

**5HP01C**

Ultrahigh-Speed Switching Applications

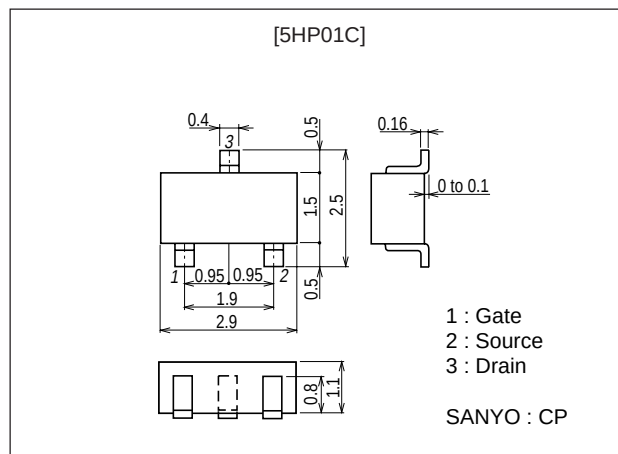
Features

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

Package Dimensions

unit : mm

2091A



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-50	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		-0.07	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-0.28	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		-2.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V$, $I_D = -40mA$	50	70		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -40mA$, $V_{GS} = -10V$		17	22	Ω
	$R_{DS(on)2}$	$I_D = -20mA$, $V_{GS} = -4V$		23	32	Ω

