

**5LN02N**

Ultrahigh-Speed Switching Applications

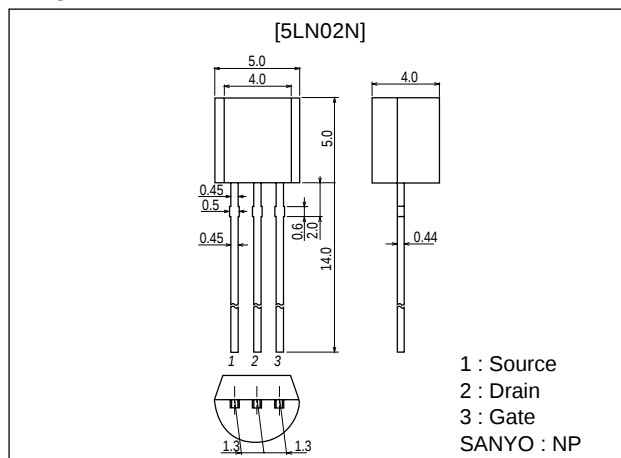
Features

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

Package Dimensions

unit:mm

2178



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		50	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		0.4	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	$V_{(BR)DSS}$	$I_D=1mA$, $V_{GS}=0$	50			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50V$, $V_{GS}=0$			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		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V$, $I_D=100mA$	0.34	0.49		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=100mA$, $V_{GS}=4V$		1.9	2.4	Ω
	$R_{DS(on)2}$	$I_D=50mA$, $V_{GS}=2.5V$		2.2	3	Ω
	$R_{DS(on)3}$	$I_D=10mA$, $V_{GS}=1.5V$		3.2	6.4	Ω

