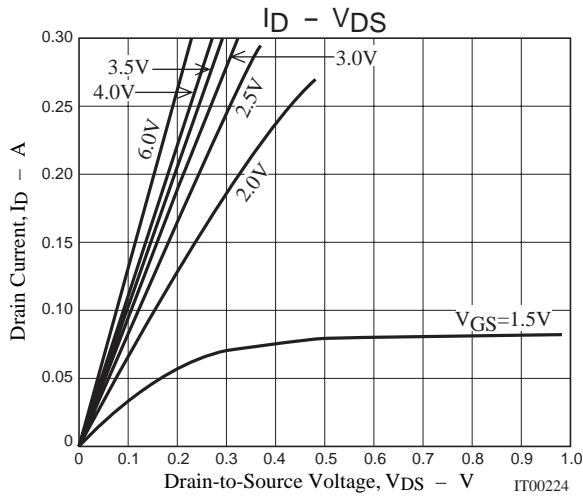
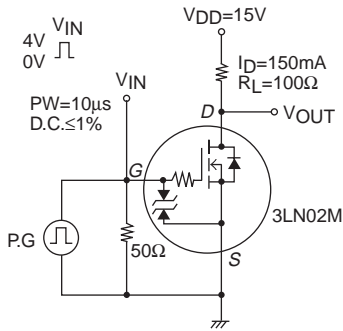
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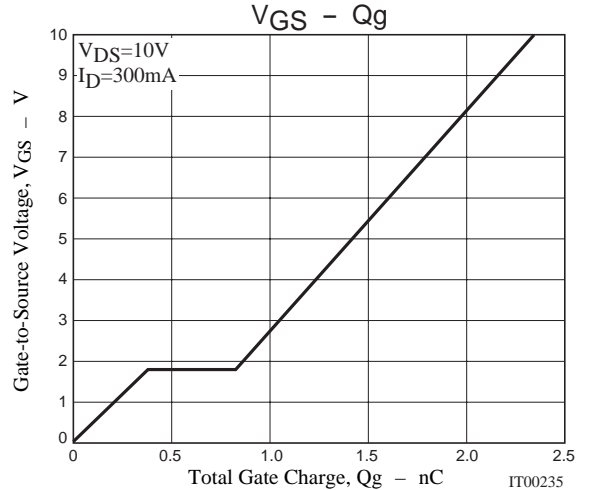
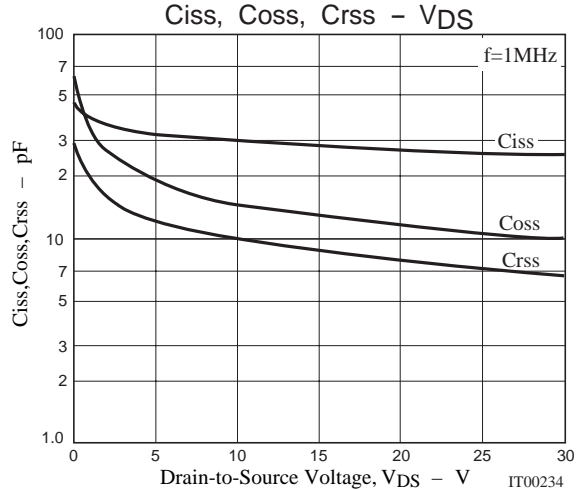
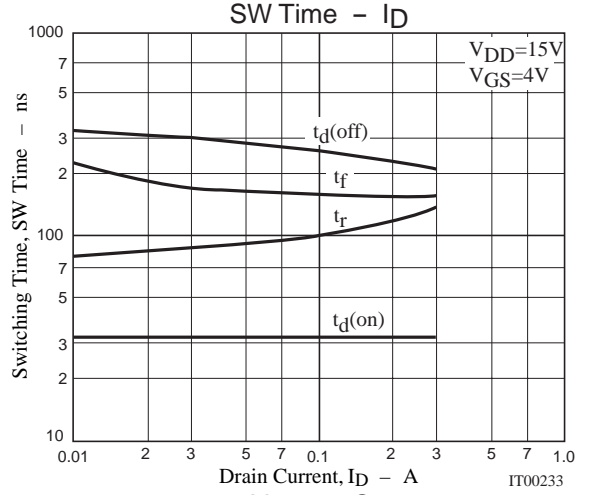
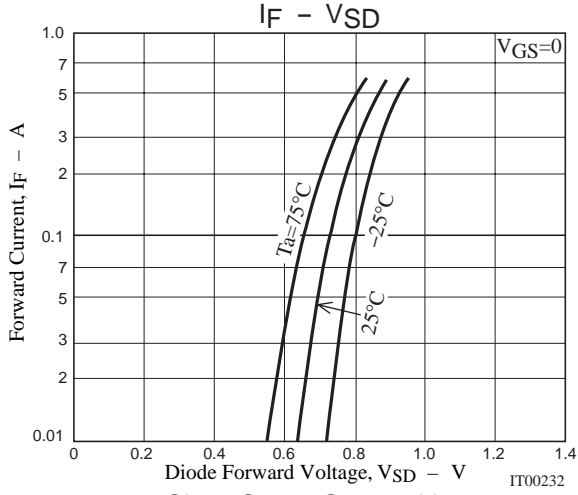
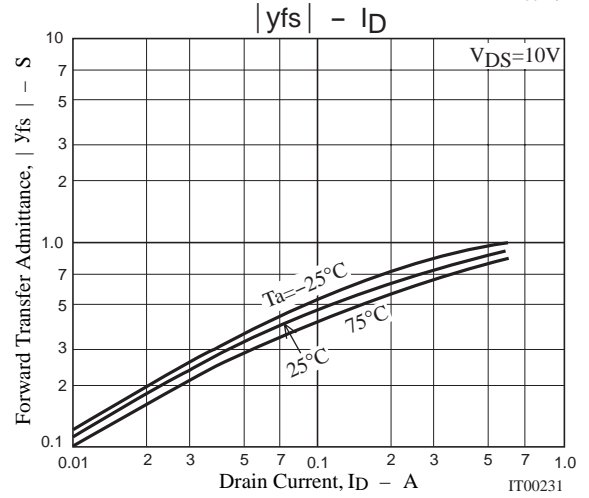
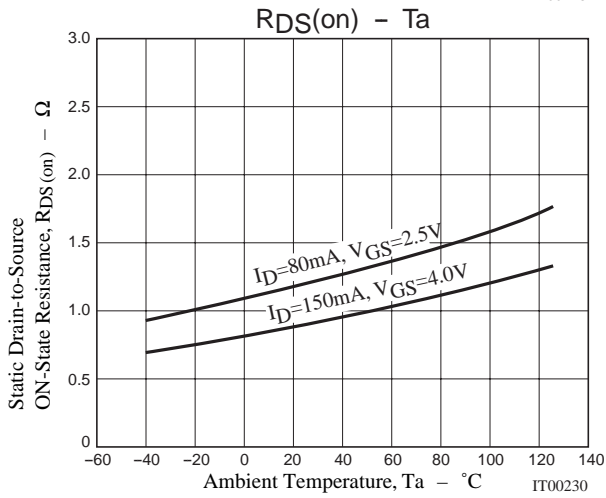
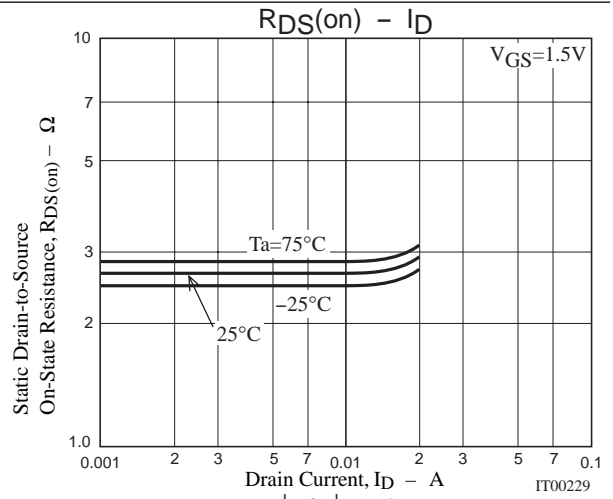
