



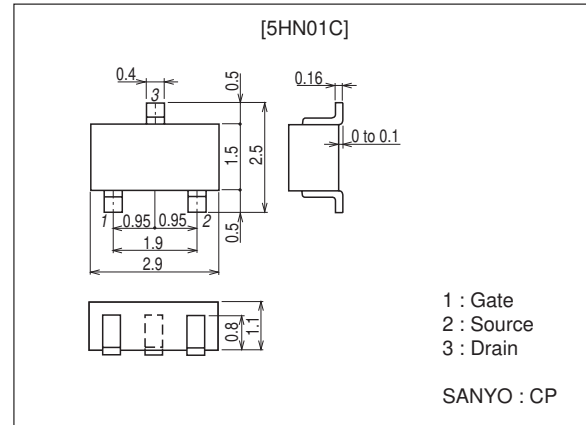
## Ultrahigh-Speed Switching Applications

### 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 <sub>DSS</sub>		50	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		0.1	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	0.4	A
Allowable Power Dissipation	P <sub>D</sub>		0.25	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 <sub>(BR)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		2.4	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =50mA	85	120		mS
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =50mA, V <sub>GS</sub> =10V		5.8	7.5	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =30mA, V <sub>GS</sub> =4V		7.5	10.5	Ω

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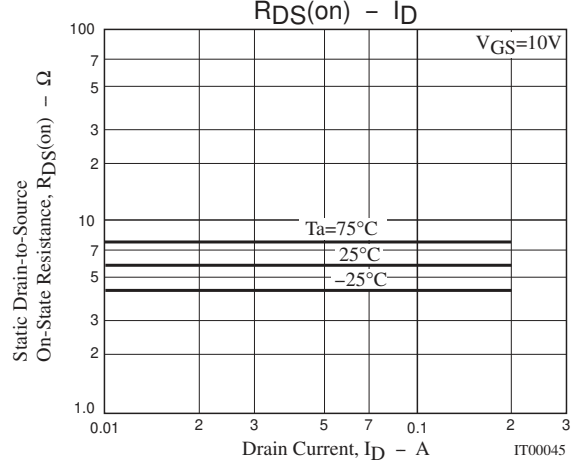
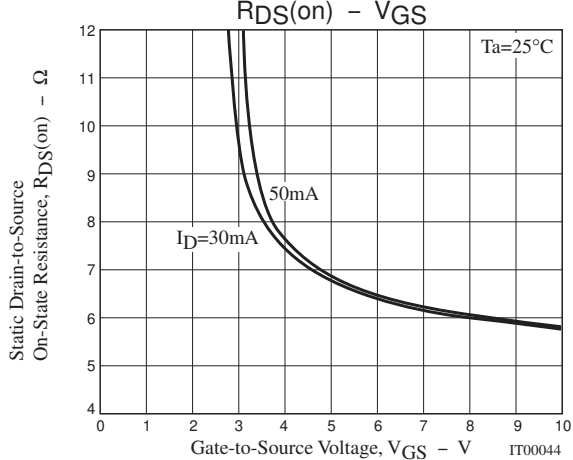
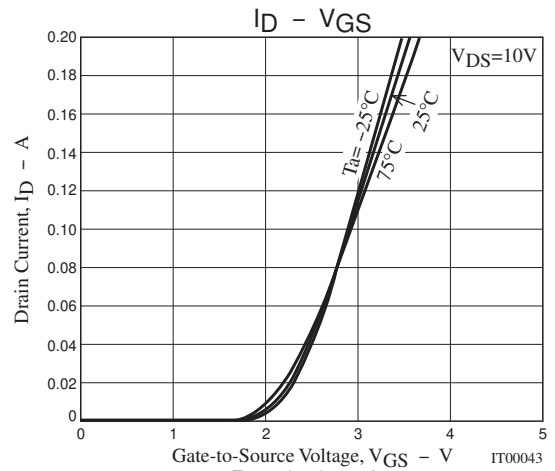
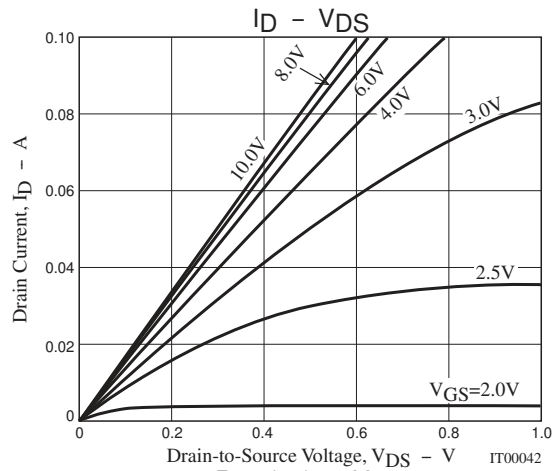
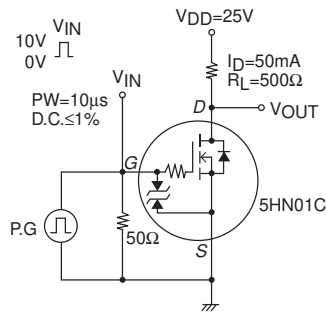
# 5HN01C