Marking : YE

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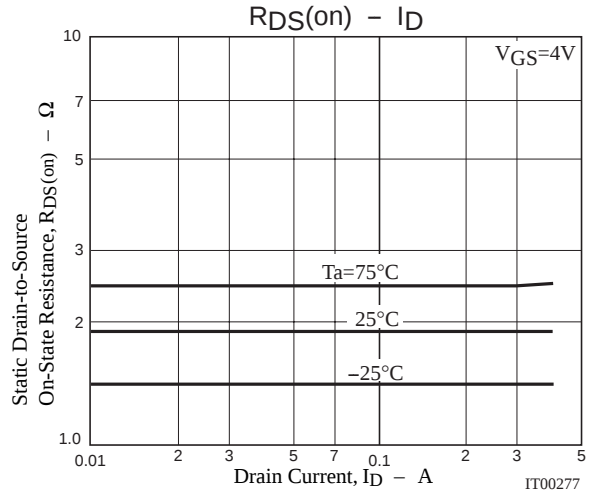
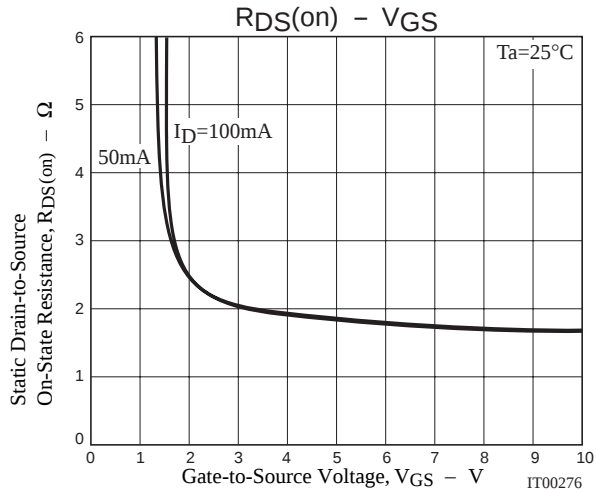
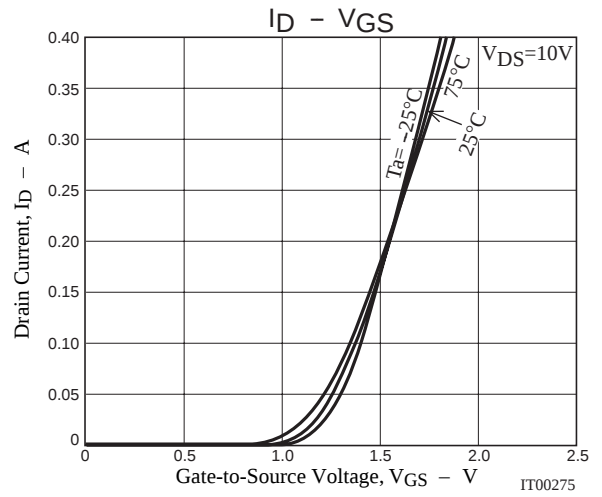
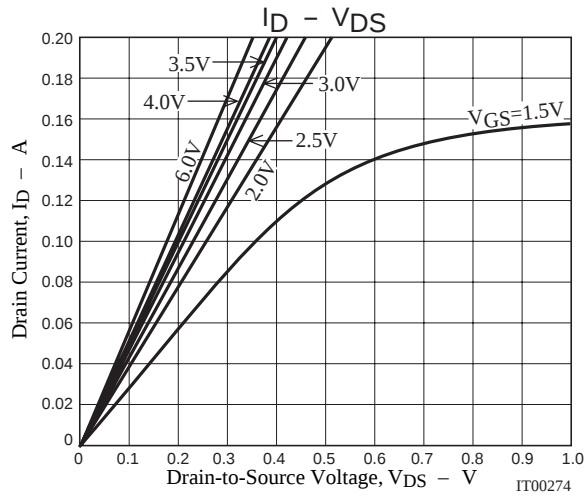
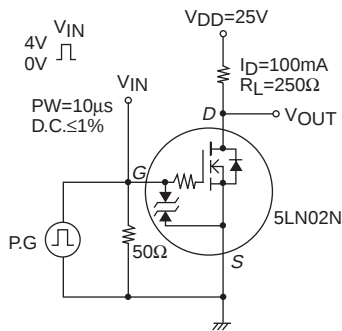
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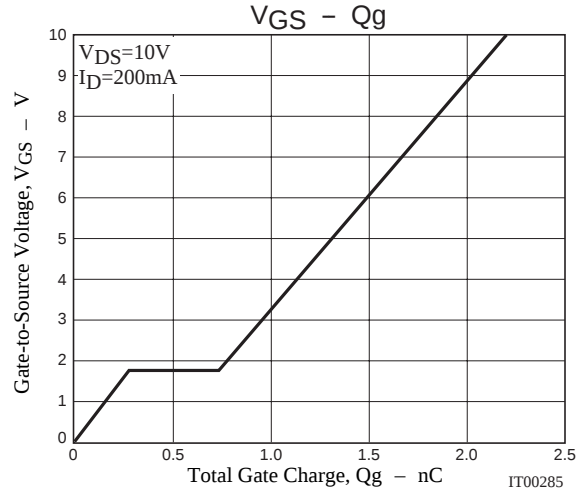
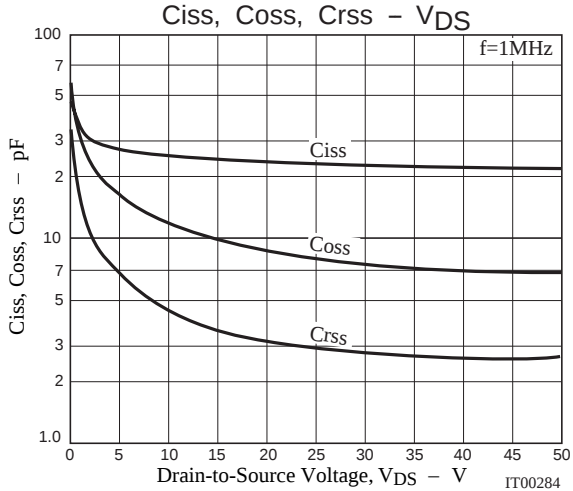
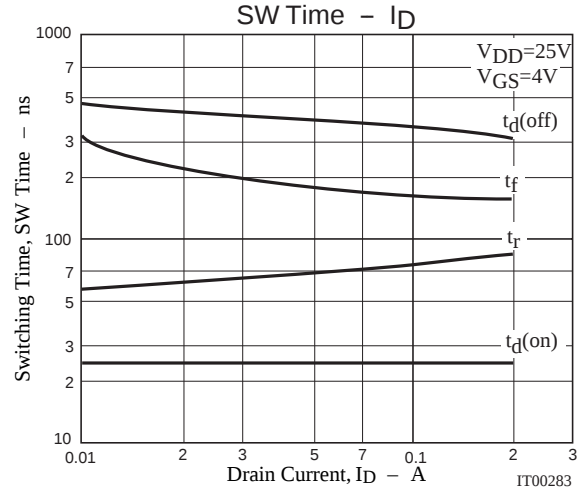
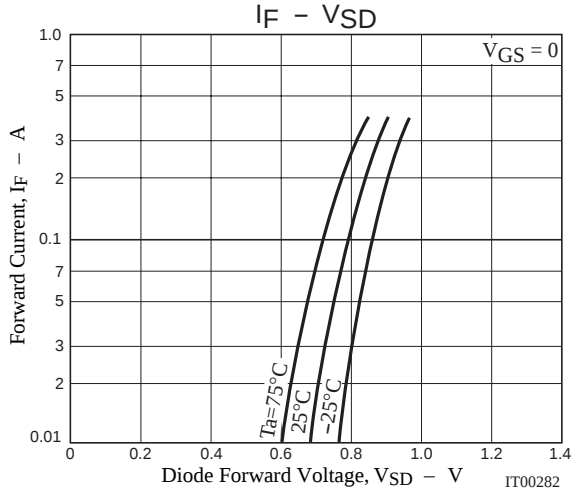
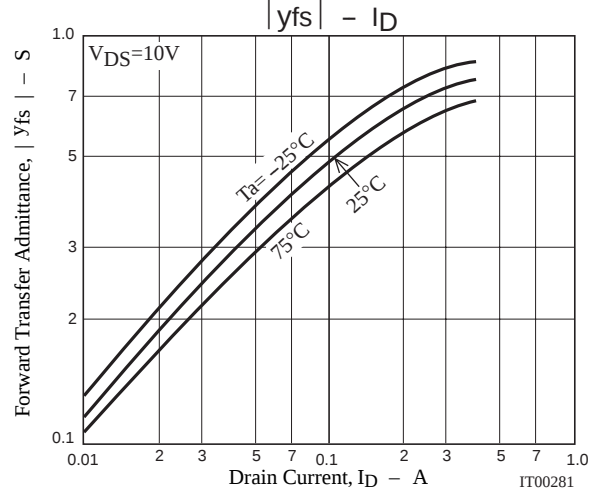
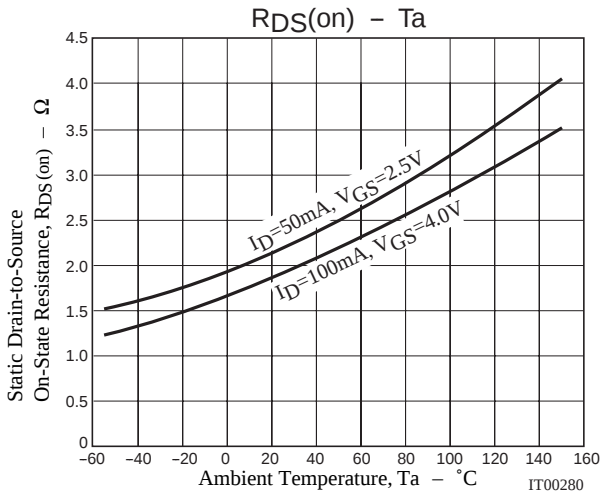
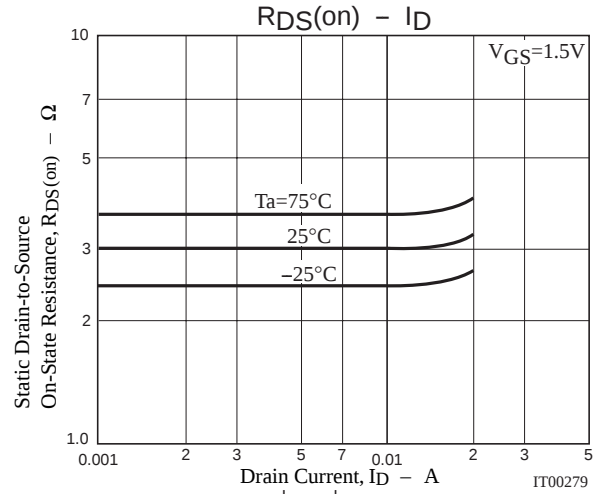
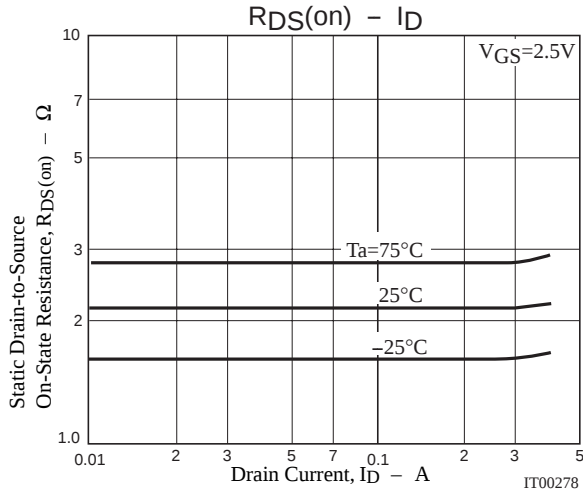
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		25		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		12		