

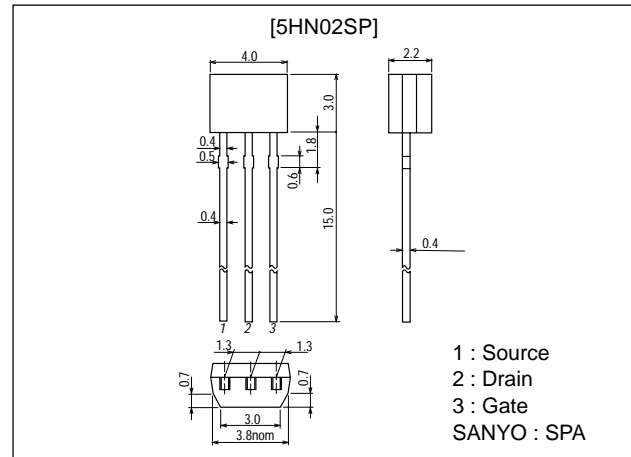
**5HN02SP****Ultrahigh-Speed Switching Applications****Features**

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V 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	$V_{GSS}$		±20	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	$I_{GSS}$	$V_{GS}=\pm 16V$ , $V_{DS}=0$			±10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V$ , $I_D=100\mu A$	1		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V$ , $I_D=100mA$	0.22	0.31		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=100mA$ , $V_{GS}=10V$		1.8	2.3	Ω
	$R_{DS(on)2}$	$I_D=50mA$ , $V_{GS}=4V$		2.3	3.2	Ω

Marking : YF

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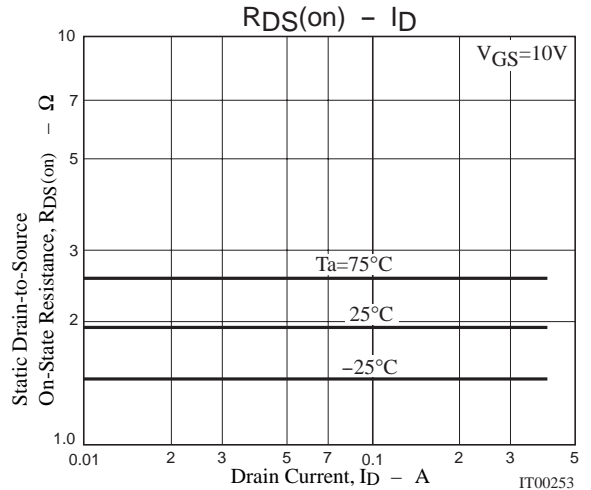
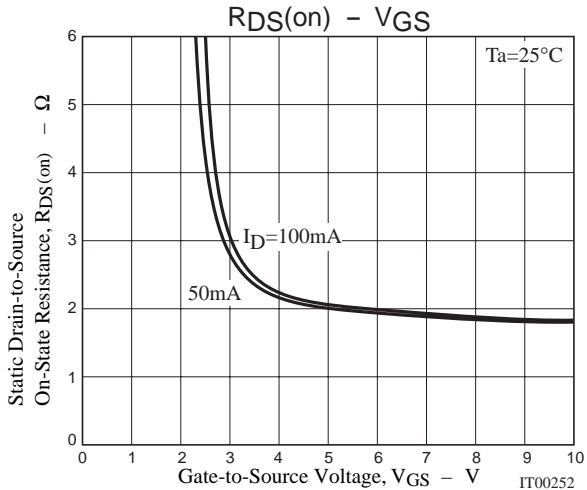
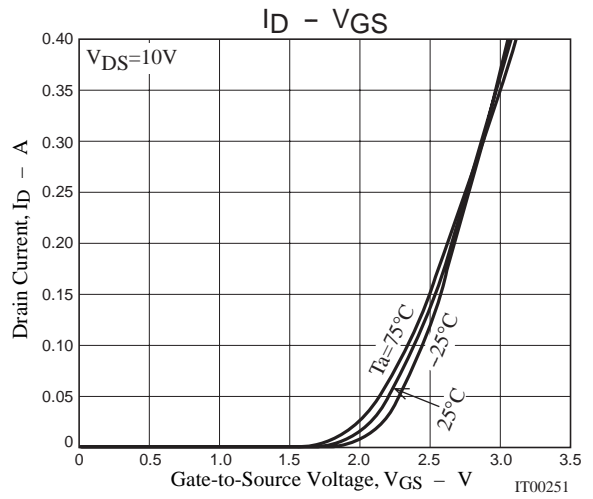
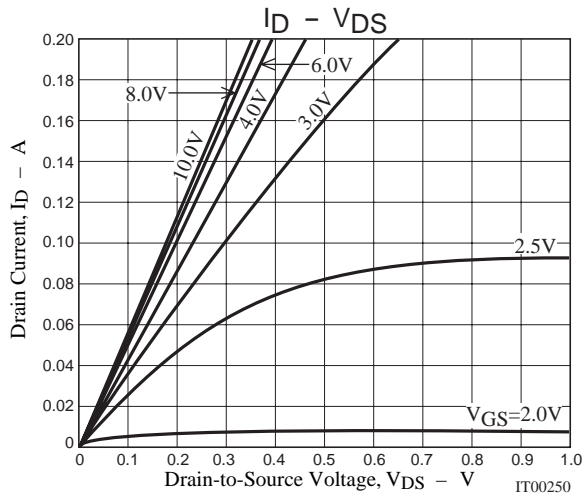
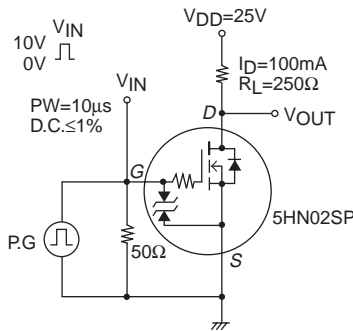
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# 5HN02SP