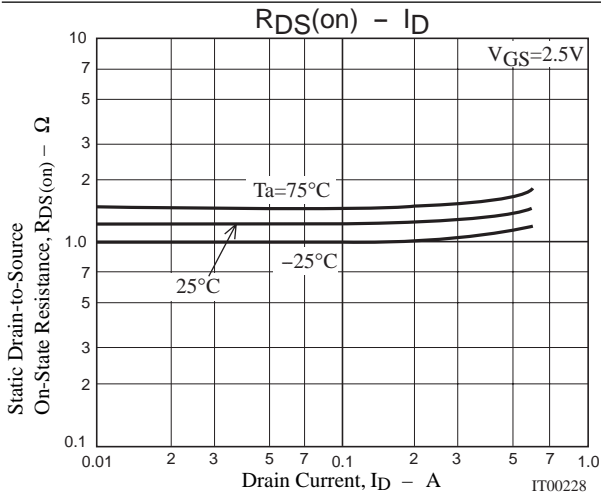
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		30		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		15		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		10		pF
Turn-ON 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

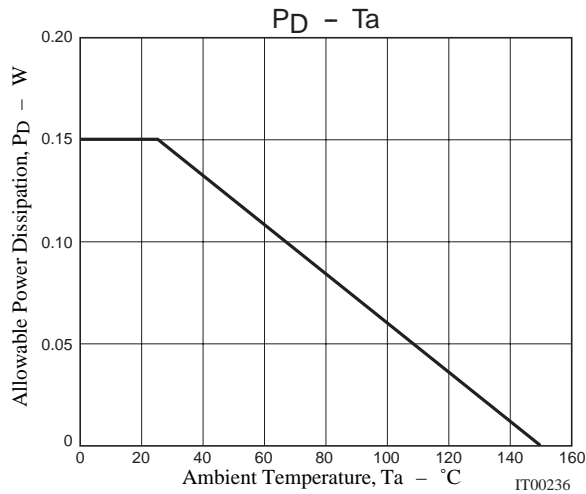
## Switching Time Test Circuit



# 3LN02M



## 3LN02M



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