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		4.5		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		25		ns
Rise Time	t_r	See specified Test Circuit		75		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		350		ns
Fall Time	t_f	See specified Test Circuit		170		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=200mA$		2.18		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=200mA$		0.28		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=200mA$		0.45		nC
Diode Forward Voltage	V_{SD}	$I_S=200mA, V_{GS}=0$		0.83	1.2	V

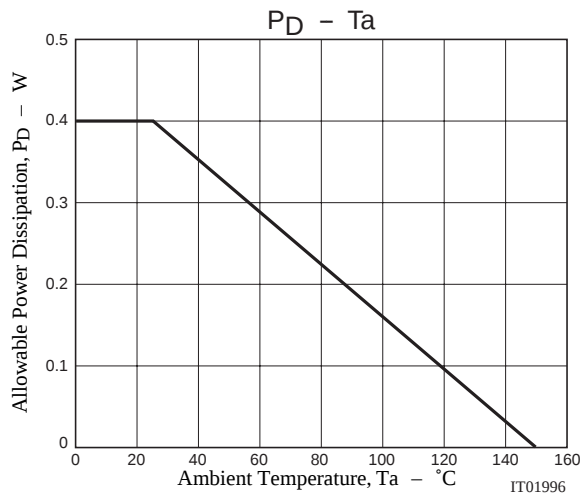
Switching Time Test Circuit



5LN02N



5LN02N



Note on usage : Since the 5LN02N is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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