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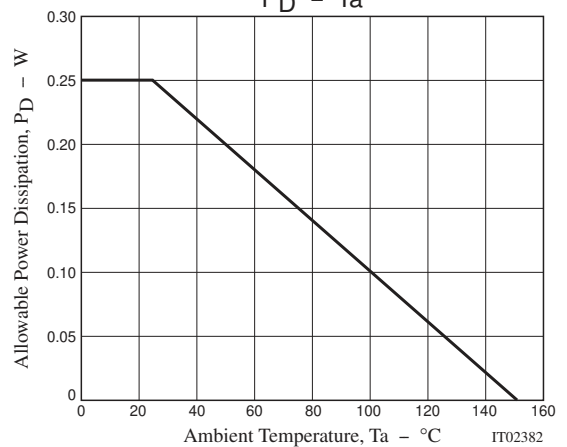
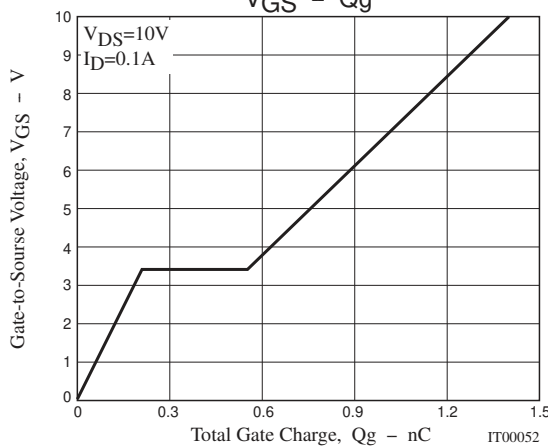
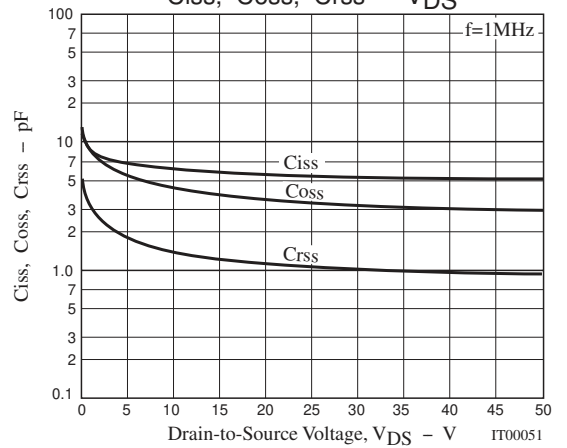
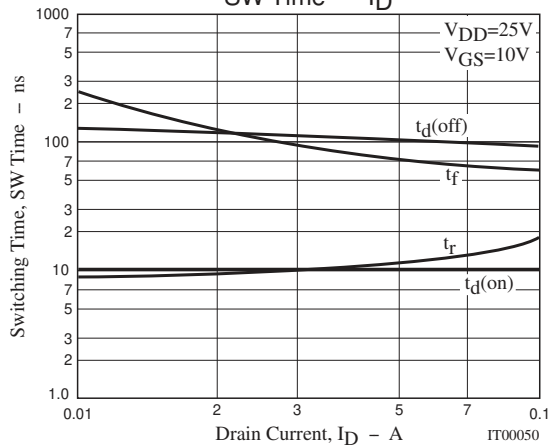
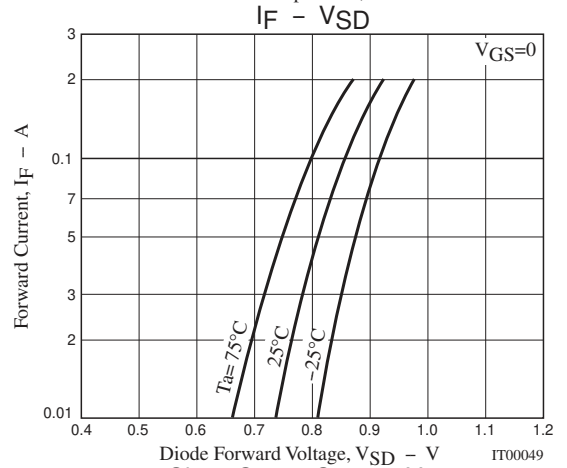
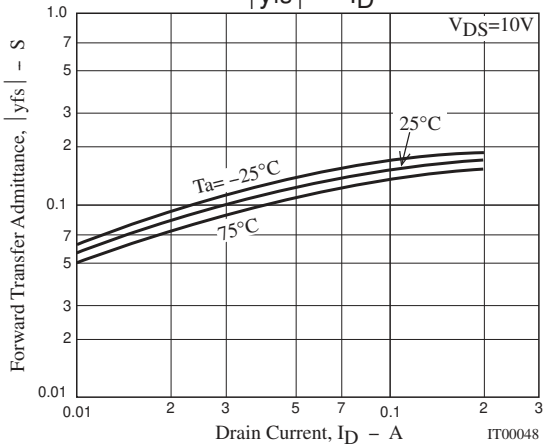
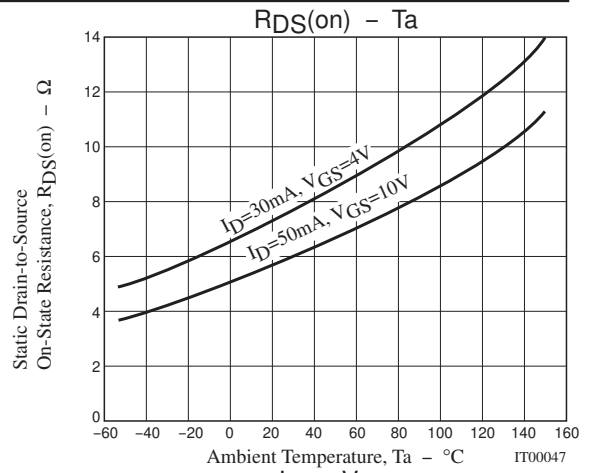
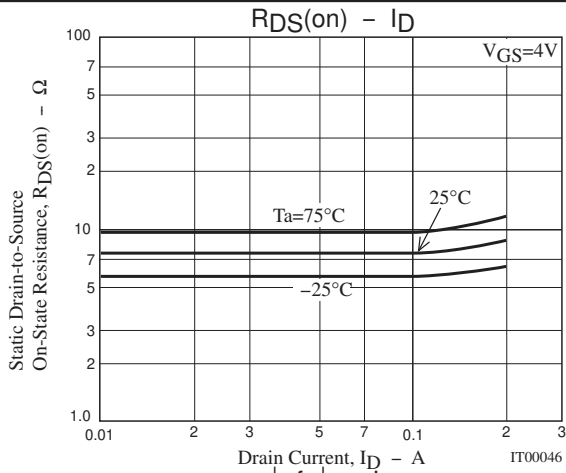
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =10V, f=1MHz		6.2		pF
Output Capacitance	Coss	V <sub>DS</sub> =10V, f=1MHz		4.4		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =10V, f=1MHz		1.5		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit		10		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit		11		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit		105		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		75		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =100mA		1.40		nC
Gate Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =100mA		0.21		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =100mA		0.34		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =100mA, V <sub>GS</sub> =0		0.85	1.2	V

Marking : YC

## Switching Time Test Circuit



# 5HN01C



Note on usage : Since the 5HN01C is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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