



5HN01SP

Ultrahigh-Speed Switching Applications

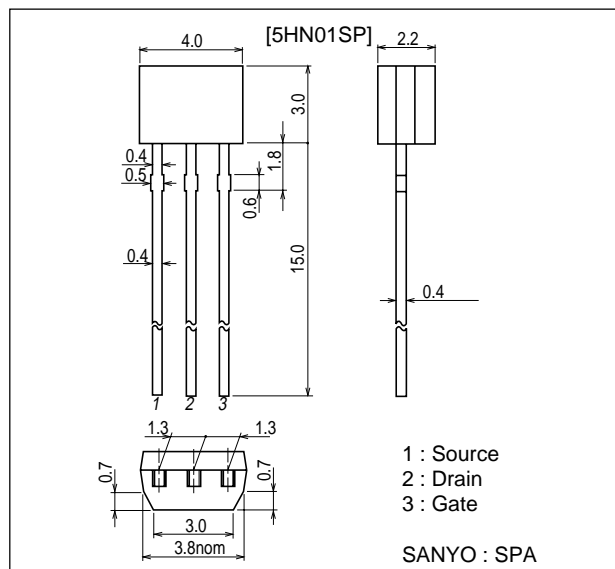
Features

- 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		0.1	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	0.4	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} =±16V, V _{DS} =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =100μA	1		2.4	V

