



5HN01C — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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		0.1	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	0.4	A
Allowable Power Dissipation	P_D		0.25	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	50			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=100\mu\text{A}$	1		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=50\text{mA}$	85	120		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50\text{mA}$, $V_{GS}=10\text{V}$		5.8	7.5	Ω
	$R_{DS(on)2}$	$I_D=30\text{mA}$, $V_{GS}=4\text{V}$		7.5	10.5	Ω
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		6.2		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		4.4		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		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

Marking : YC

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5HN01C

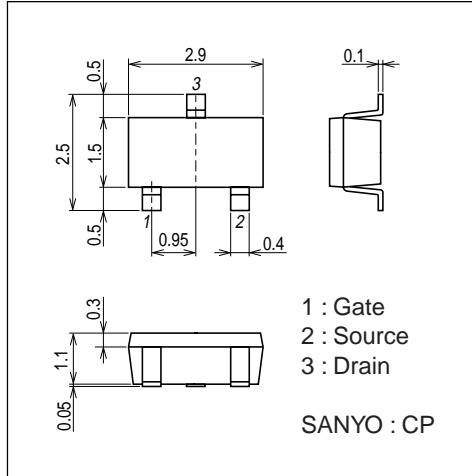
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =10V, I _D =100mA		1.40		nC
Gate Source Charge	Qgs	V _{DS} =10V, V _{GS} =10V, I _D =100mA		0.21		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =10V, V _{GS} =10V, I _D =100mA		0.34		nC
Diode Forward Voltage	V _{SD}	I _S =100mA, V _{GS} =0V		0.85	1.2	V