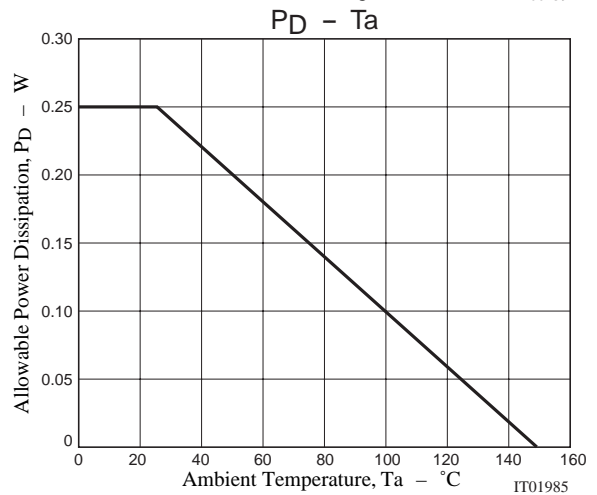
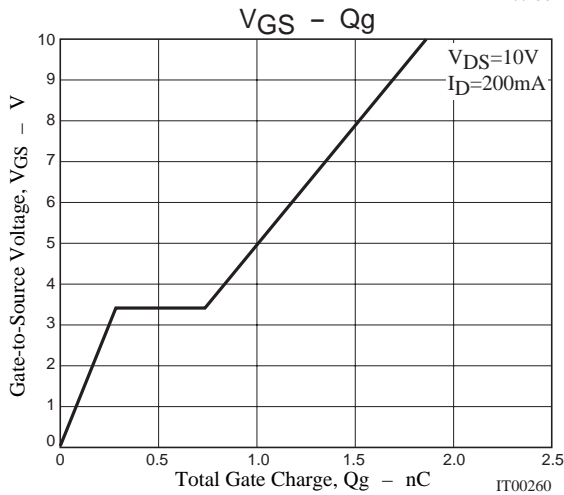
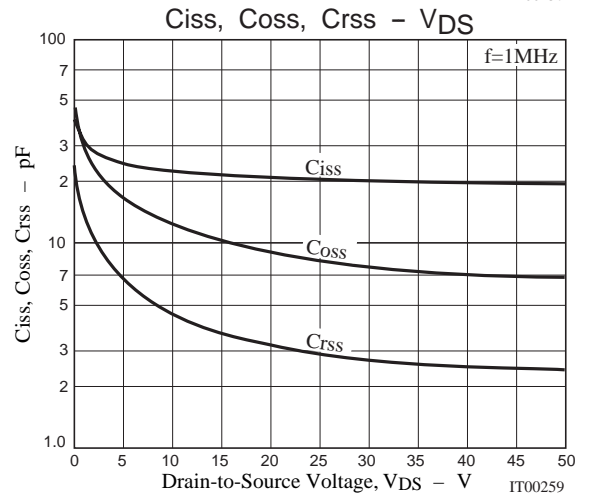
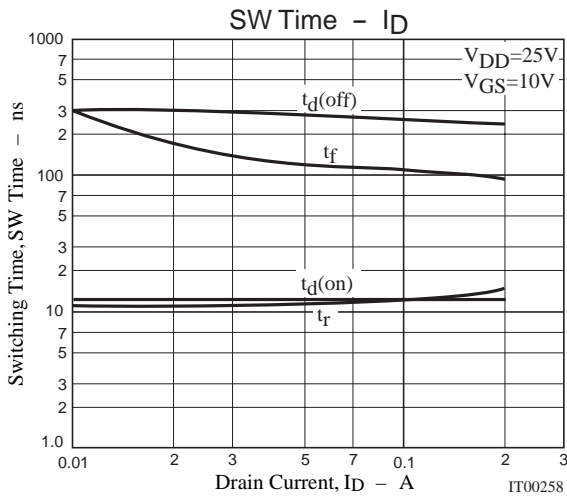
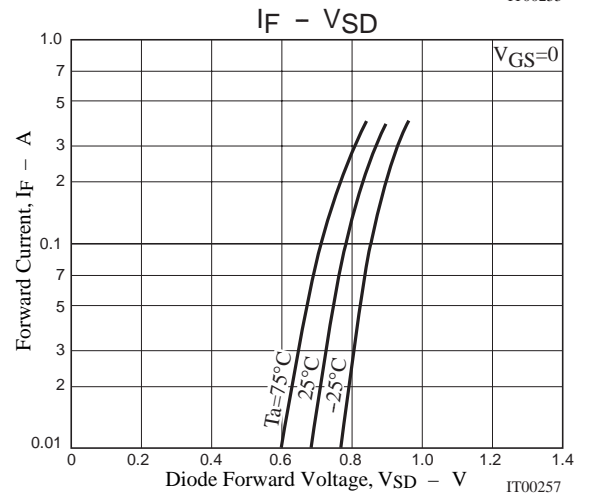
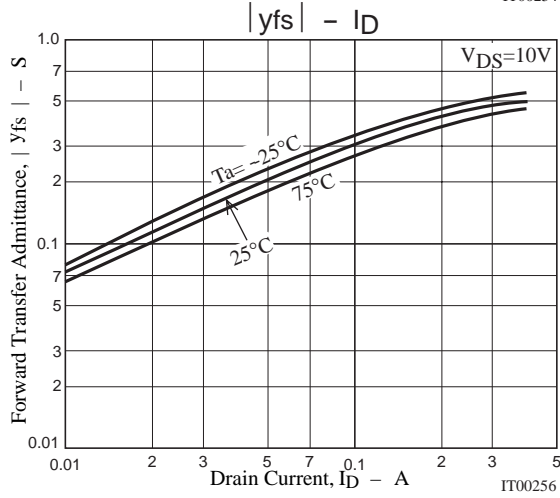
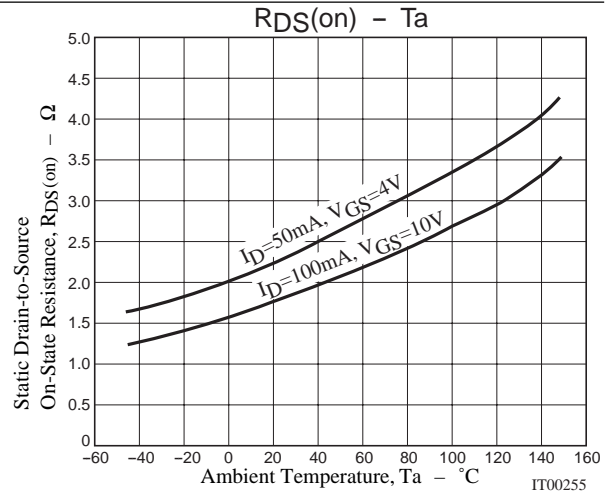
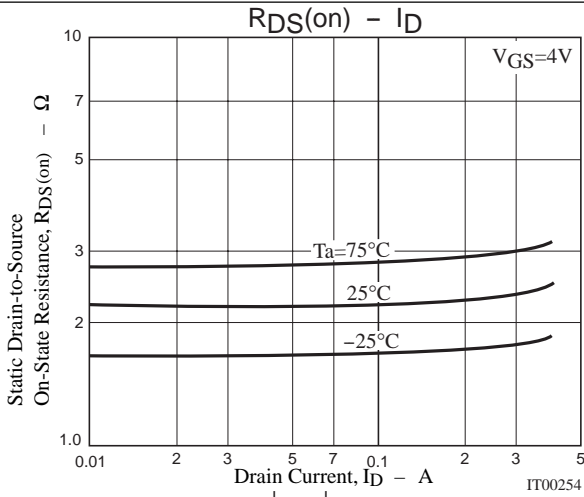
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		22		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		12		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		4.6		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		12		ns
Rise Time	$t_r$	See specified Test Circuit		12		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		260		ns
Fall Time	$t_f$	See specified Test Circuit		110		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=10V, I_D=200mA$		1.86		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



# 5HN02SP



Note on usage : Since the 5HN02SP is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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