Ordering number : ENN7383

N-Channl Silicon MOSFET

CPH6411

Ultrahigh-Speed Switching Applications

Features

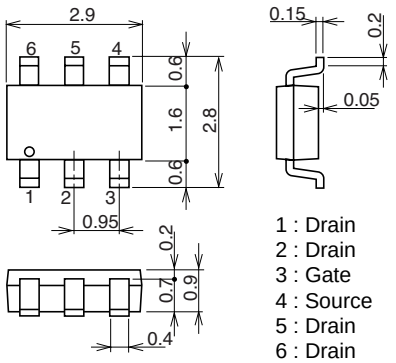
- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Package Dimensions

unit : mm

2151A

[CPH6411]



1 : Drain
2 : Drain
3 : Gate
4 : Source
5 : Drain
6 : Drain

SANYO : CPH6

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		6	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	24	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)	1.6	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}=0	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}= ±8V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	0.4		1.3	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=3A	7.7	11		S

Marking : KM

Continued on next page.

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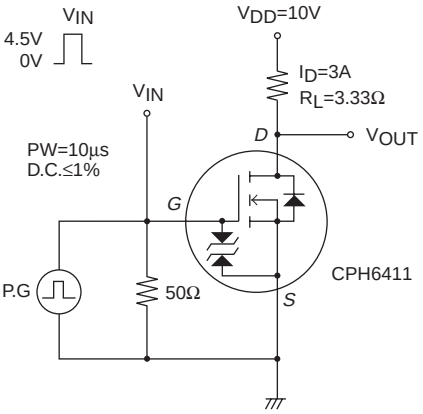
■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

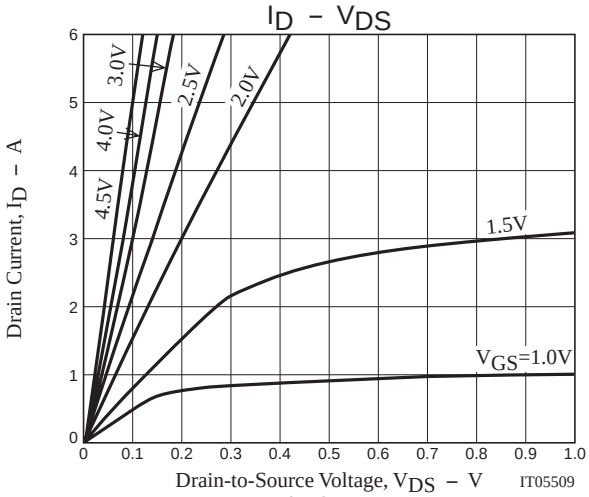
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

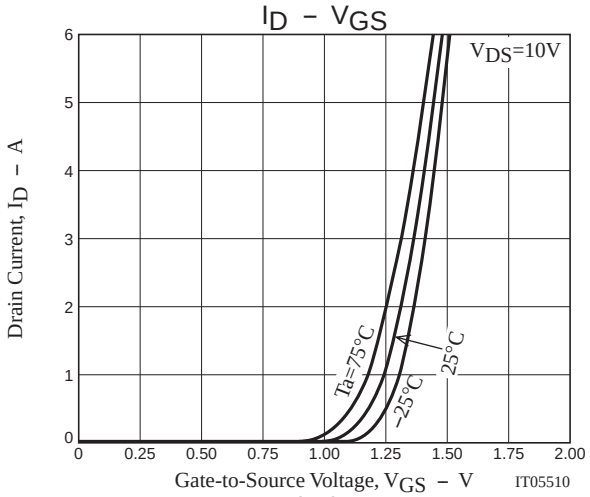
Continued from preceding page.

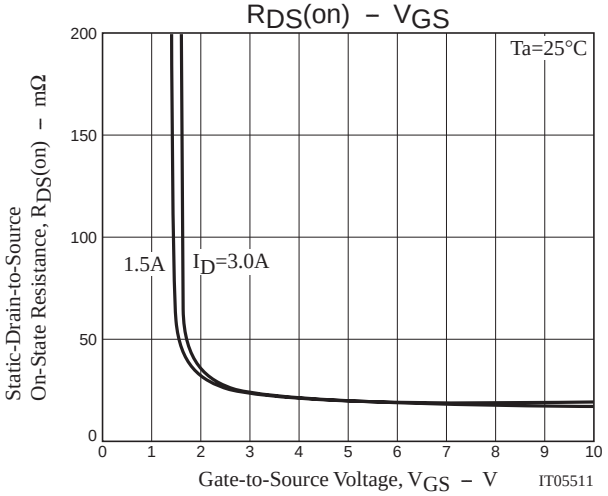
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=3A, V_{GS}=4.5V		20	26	mΩ
	$R_{DS}(on)2$	I_D=1.5A, V_{GS}=2.5V		26	37	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		1200		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		200		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		140		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		20		ns
Rise Time	t_r	See specified Test Circuit.		90		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		130		ns
Fall Time	t_f	See specified Test Circuit.		100		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		13		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		2		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		3		nC
Diode Forward Voltage	V_{SD}	I_S=6A, V_{GS}=0		0.82	1.2	V

