Ordering number : ENN7146

P-Channel Silicon MOSFET

CPH6603

Ultrahigh-Speed Switching Applications

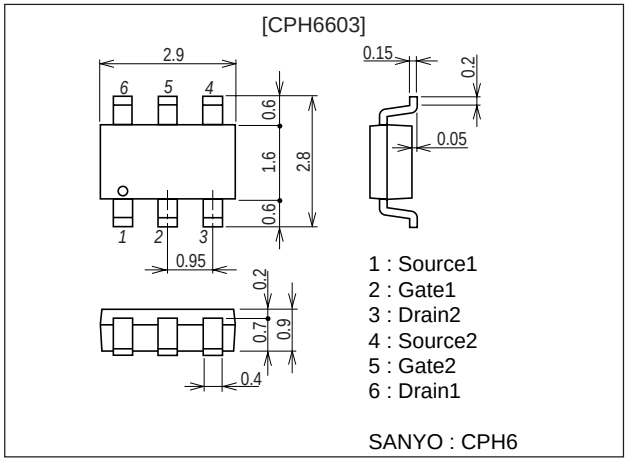
Features

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

Package Dimensions

unit : mm

2202



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		-1.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	-6.0	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)1unit	0.9	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}=0	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=-10V, I_D=-1mA	-1.2		-2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=-10V, I_D=-0.8A	1.0	1.5		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=-0.8A, V_{GS}=-10V		190	250	mΩ
	R_{DS}(on)2	I_D=-0.4A, V_{GS}=-4V		330	460	mΩ

Marking : FN

Continued on next page.

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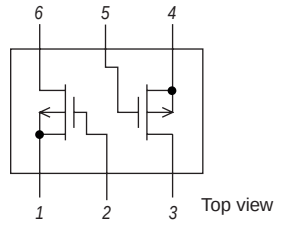
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Continued from preceding page.

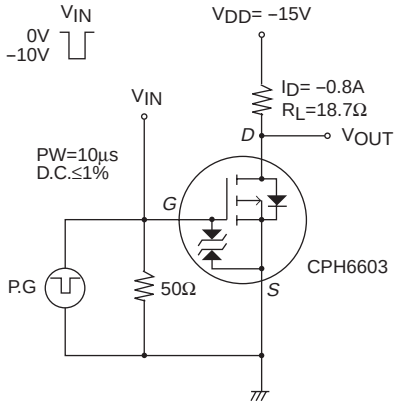
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=−10V, f=1MHz		185		pF
Output Capacitance	Coss	V_{DS}=−10V, f=1MHz		30		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−10V, f=1MHz		20		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		7		ns
Rise Time	t_{r}	See specified Test Circuit.		4		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		22		ns
Fall Time	t_{f}	See specified Test Circuit.		8		ns
Total Gate Charge	Qg	V_{DS}=−10V, V_{GS}=−10V, I_{D}=−1.5A		4.7		nC
Gate-to-Source Charge	Qgs	V_{DS}=−10V, V_{GS}=−10V, I_{D}=−1.5A		0.8		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−10V, V_{GS}=−10V, I_{D}=−1.5A		0.7		nC
Diode Forward Voltage	V_{SD}	I_{S}=−1.5A, V_{GS}=0		−0.88	−1.5	V