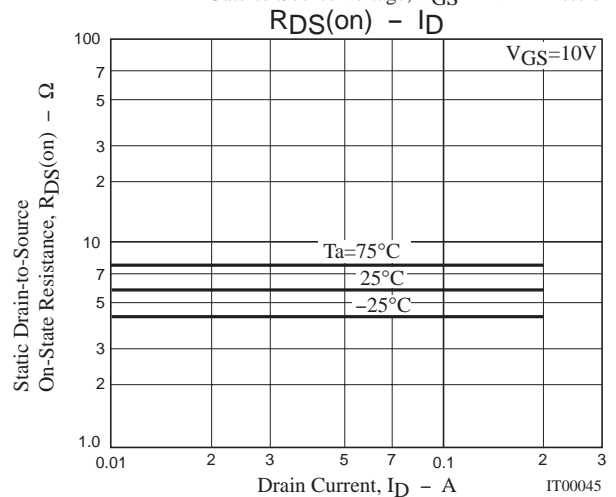
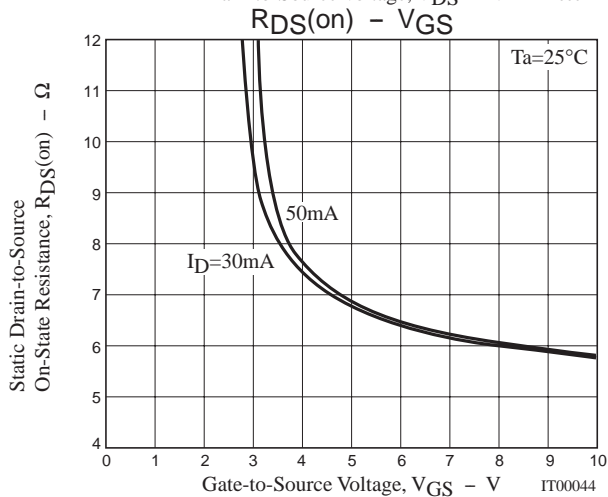
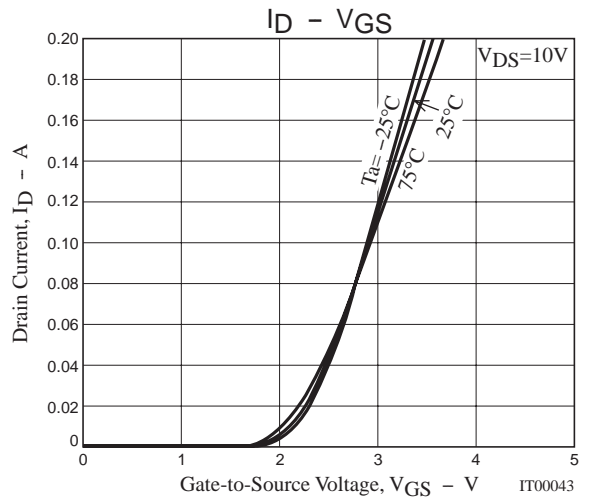
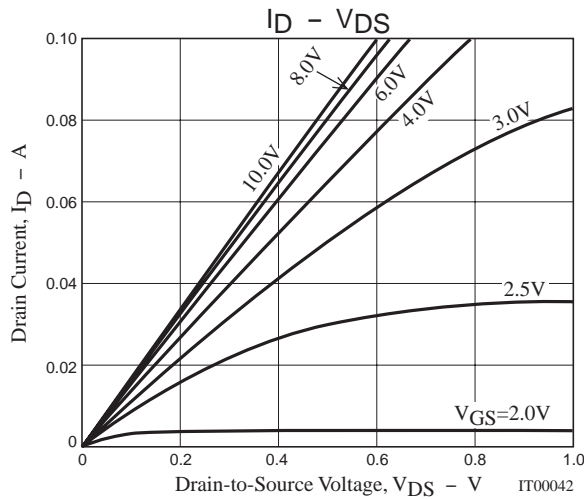
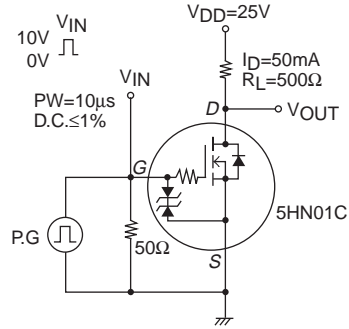
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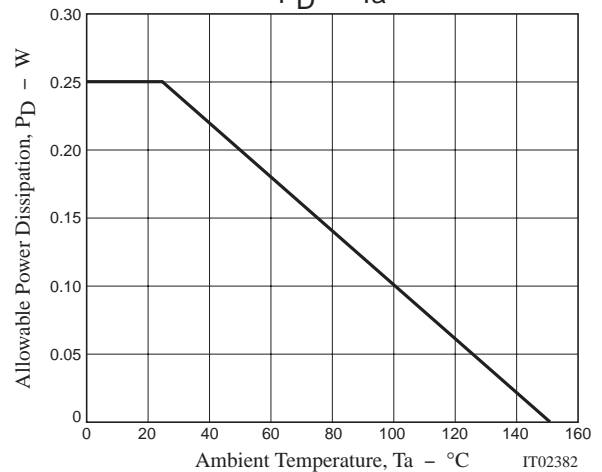
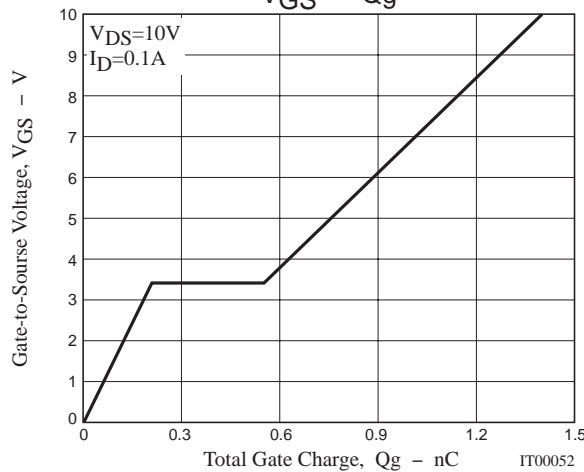
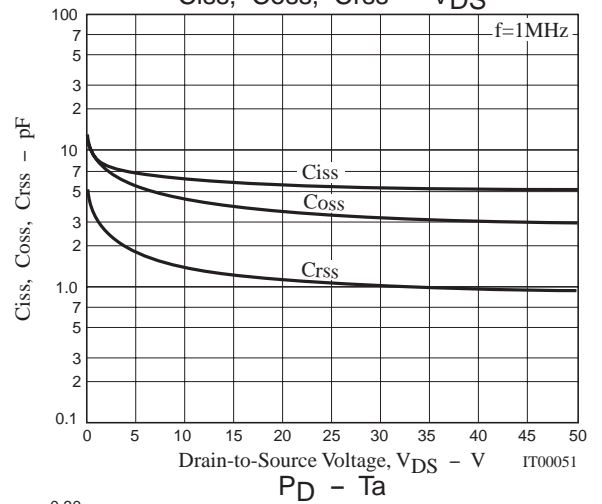
