



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# 5LN01M — N-Channel Silicon MOSFET

## 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	$V_{DS}$		50	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 10$	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0\text{V}$	50			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=50\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
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} $	$V_{DS}=10\text{V}$ , $I_D=50\text{mA}$	0.13	0.18		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50\text{mA}$ , $V_{GS}=4\text{V}$		6	7.8	$\Omega$
	$R_{DS(on)2}$	$I_D=30\text{mA}$ , $V_{GS}=2.5\text{V}$		7.1	9.9	$\Omega$
	$R_{DS(on)3}$	$I_D=10\text{mA}$ , $V_{GS}=1.5\text{V}$		10	20	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		6.6		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		4.7		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		1.7		pF

Marking : YB

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# 5LN01M

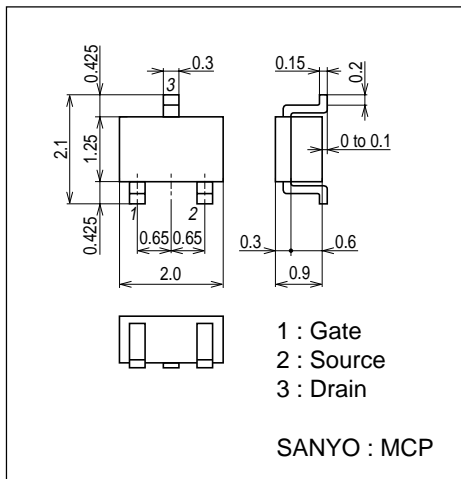
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		18		ns
Rise Time	$t_r$	See specified Test Circuit.		42		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		190		ns
Fall Time	$t_f$	See specified Test Circuit.		105		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		1.57		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		0.20		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		0.32		nC
Diode Forward Voltage	$V_{SD}$	$I_S=100mA, V_{GS}=0V$		0.85	1.2	V