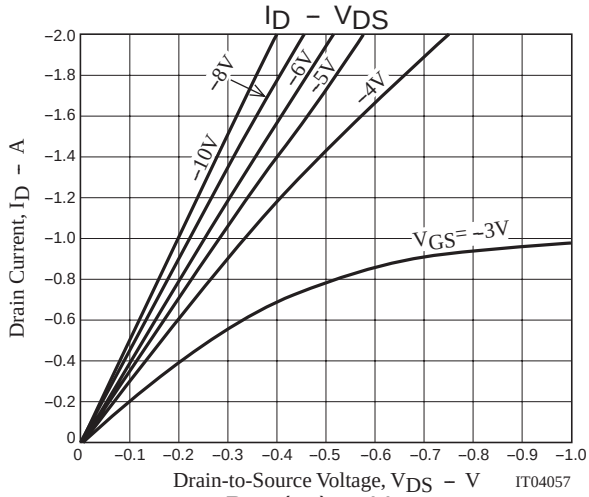
Electrical Connection

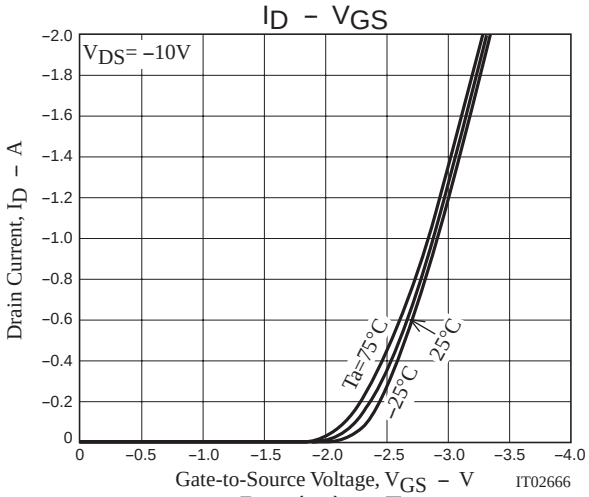


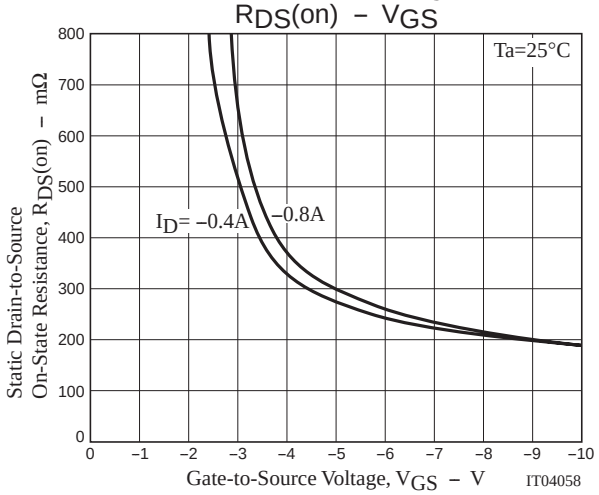
1 : Source1
2 : Gate1
3 : Drain2
4 : Source2
5 : Gate2
6 : Drain1

