



## Ultrahigh Speed Switching

## Applications

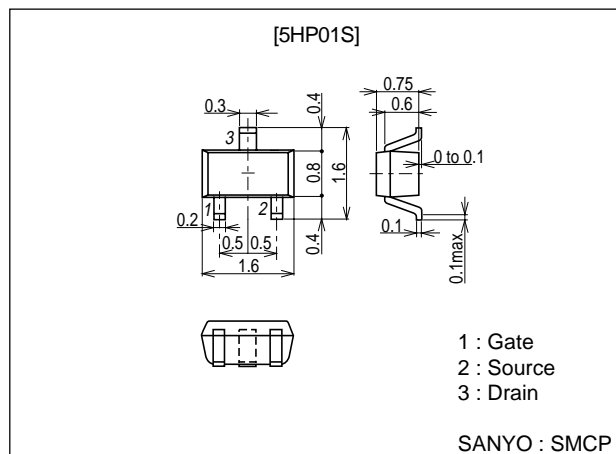
### Features

- Low ON-resistance .
- Ultrahigh-speed switching.
- 4V drive.

### Package Dimensions

unit : mm

2192



### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-50	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-0.07	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle ≤1%	-0.28	A
Allowable Power Dissipation	P <sub>D</sub>		0.15	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-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) <sub>DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0	-50			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-50V, V <sub>GS</sub> =0			-10	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-100μA	-1		-2.5	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-40mA	50	70		mS
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-40mA, V <sub>GS</sub> =-10V		17	22	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-20mA, V <sub>GS</sub> =-4V		23	32	Ω

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# 5HP01S

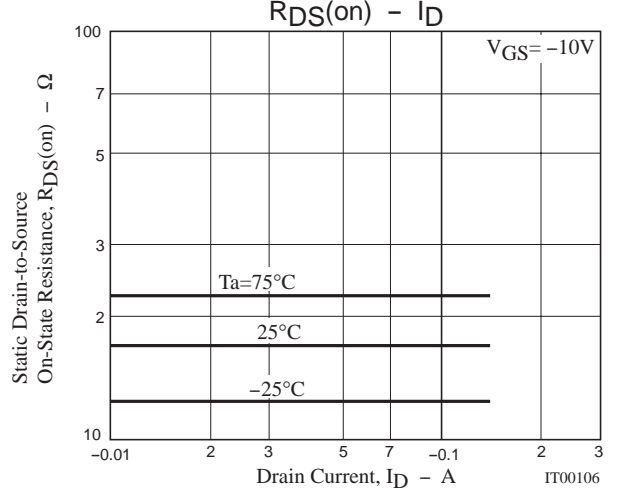
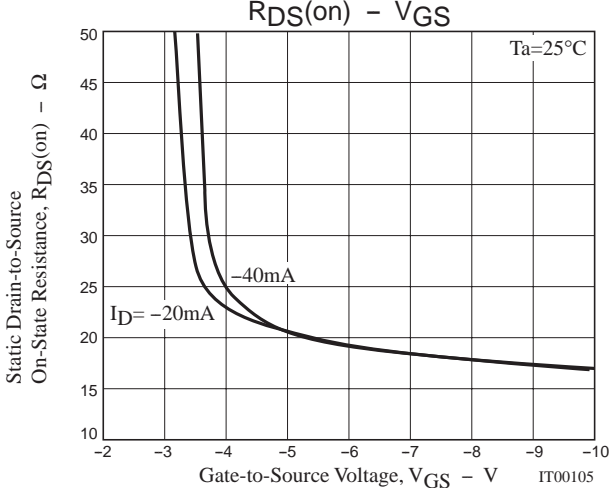
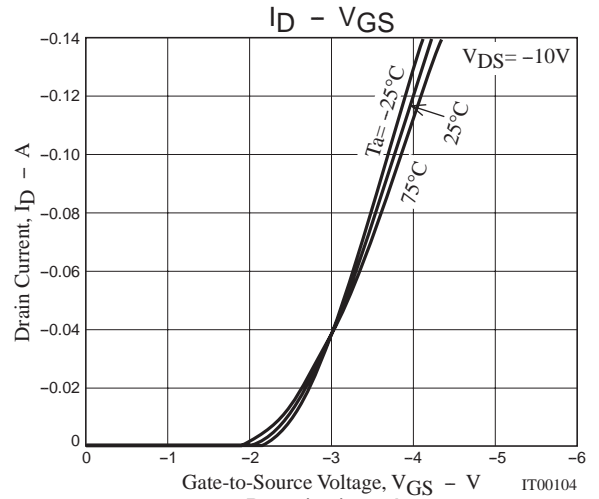
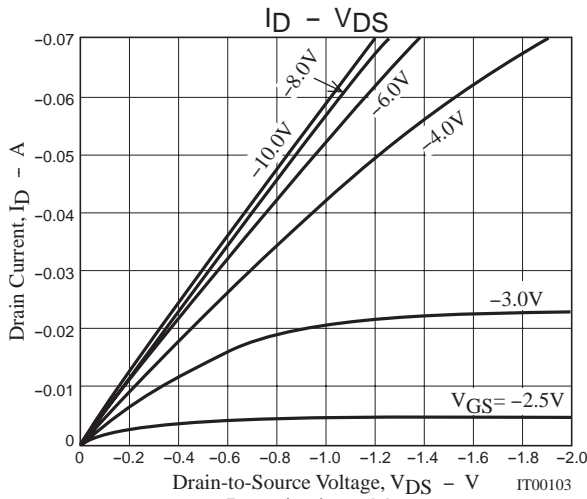
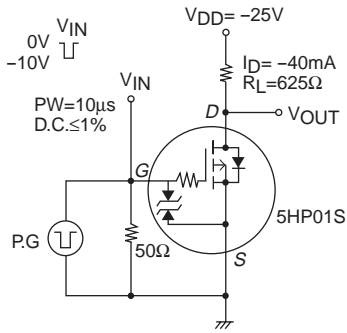
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, f=1MHz$		6.2		pF
Output Capacitance	$C_{oss}$	$V_{DS}=-10V, f=1MHz$		4.0		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-10V, f=1MHz$		1.3		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		13		ns
Rise Time	$t_r$	See specified Test Circuit		10		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		100		ns
Fall Time	$t_f$	See specified Test Circuit		150		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA$		1.32		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA$		0.17		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA$		0.34		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-70mA, V_{GS}=0$		-0.85	-1.2	V