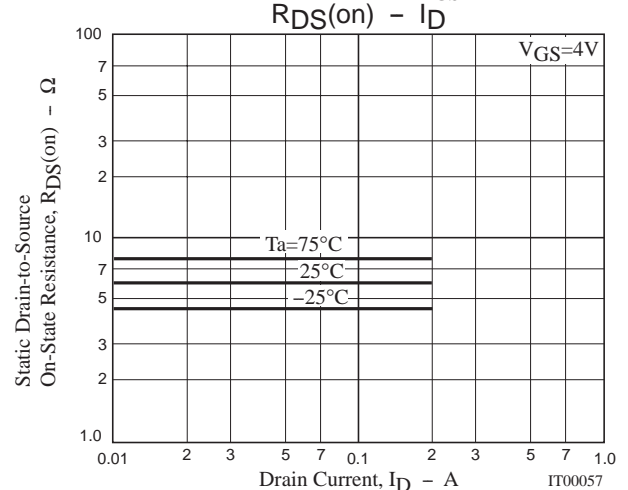
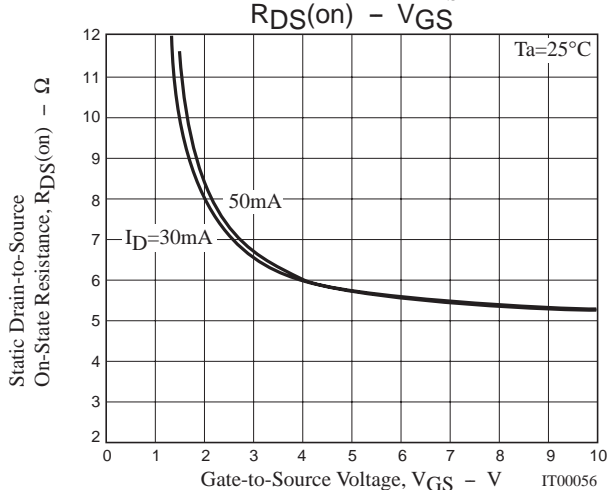
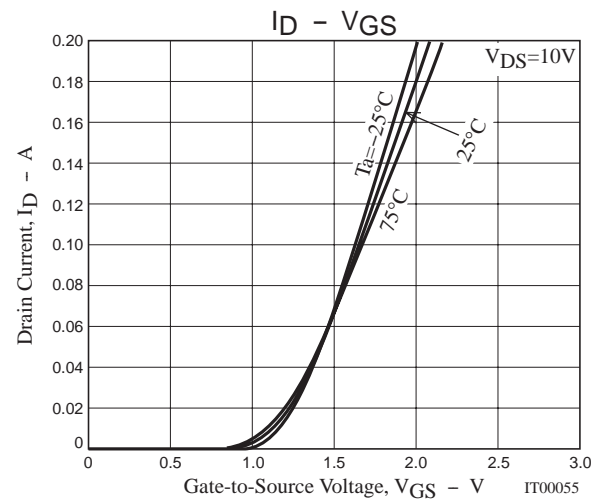
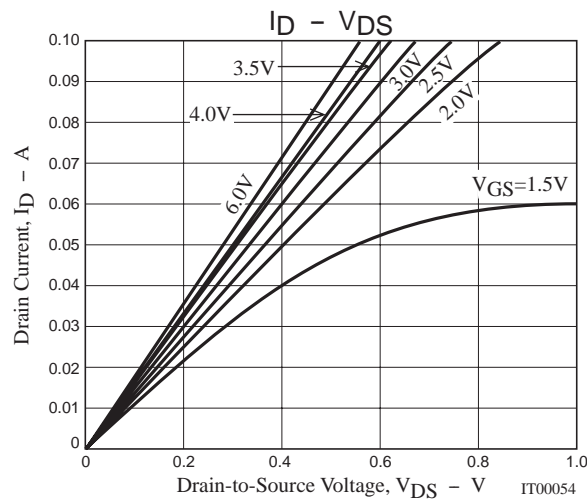
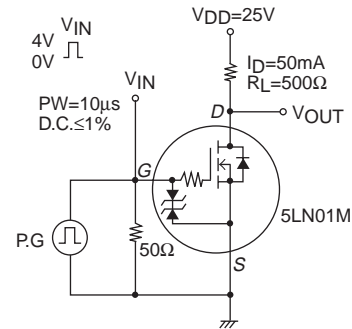
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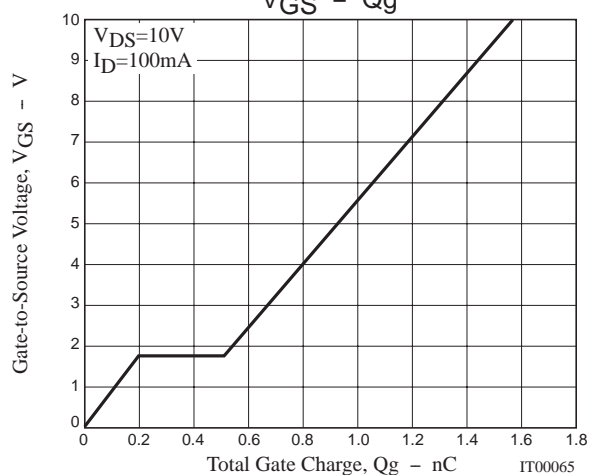
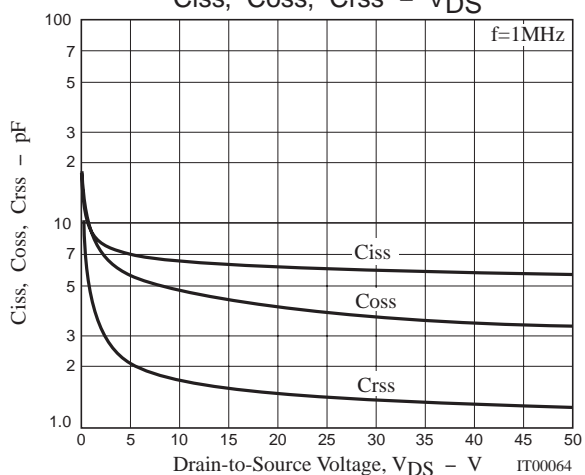
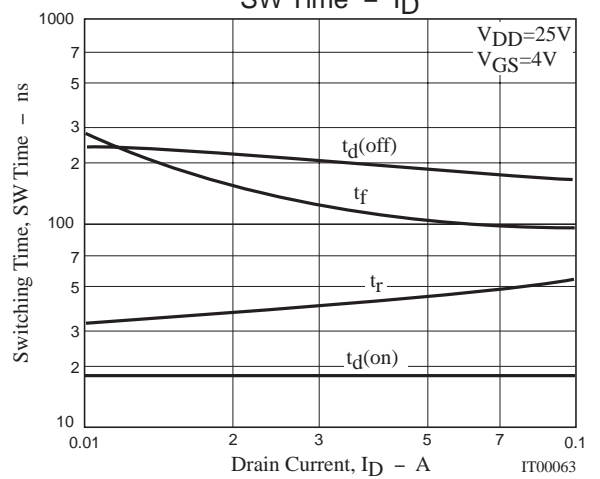
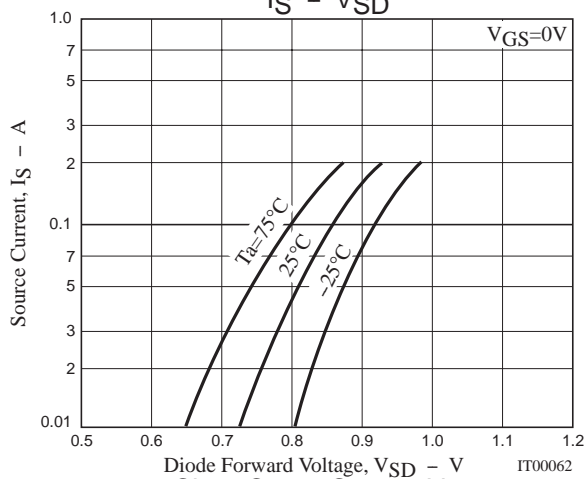
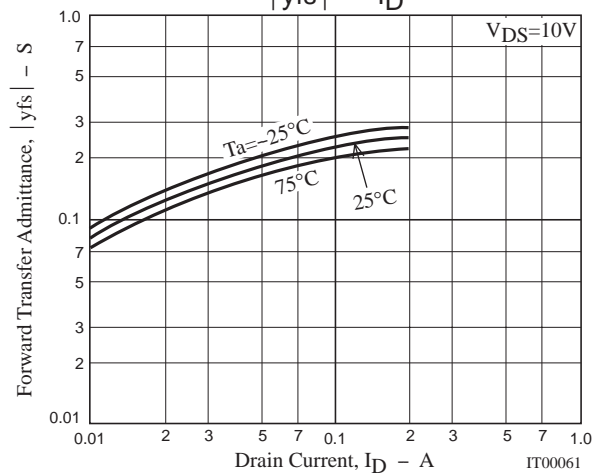
