Ordering number : ENA0365

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

6HN04MH — General-Purpose Switching Device Applications

Features

- 4V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		200	mA
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	800	mA
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)	0.6	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-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}=0V	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=100μA	1.2		2.6	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=100mA	140	240		mS
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=100mA, V_{GS}=10V		1.8	2.4	Ω
	$R_{DS}(on)2$	I_D=50mA, V_{GS}=4V		2.6	3.7	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		27		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		8.6		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		4.4		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		13.5		ns
Rise Time	t_r	See specified Test Circuit.		11.5		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		81		ns
Fall Time	t_f	See specified Test Circuit.		39		ns

Marking : FB

Continued on next page.

SANYO Semiconductor Co., Ltd.
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

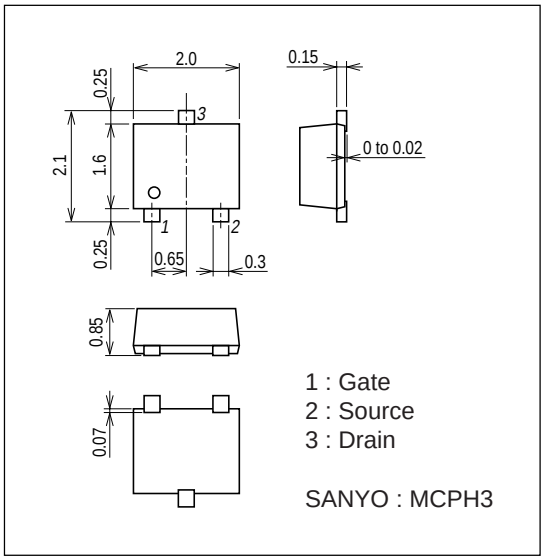
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V_{DS}=30V, V_{GS}=10V, I_D=200mA		1.88		nC
Gate-to-Source Charge	Qgs	V_{DS}=30V, V_{GS}=10V, I_D=200mA		0.4		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=30V, V_{GS}=10V, I_D=200mA		0.37		nC
Diode Forward Voltage	V_{SD}	I_S=200mA, V_{GS}=0V		0.85	1.2	V

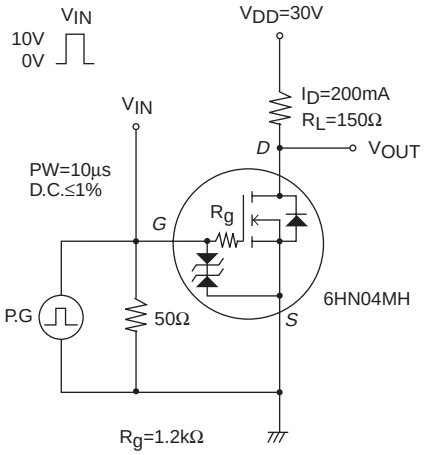
Package Dimensions

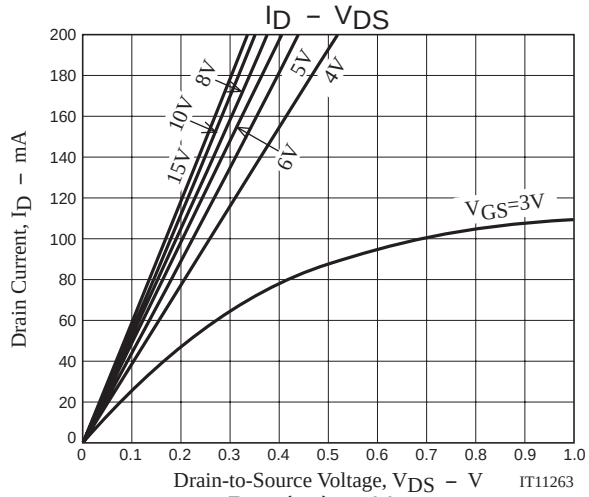
unit : mm (typ)

