Ordering number : ENA0926

SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

1HP04CH — 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}		−100	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		−80	mA
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−320	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	−100			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−100V, 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=−40mA	85	145		mS
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=−40mA, V_{GS}=−10V		13.5	18	Ω
	$R_{DS}(on)2$	I_D=−20mA, V_{GS}=−4V		15	21	Ω
Input Capacitance	Ciss	V_{DS}=−20V, f=1MHz		14.5		pF
Output Capacitance	Coss	V_{DS}=−20V, f=1MHz		2.5		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−20V, f=1MHz		1.0		pF

Marking : WB

Continued on next page.

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

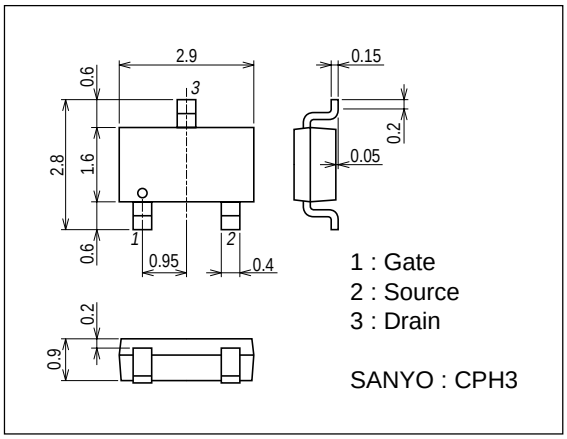
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		34		ns
Rise Time	t_r	See specified Test Circuit.		28		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		490		ns
Fall Time	t_f	See specified Test Circuit.		160		ns
Total Gate Charge	Qg	V_{DS}=−50V, V_{GS}=−10V, I_D=−80mA		1.7		nC
Gate-to-Source Charge	Qgs	V_{DS}=−50V, V_{GS}=−10V, I_D=−80mA		0.42		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−50V, V_{GS}=−10V, I_D=−80mA		0.20		nC
Diode Forward Voltage	V_{SD}	I_S=−80mA, V_{GS}=0V		−0.84	−1.2	V

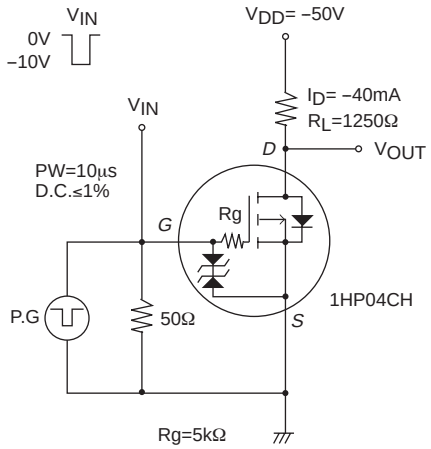
Package Dimensions

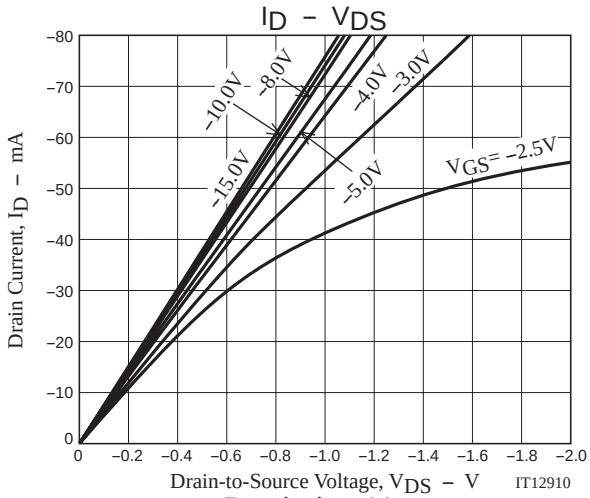
unit : mm (typ)