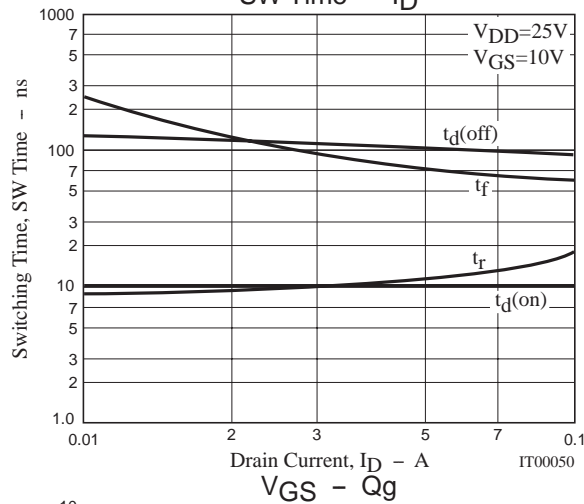
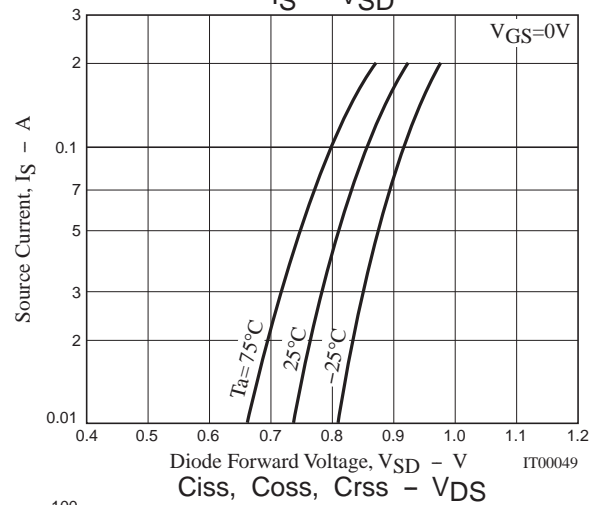
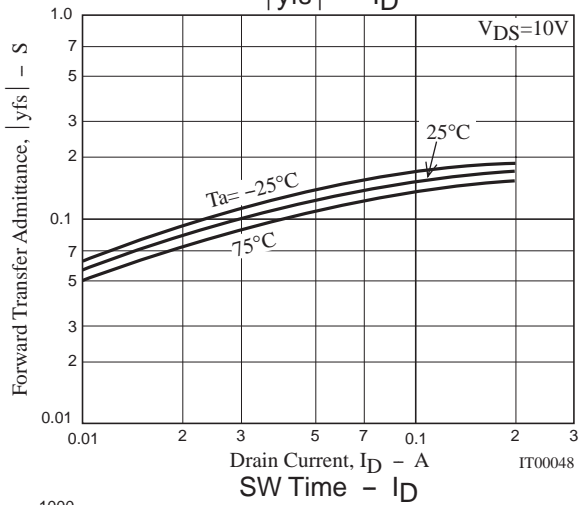
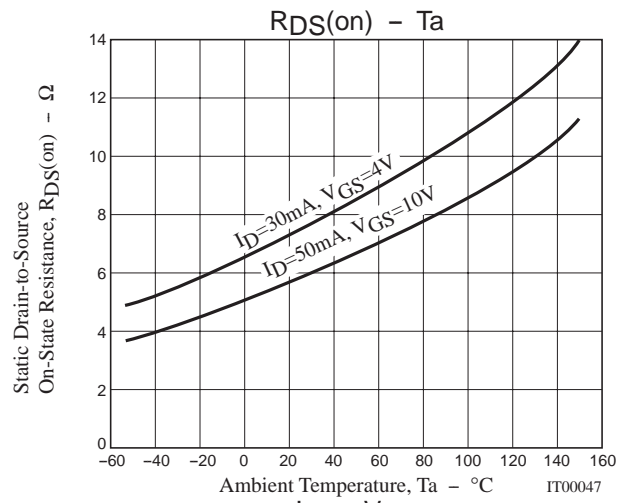
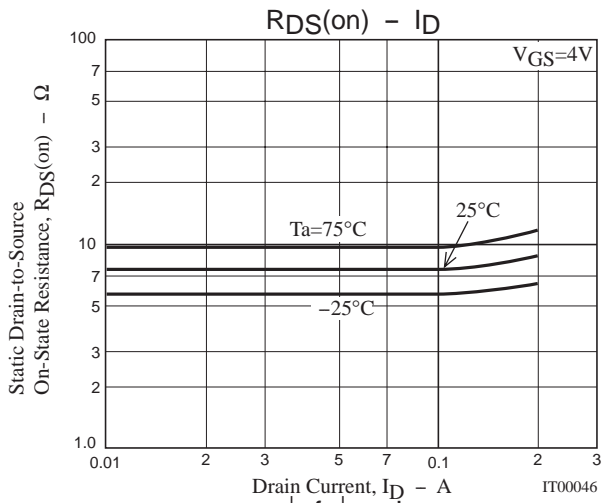
unit : mm

7013A-013



Switching Time Test Circuit





Note on usage : Since the 5HN01C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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