

**5LN02SP**

## Ultrahigh-Speed Switching Applications

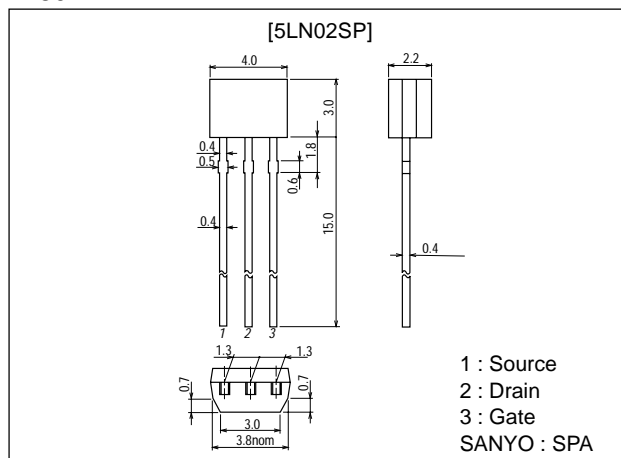
### Features

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

### Package Dimensions

unit:mm

2180



### 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	$P_D$		0.25	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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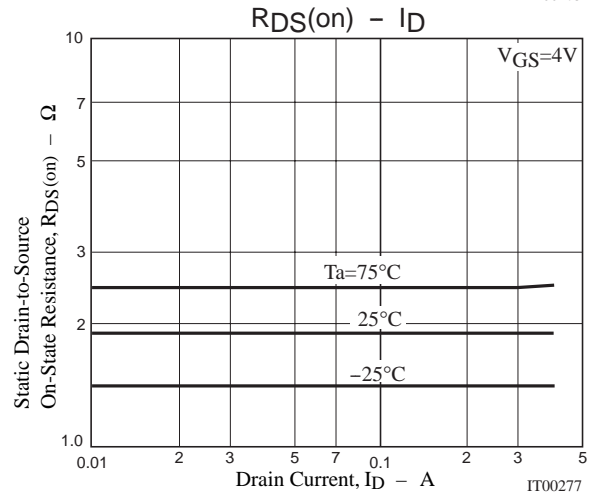
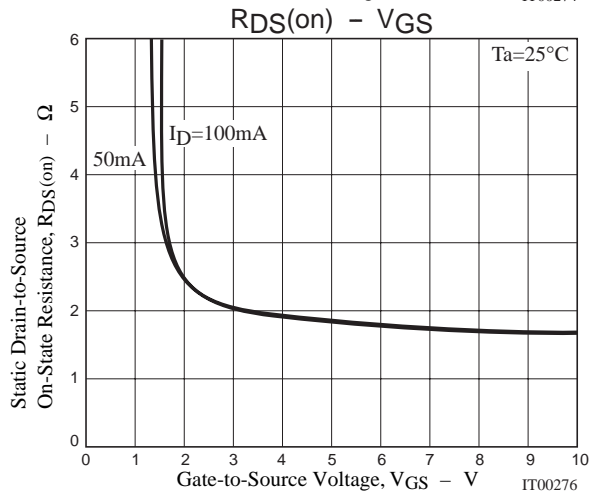