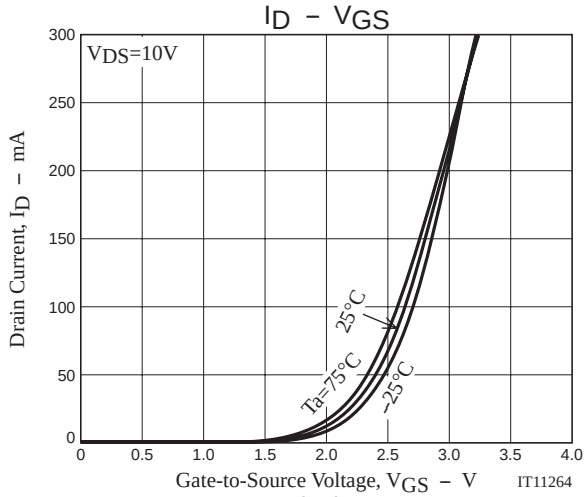
7019A-003

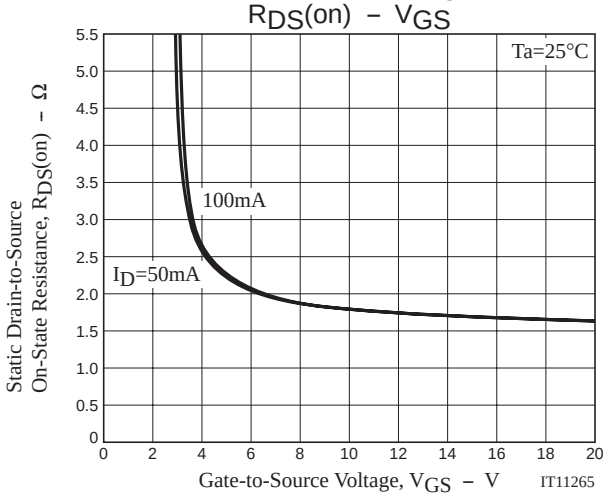


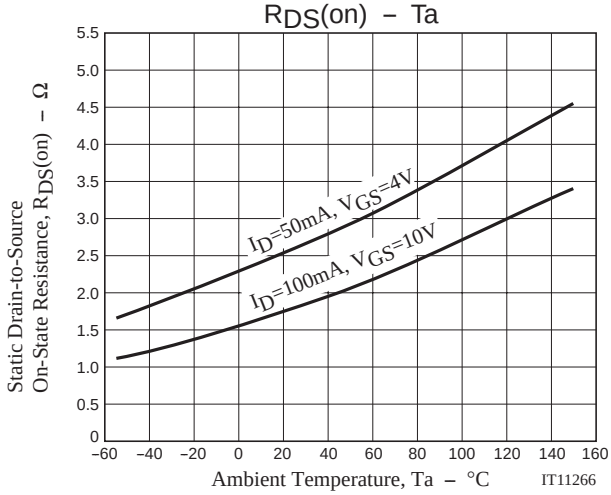
Switching Time Test Circuit

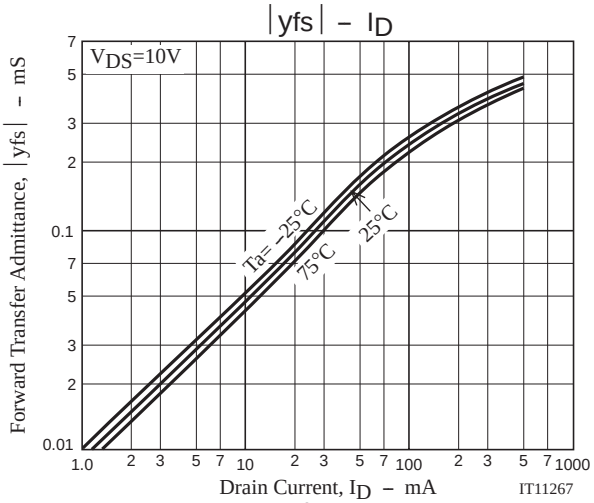


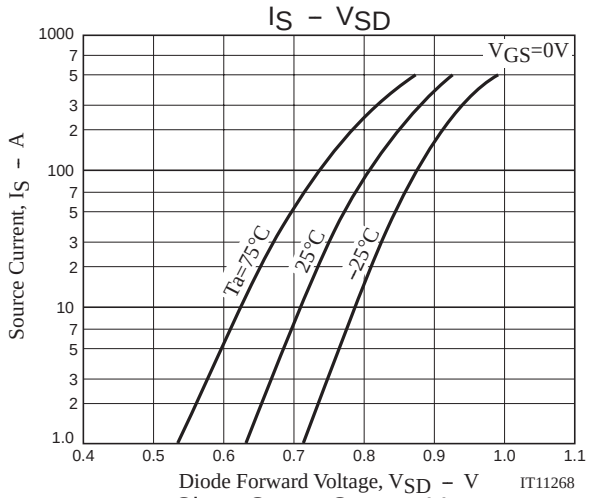


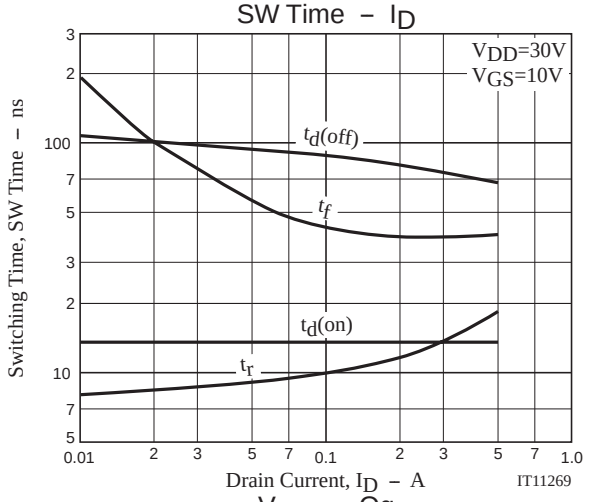


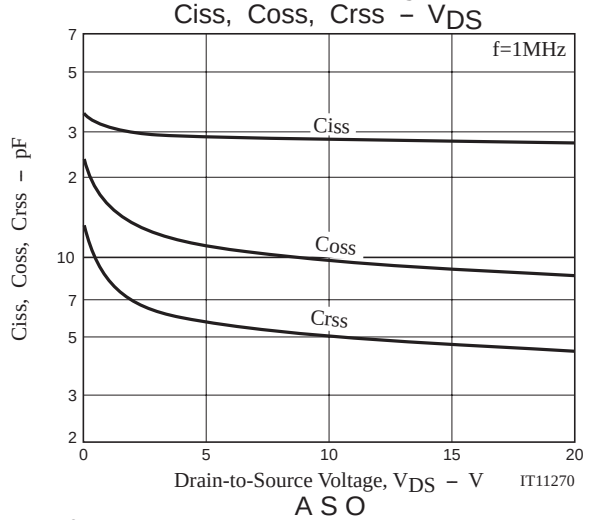


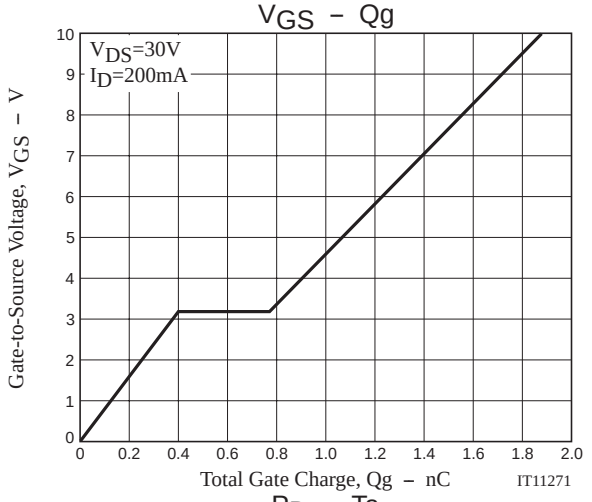


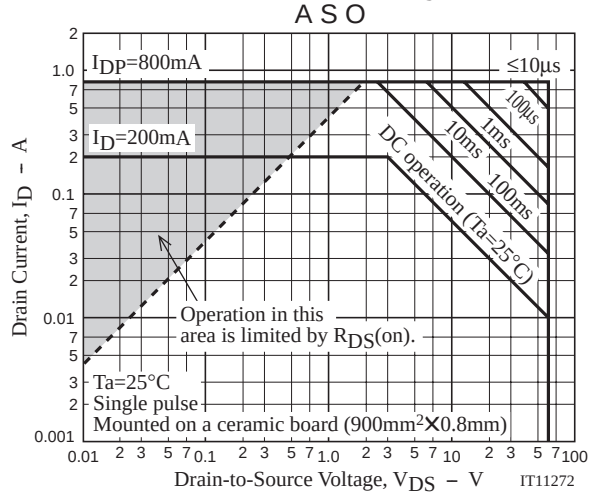

|yfs| – ID
VDS=10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – mS
Drain Current, ID – mA
IT11267

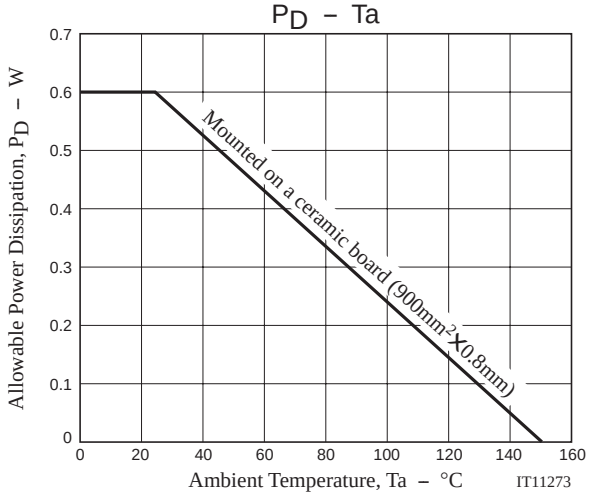

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT11268


SW Time – ID
VDD=30V
VGS=10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT11269


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT11270


VGS – Qg
VDS=30V
ID=200mA
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT11271


A S O
IDP=800mA
≤10μs
100μs
ID=200mA
1ms
10ms
100ms
DC operation (Ta=25°C)
Operation in this
area is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (900mm²×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT11272


PD – Ta
Mounted on a ceramic board (900mm²×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT11273

Note on usage : Since the 6HN04MH is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.