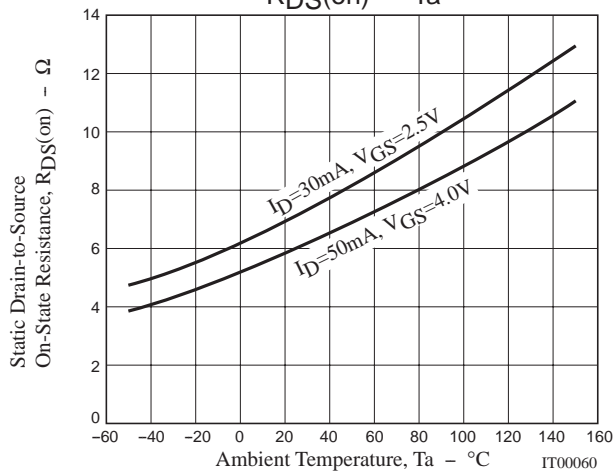
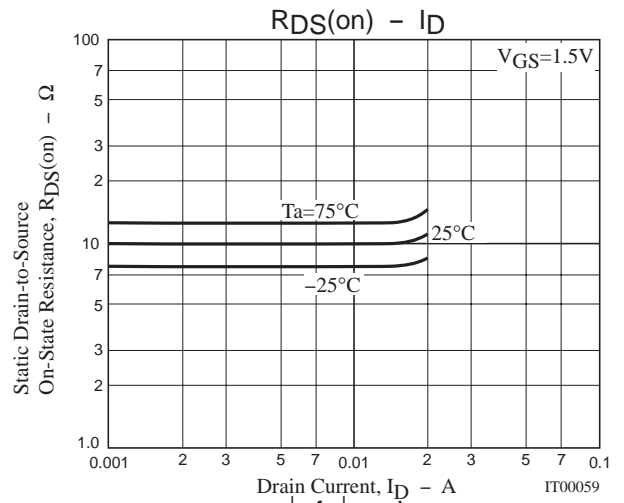
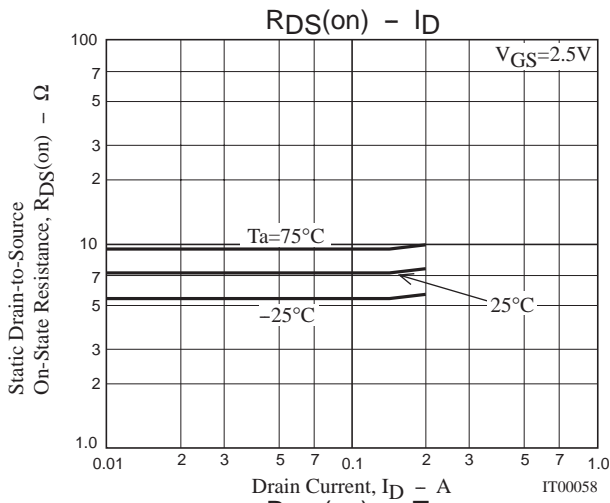
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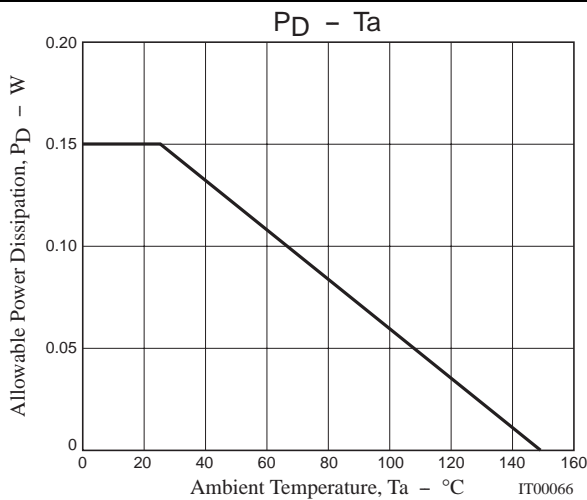
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## Switching Time Test Circuit







Note on usage : Since the 5LN01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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