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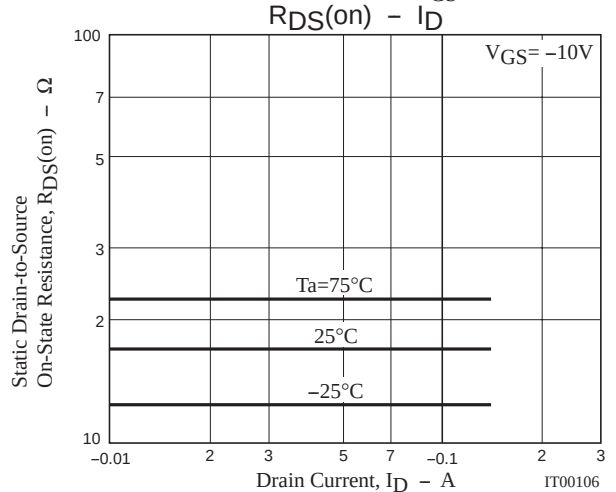
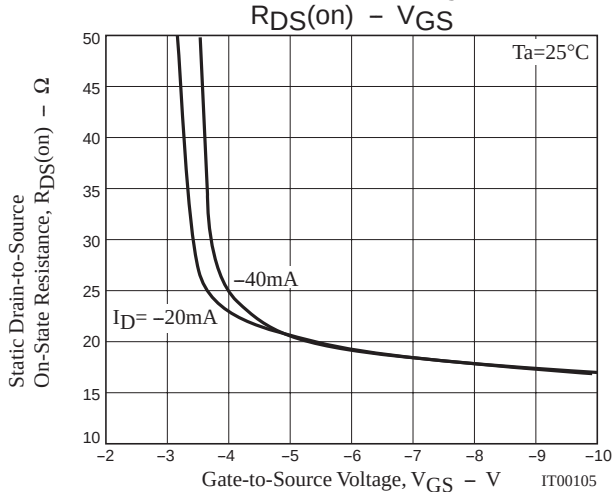
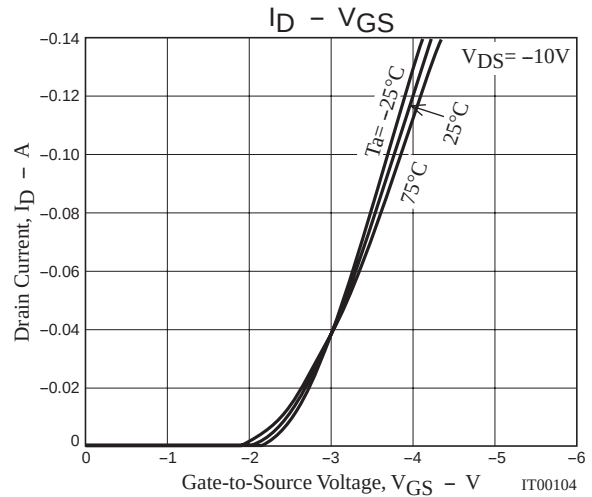
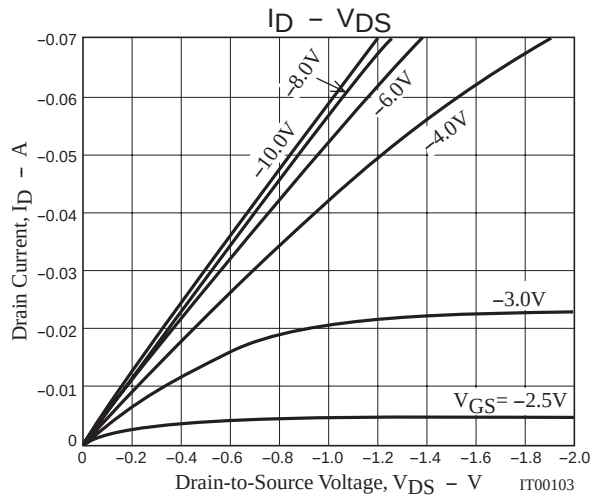
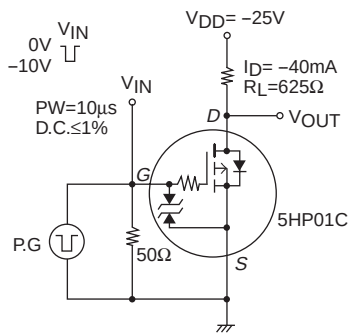
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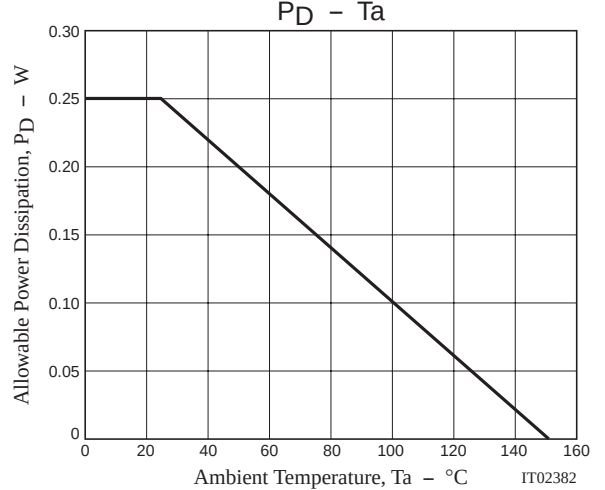
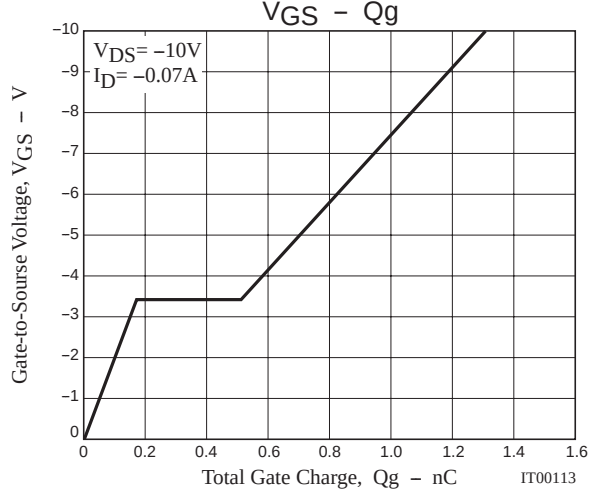
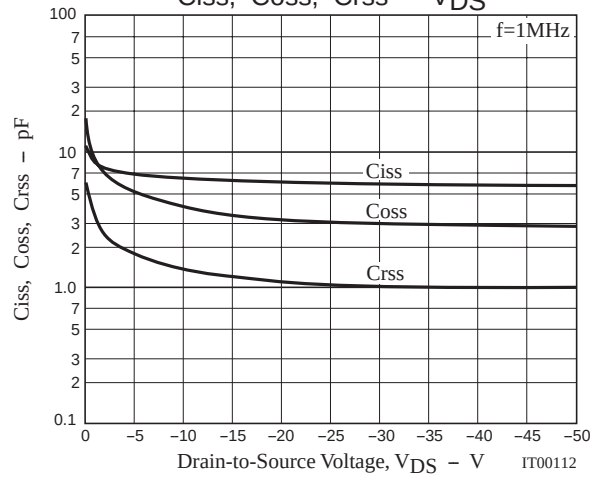
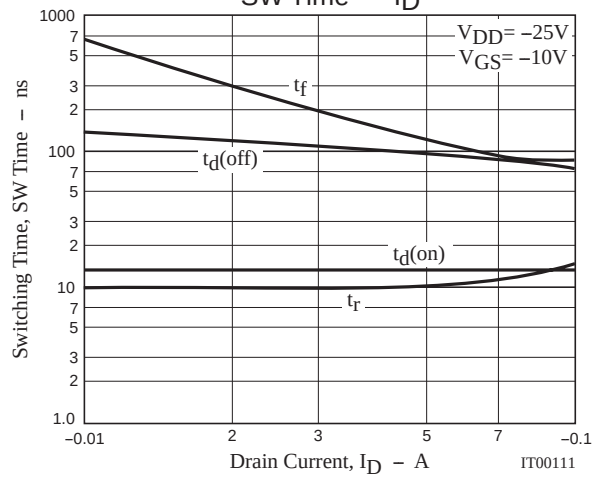
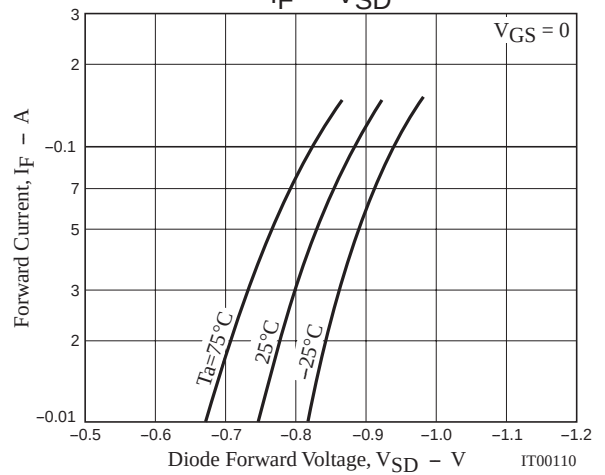
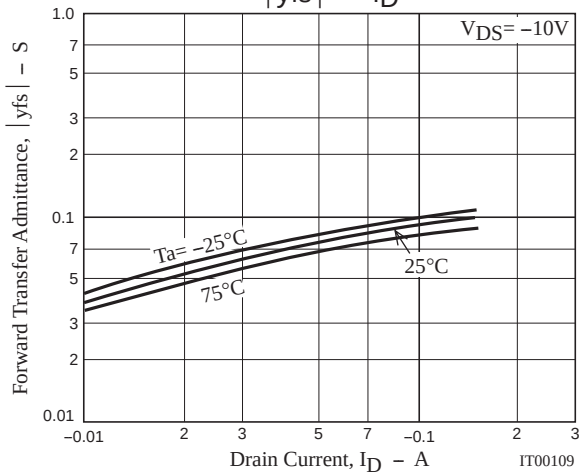
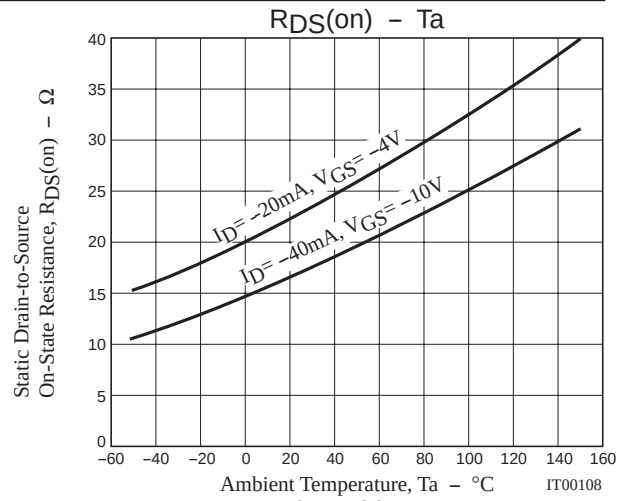
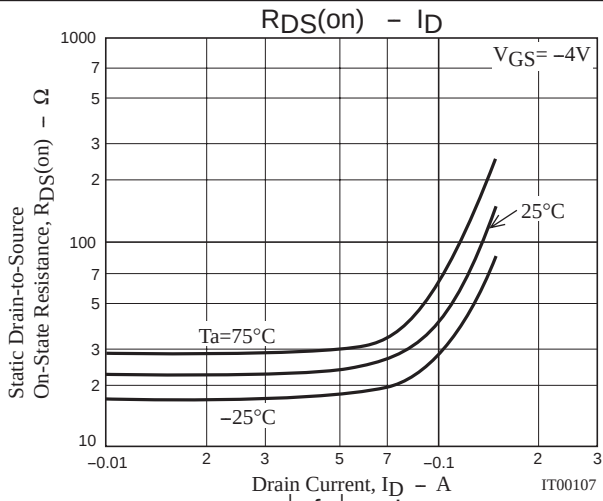
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS} = -10V, f = 1MHz$		6.2		pF
Output Capacitance	Coss	$V_{DS} = -10V, f = 1MHz$		4.0		pF
Reverse Transfer Capacitance	Crss	$V_{DS} = -10V, f = 1MHz$		1.3		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		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	Qg	$V_{DS} = -10V, V_{GS} = -10V, I_D = -70mA$		1.32		nC
Gate Source Charge	Qgs	$V_{DS} = -10V, V_{GS} = -10V, I_D = -70mA$		0.17		nC
Gate Drain Charge	Qgd	$V_{DS} = -10V, V_{GS} = -10V, I_D = -70mA$		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



5HP01C



Note on usage : Since the 5HP01C is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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