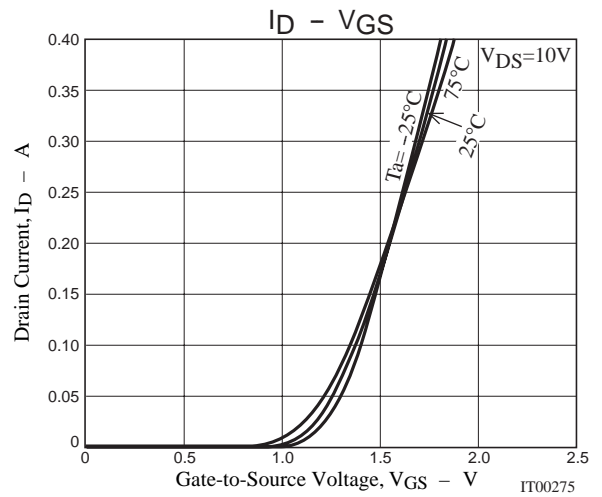
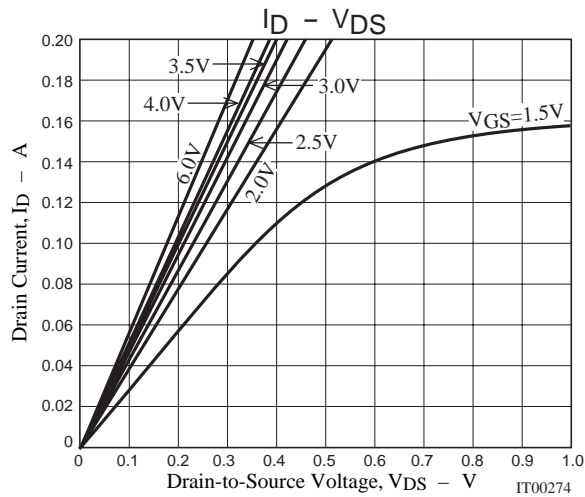
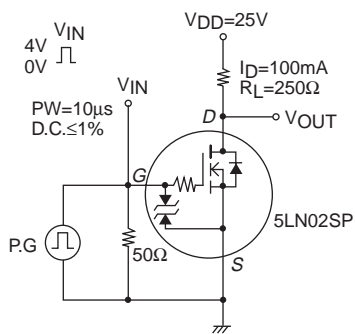
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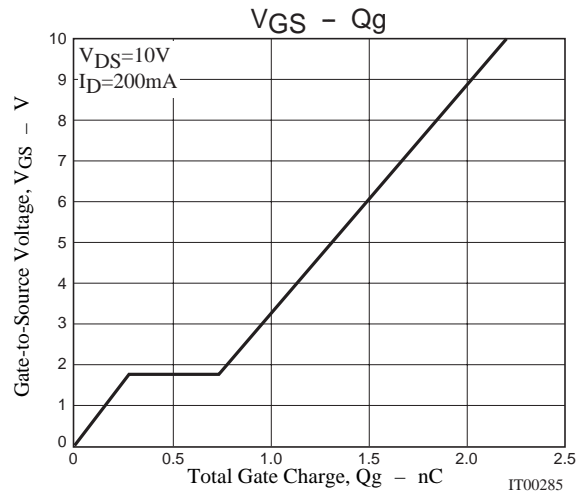
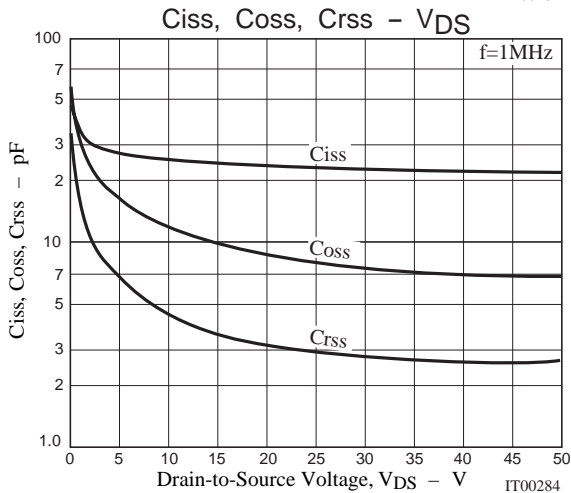
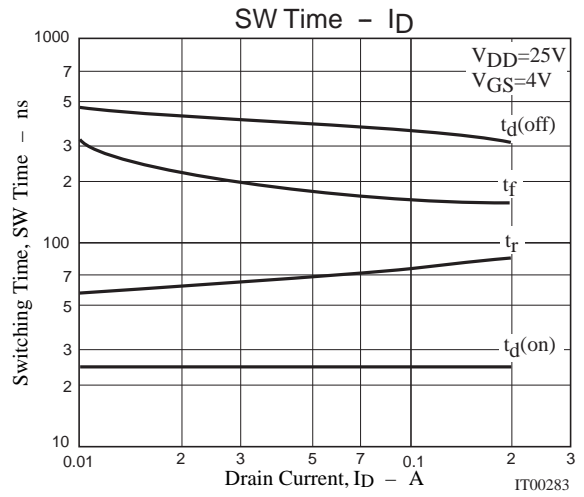
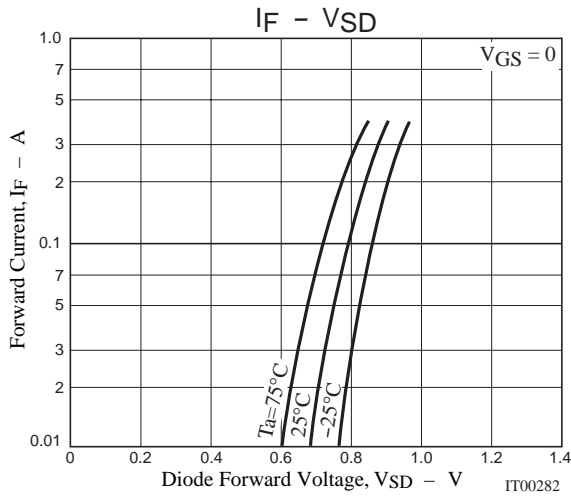
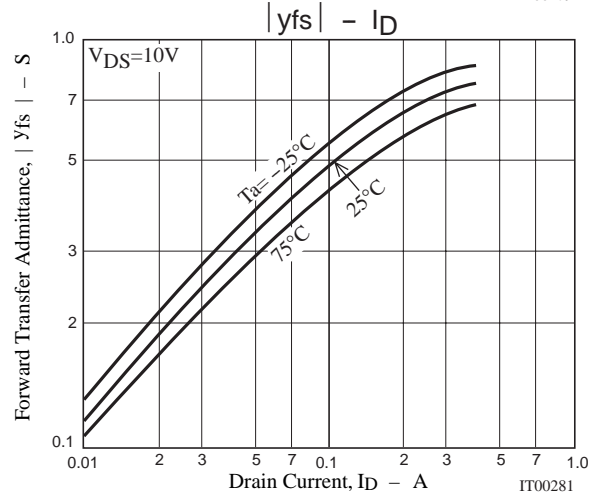
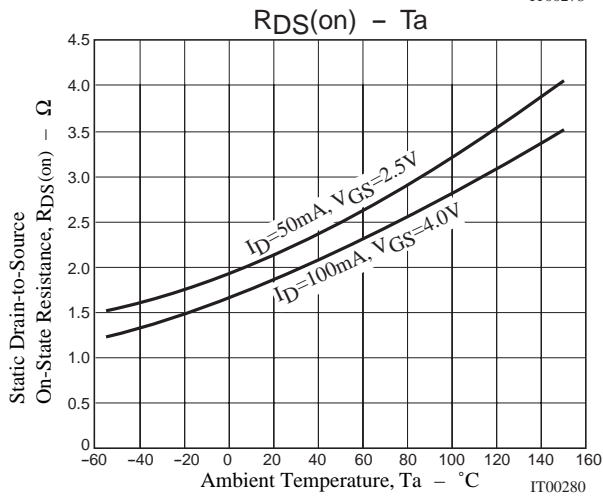
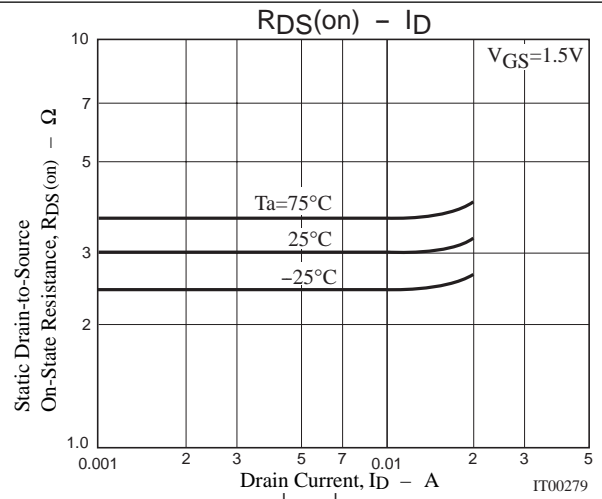
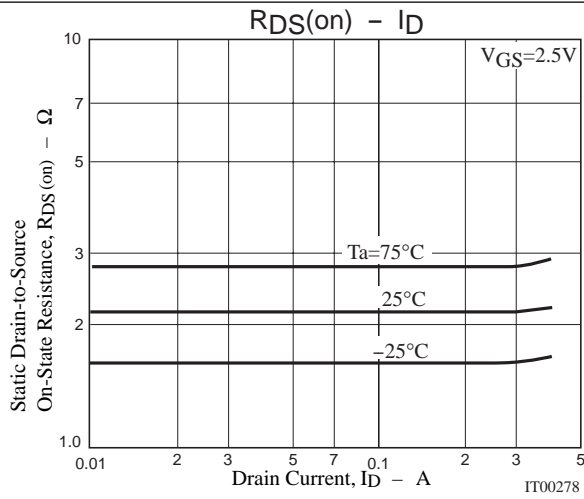
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		25		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		12		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		4.5		pF
Turn-ON 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

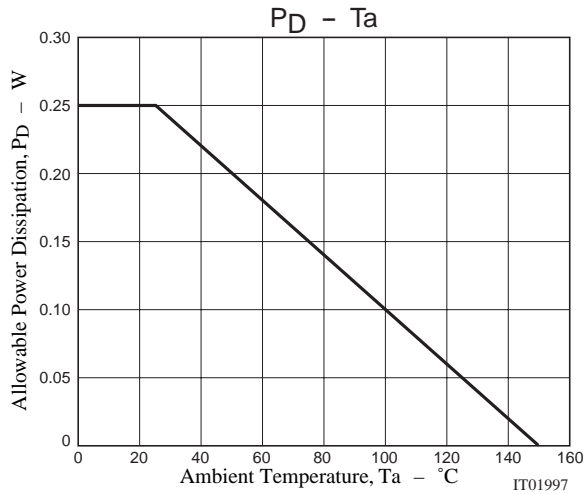
## Switching Time Test Circuit



# 5LN02SP



## 5LN02SP



Note on usage : Since the 5LN02SP is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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