



SANYO Semiconductors

DATA SHEET

3HN04S — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- 4V drive.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		30	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		300	mA
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	1.2	A
Allowable Power Dissipation	P_D	When mounted on glass epoxy substrate (145mmX80mmX1.6mm)	0.15	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$			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		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=150\text{mA}$	170	290		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=150\text{mA}$, $V_{GS}=10\text{V}$		660	900	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=80\text{mA}$, $V_{GS}=4\text{V}$		1.5	2.2	Ω
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		22		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		7.5		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		3.6		pF

Marking : YH

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3HN04S

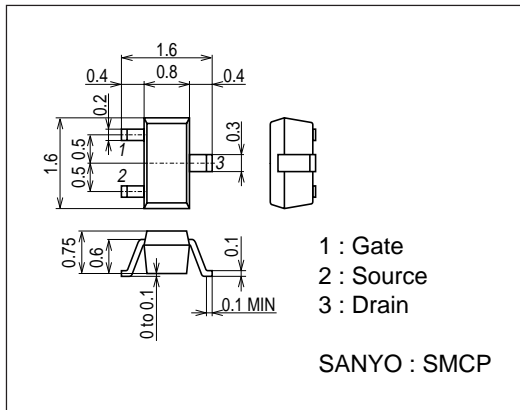
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		14		ns
Rise Time	t_r	See specified Test Circuit.		17.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		65		ns
Fall Time	t_f	See specified Test Circuit.		41		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		1.68		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		0.54		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		0.12		nC
Diode Forward Voltage	V_{SD}	$I_S=300mA, V_{GS}=0V$		0.86	1.2	V

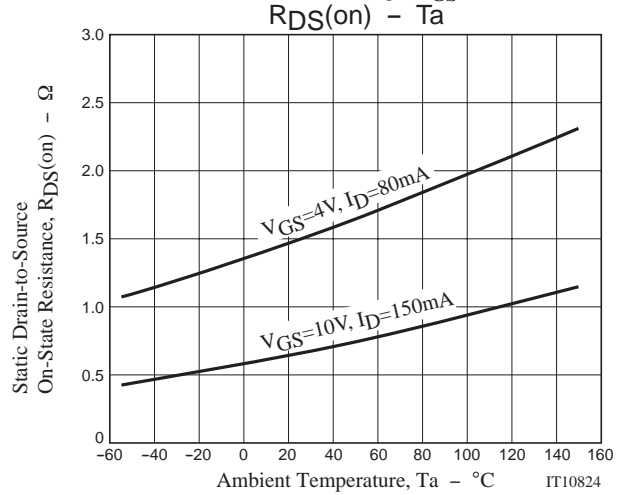
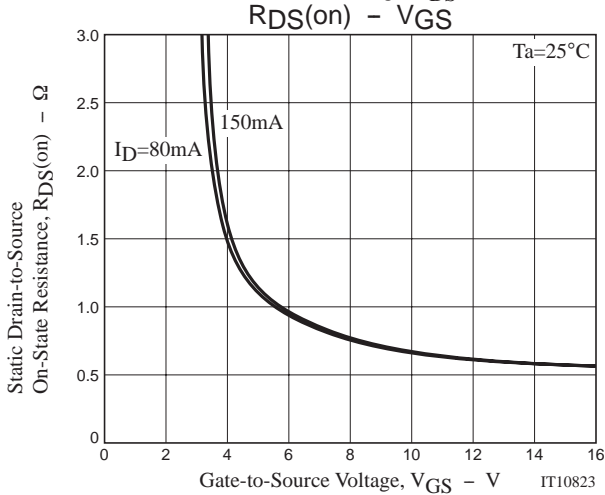
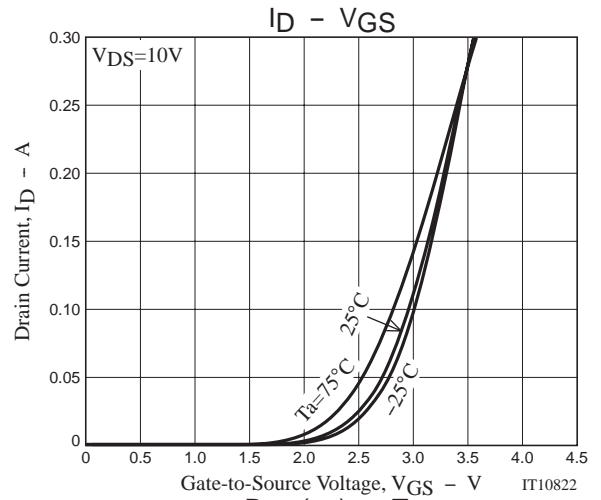
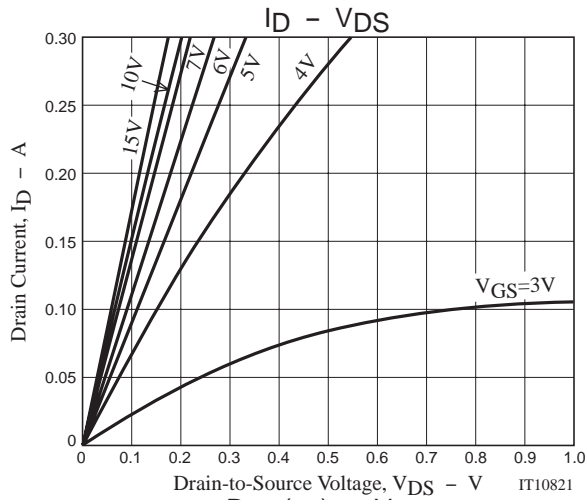
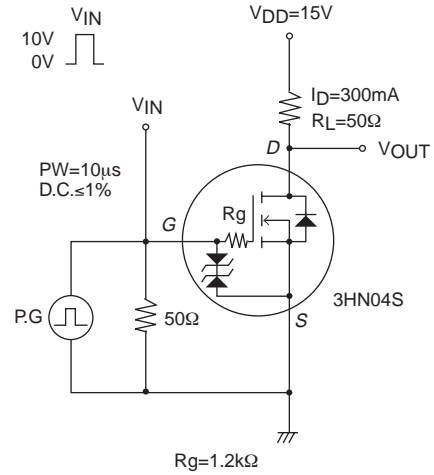
Package Dimensions