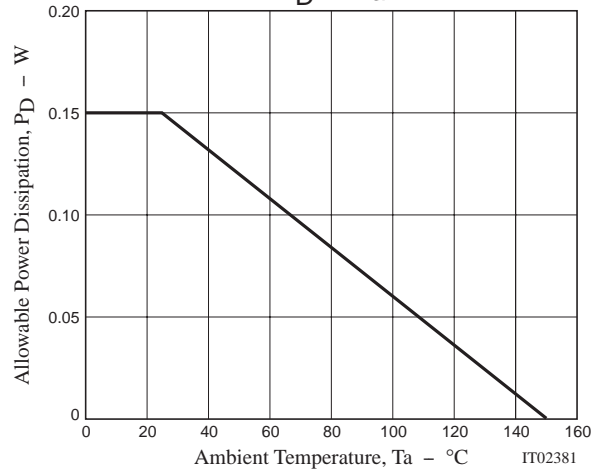
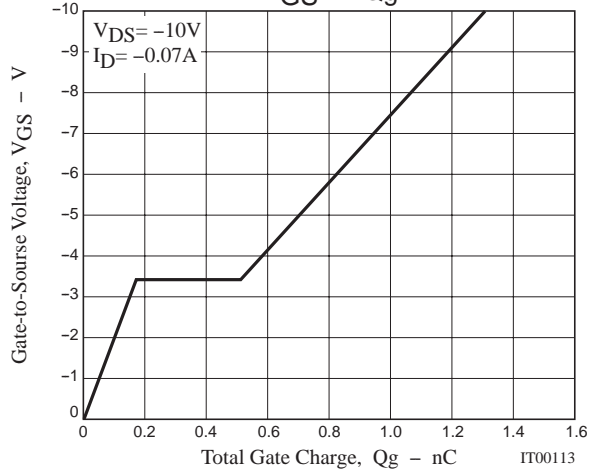
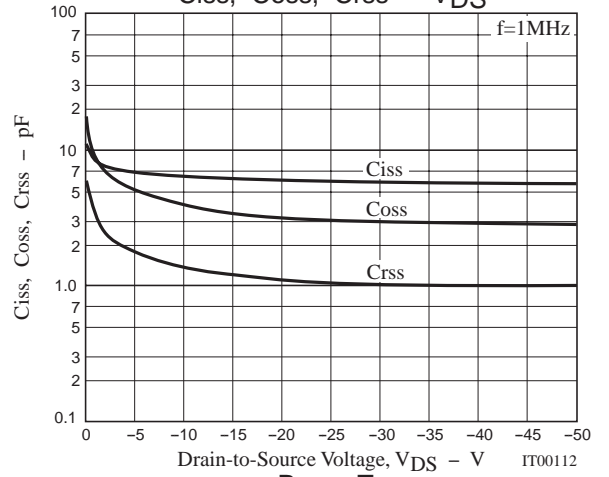
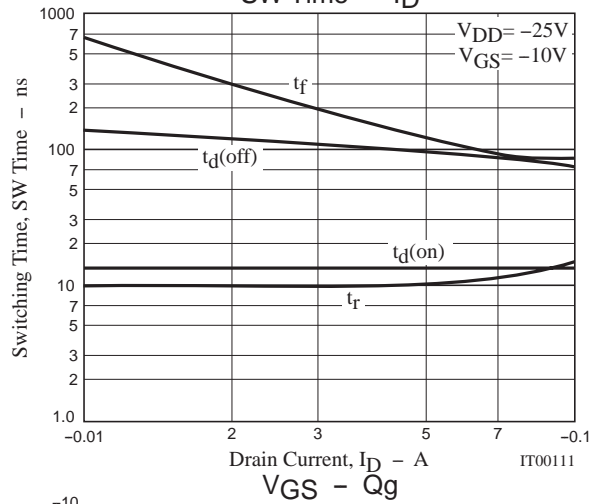
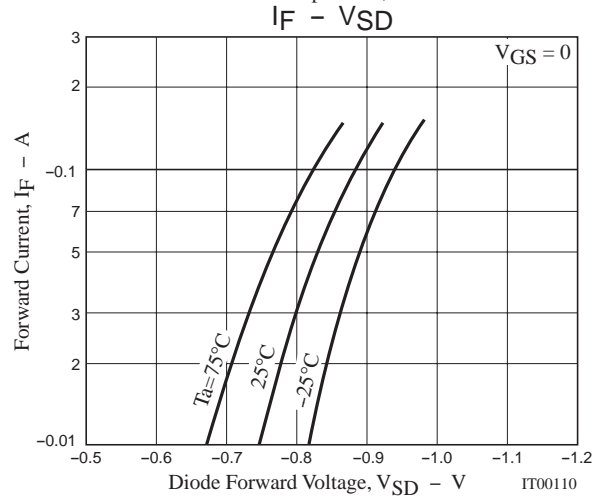
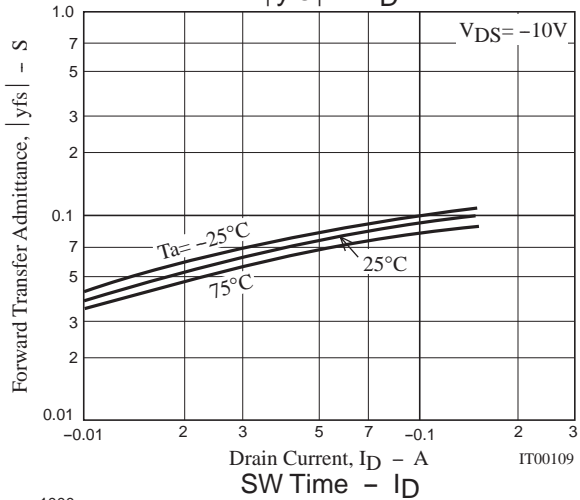
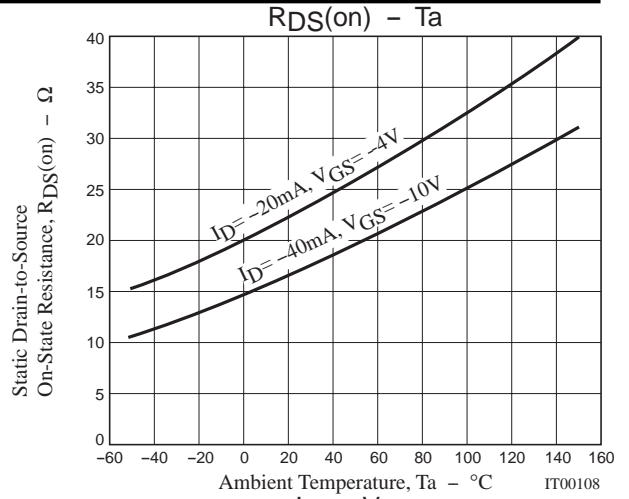
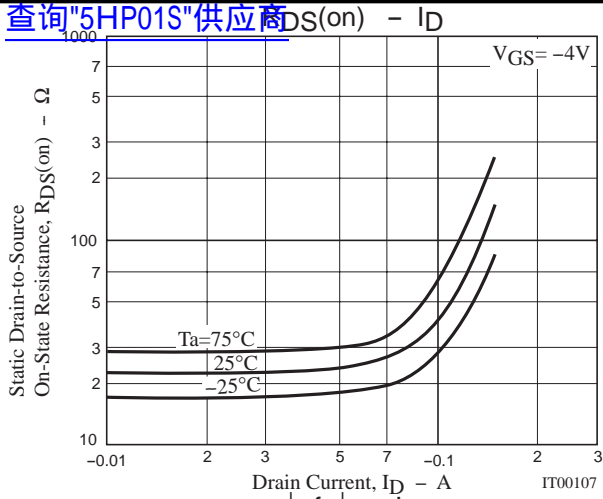
Marking : XC

## Switching Time Test Circuit



# 5HP01S

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Note on usage: Since the 5HP01S is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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