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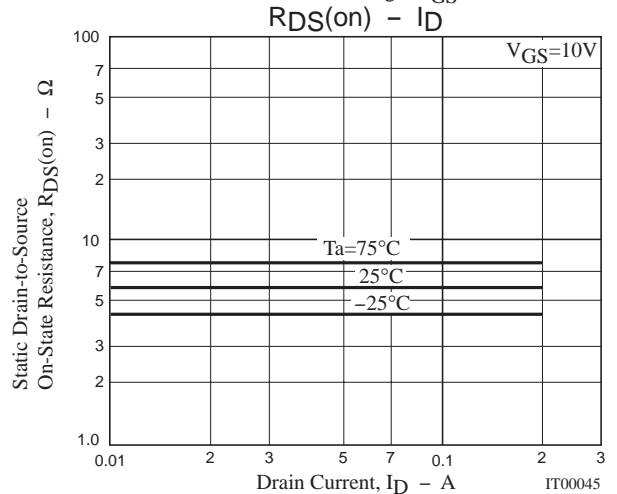
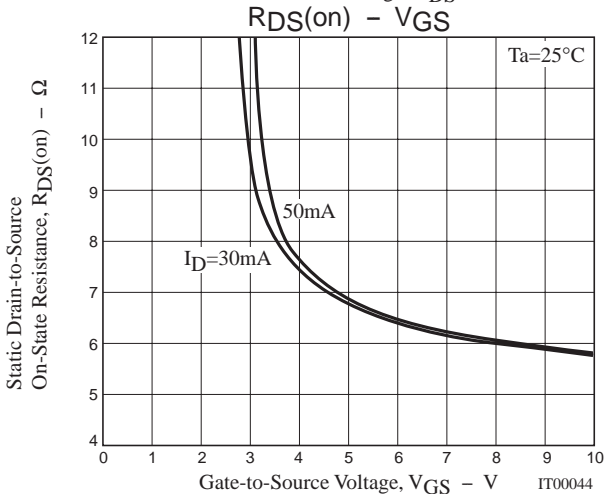
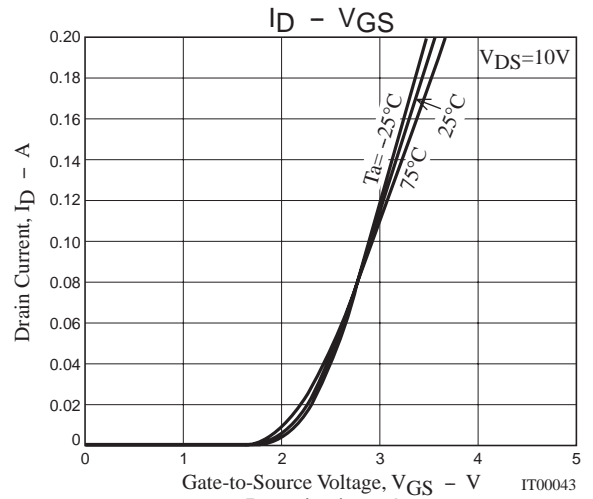
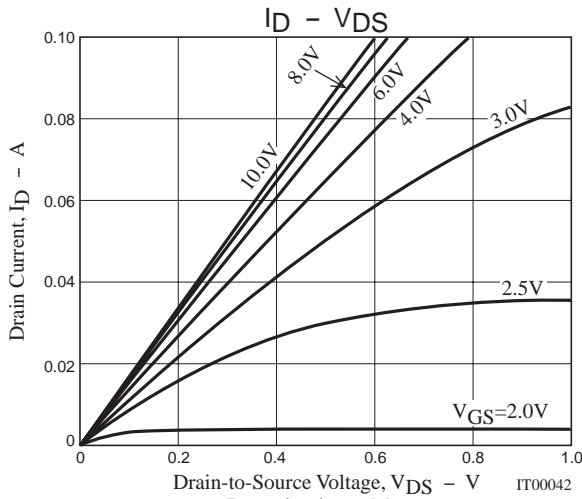
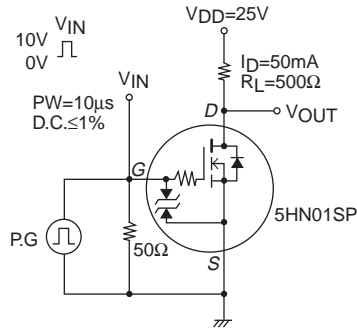
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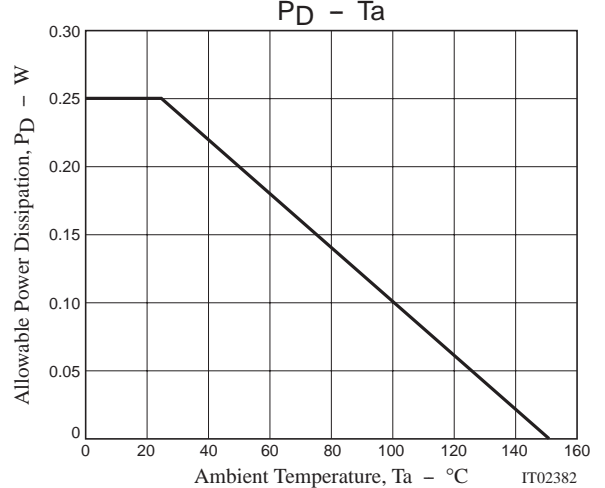
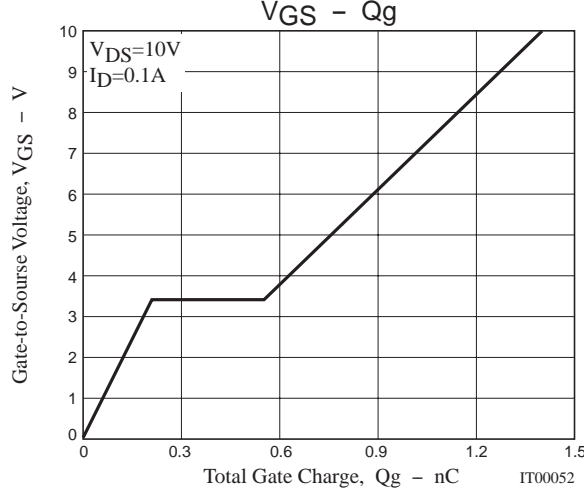
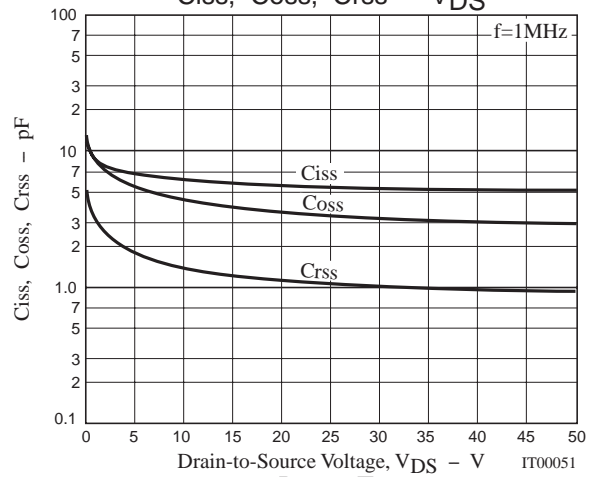
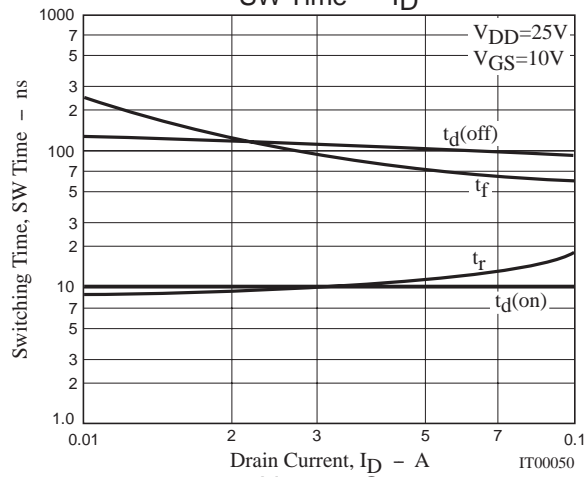
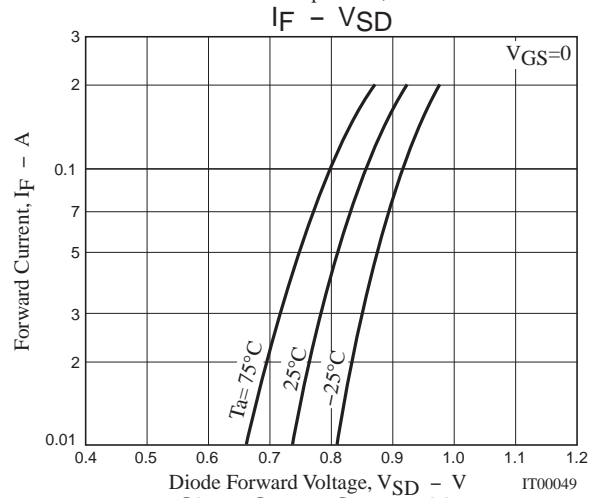
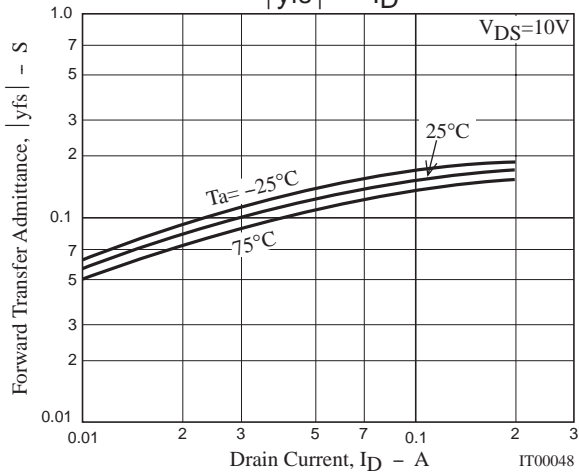
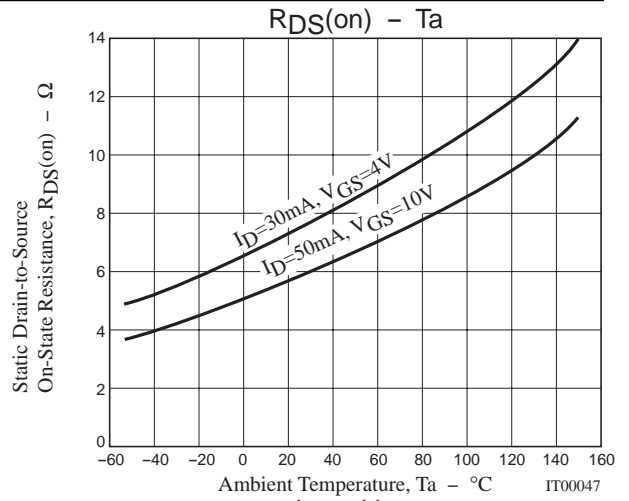
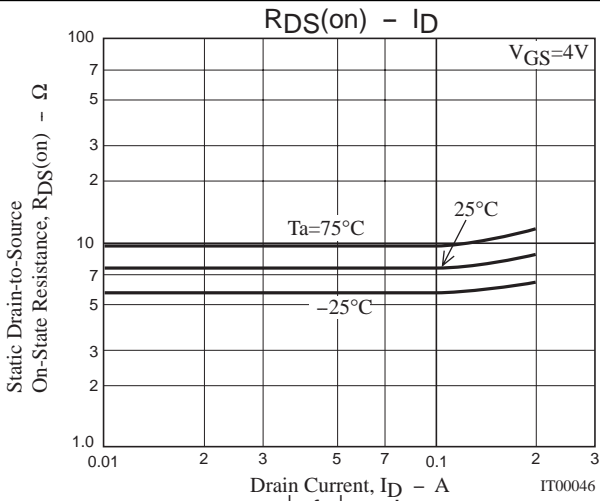
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=50mA$	85	120		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50mA, V_{GS}=10V$		5.8	7.5	Ω
	$R_{DS(on)2}$	$I_D=30mA, V_{GS}=4V$		7.5	10.5	Ω
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		6.2		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		4.4		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		1.5		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		11		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		105		ns
Fall Time	t_f	See specified Test Circuit		75		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		1.40		nC
Gate Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		0.21		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		0.34		nC
Diode Forward Voltage	V_{SD}	$I_S=100mA, V_{GS}=0$		0.85	1.2	V

Marking : YC

Switching Time Test Circuit



5HN01SP



Note on usage : Since the 5HN01SP is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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