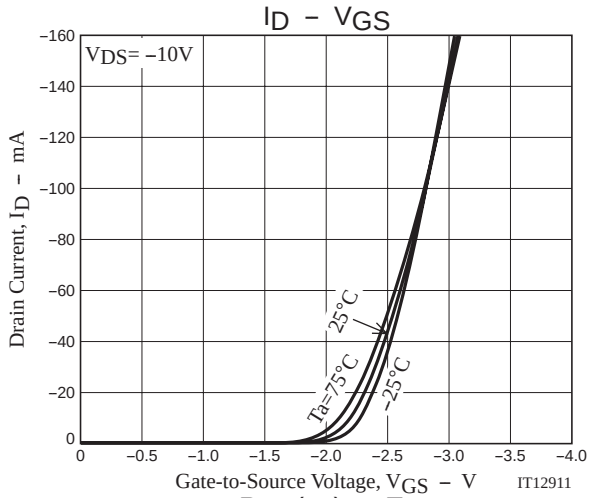
7015A-004

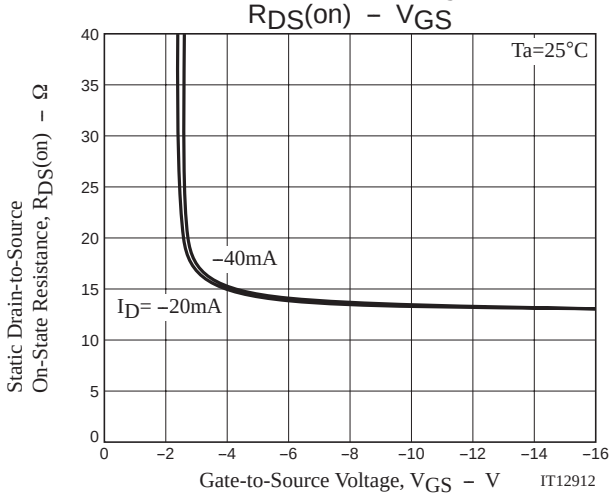


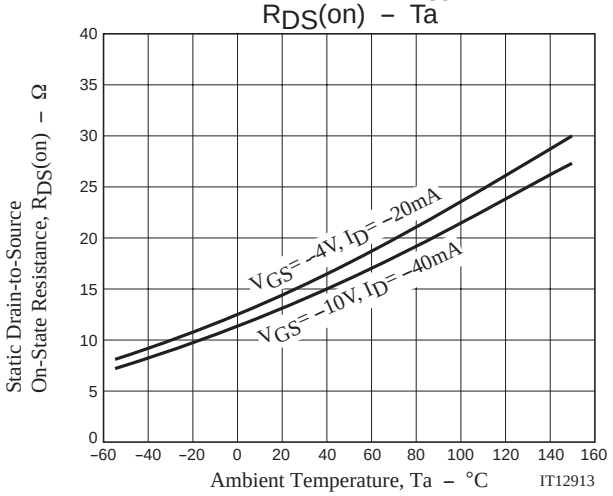
Switching Time Test Circuit

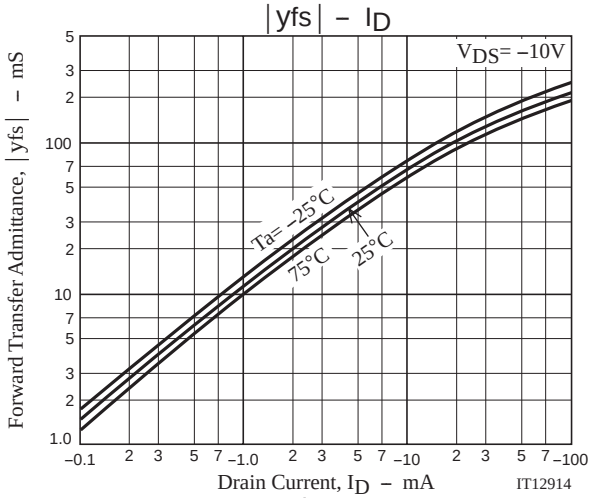


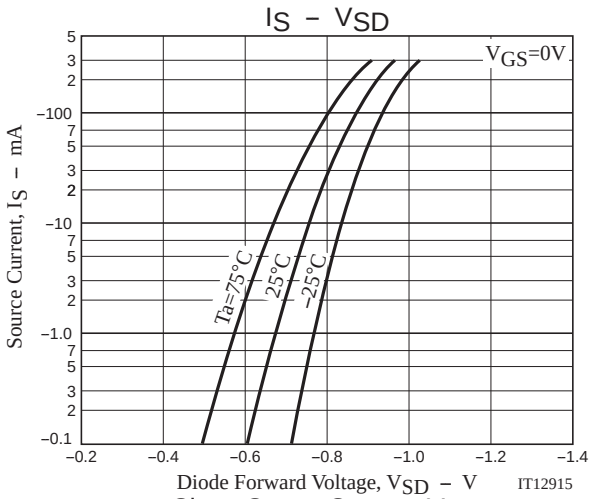


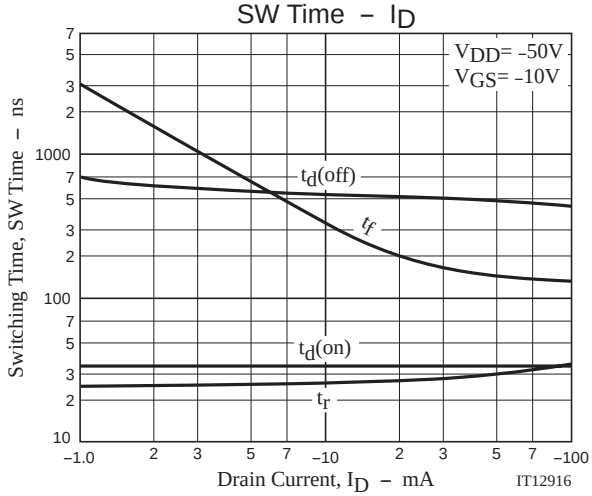


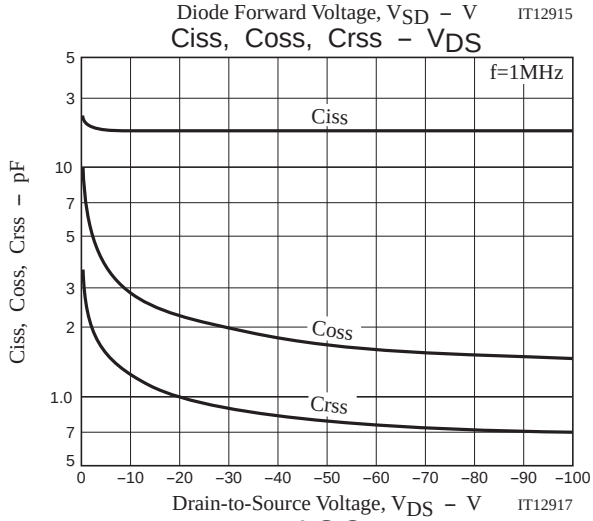


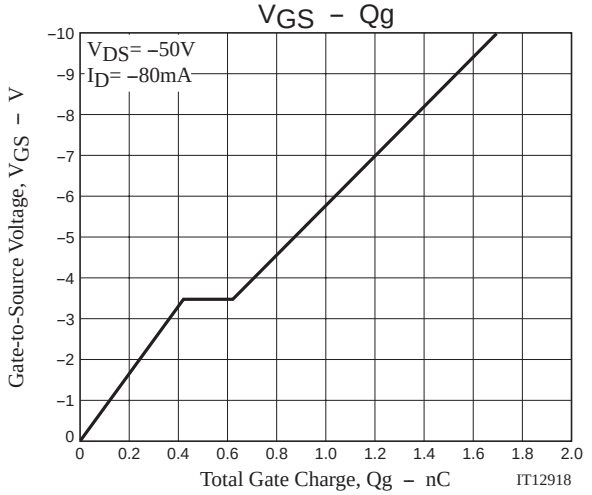


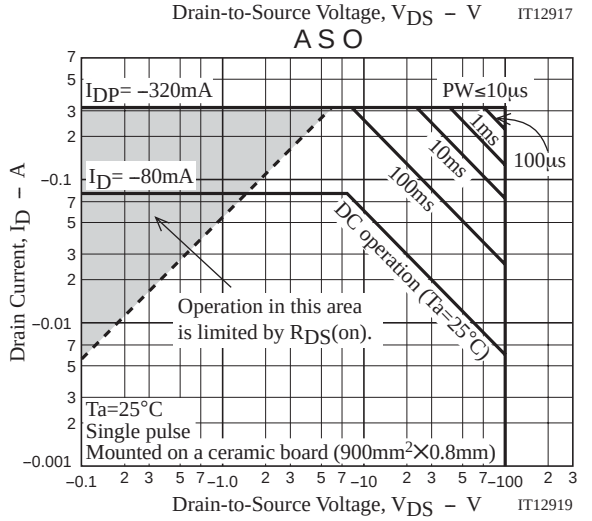

|yfs| – ID
VDS= –10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – mS
Drain Current, ID – mA
IT12914

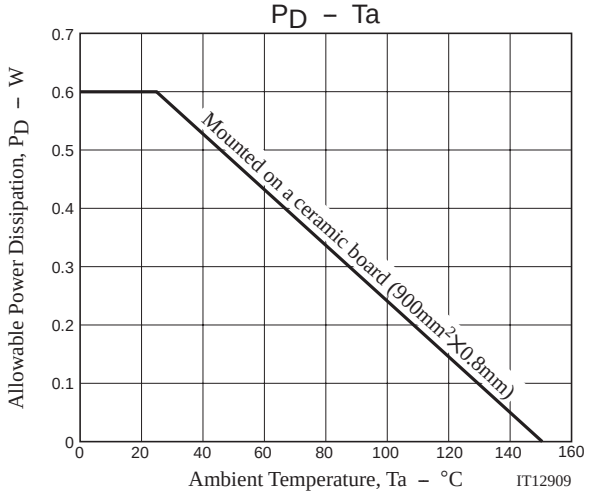

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – mA
Diode Forward Voltage, VSD – V
IT12915


SW Time – ID
VDD= –50V
VGS= –10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – mA
IT12916


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT12917


VGS – Qg
VDS= –50V
ID= –80mA
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT12918


A S O
IDP= –320mA
PW≤10μs
1ms
10ms
100μs
ID= –80mA
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
IT12919


PD – Ta
Mounted on a ceramic board (900mm2×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT12909

Note on usage : Since the 1HP04CH is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.