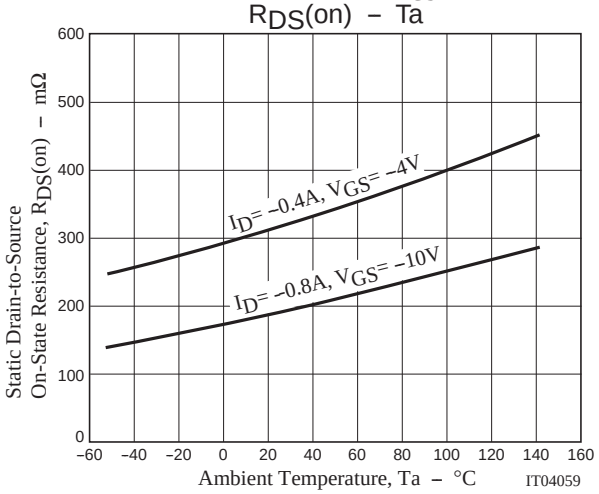
Switching Time Test Circuit

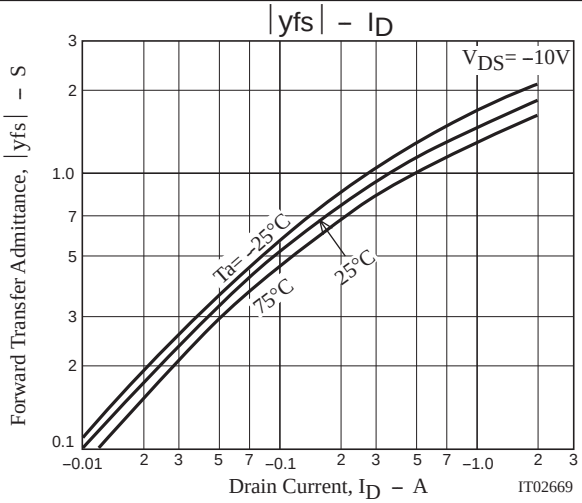


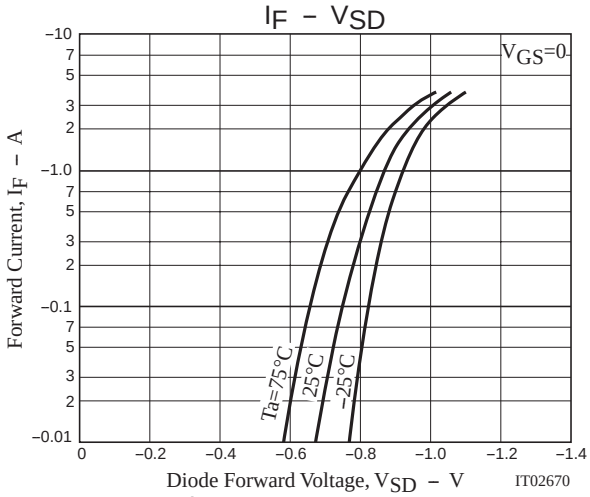


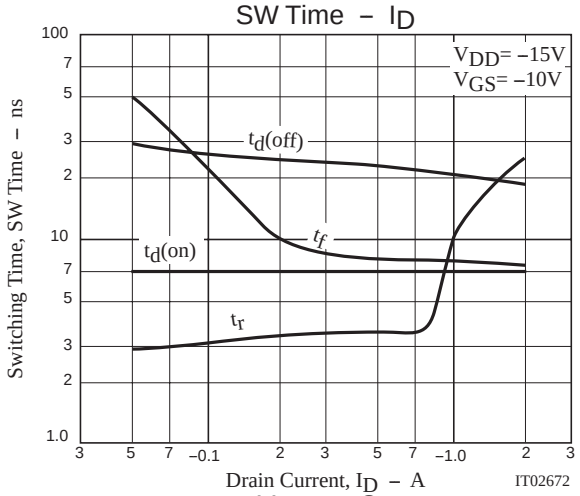


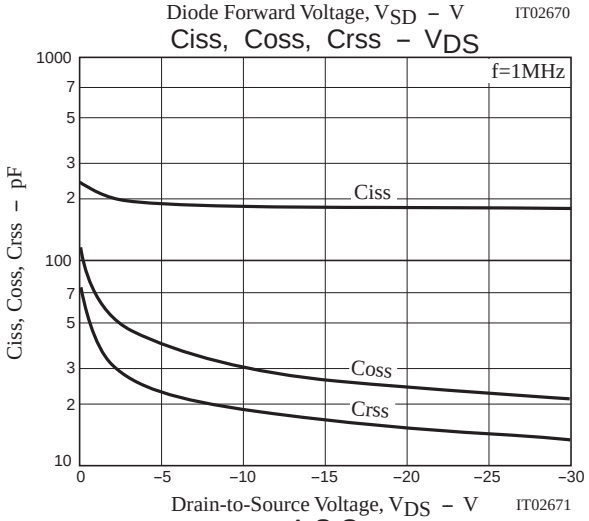


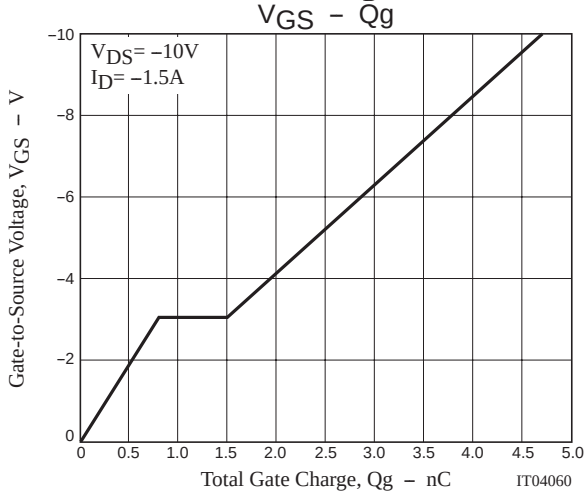


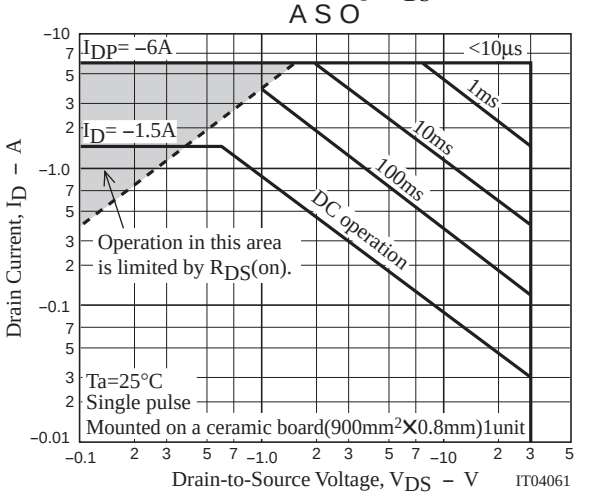

|yfs| – ID
VDS= –10V
Ta= –25°C
25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT02669

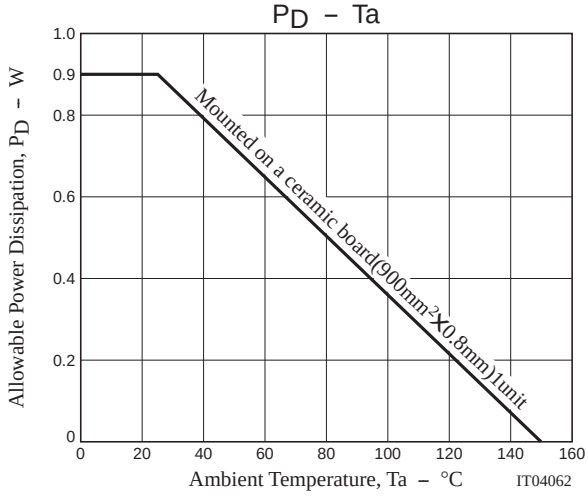

IF – VSD
VGS=0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT02670


SW Time – ID
VDD= –15V
VGS= –10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT02672


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT02671


VGS – Qg
VDS= –10V
ID= –1.5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT04060


ASO
IDP= –6A
<10µs
1ms
10ms
100ms
DC operation
ID= –1.5A
Operation in this area
is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board(900mm2×0.8mm)1unit
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT04061


PD – Ta
Mounted on a ceramic board(900mm2×0.8mm)1unit
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT04062