unit : mm (typ)

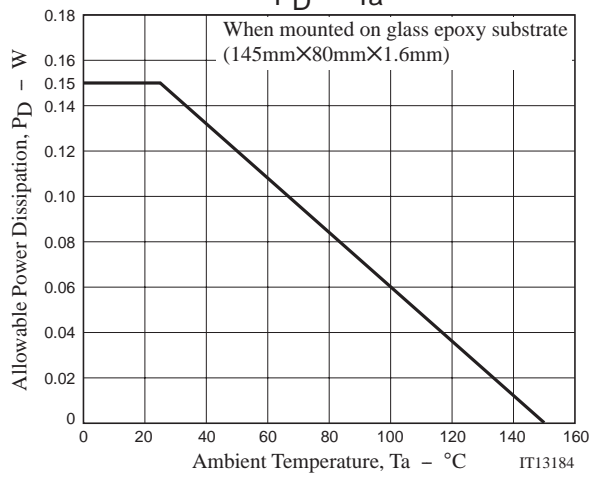
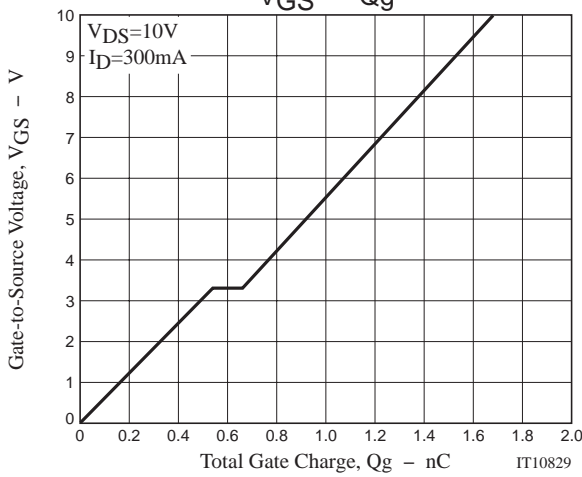
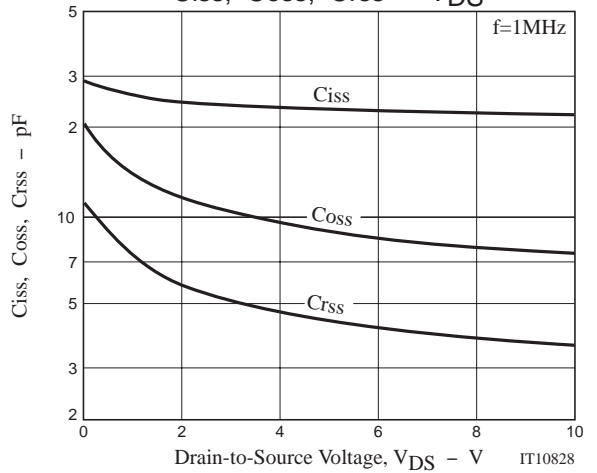
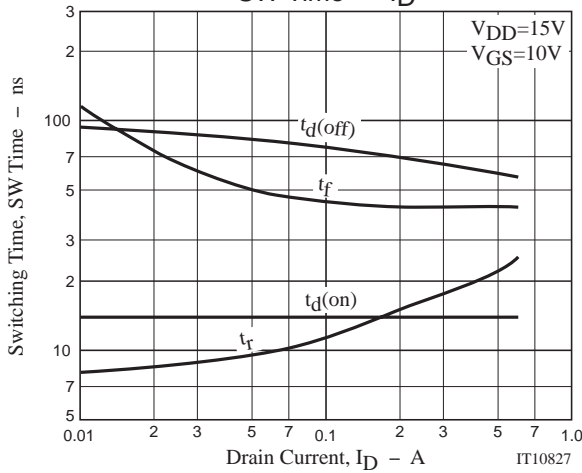
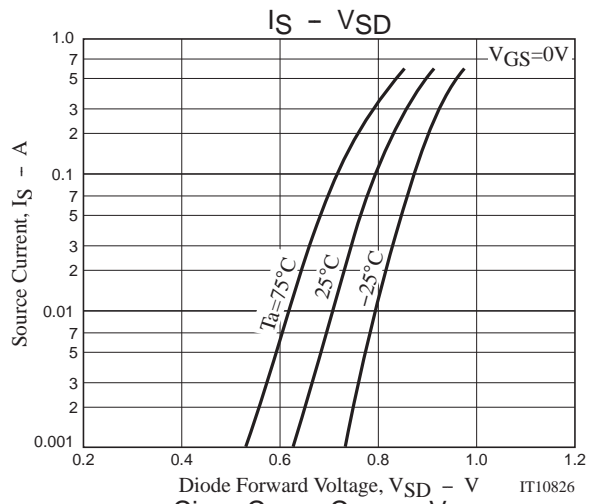
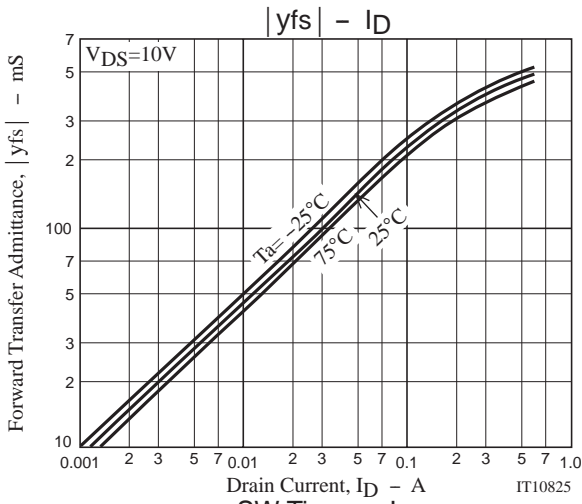
7027-004



Switching Time Test Circuit



3HN04S



Note on usage : Since the 3HN04S is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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