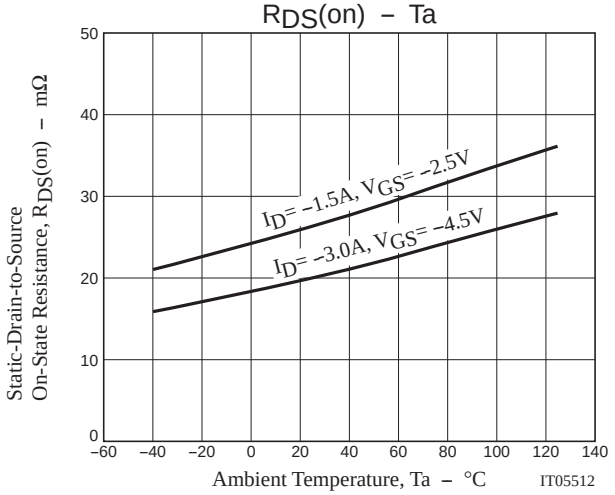
Switching Time Test Circuit

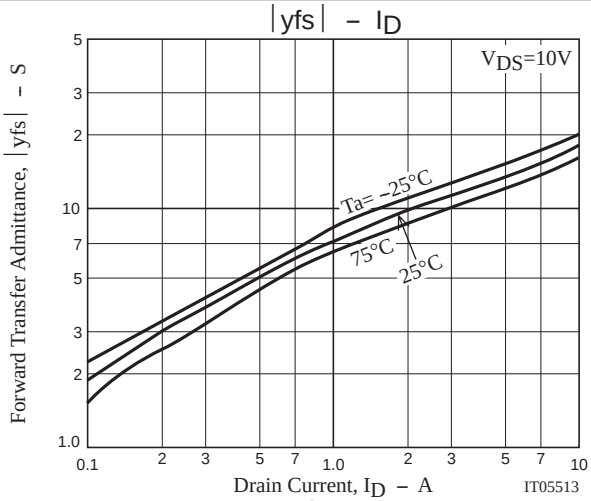


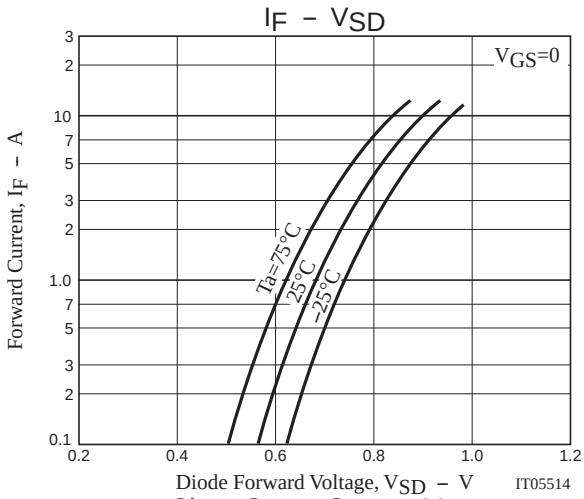


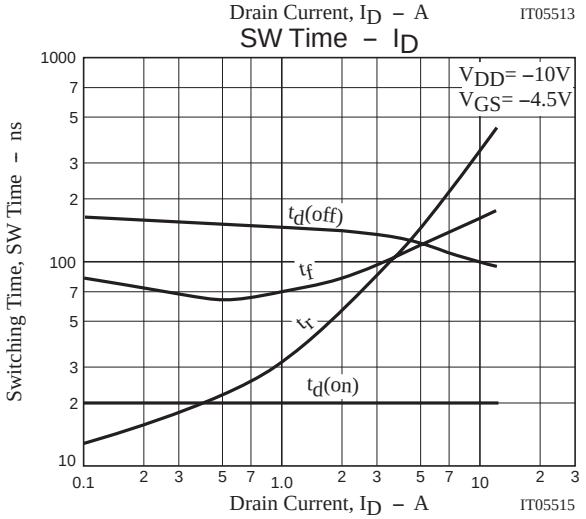


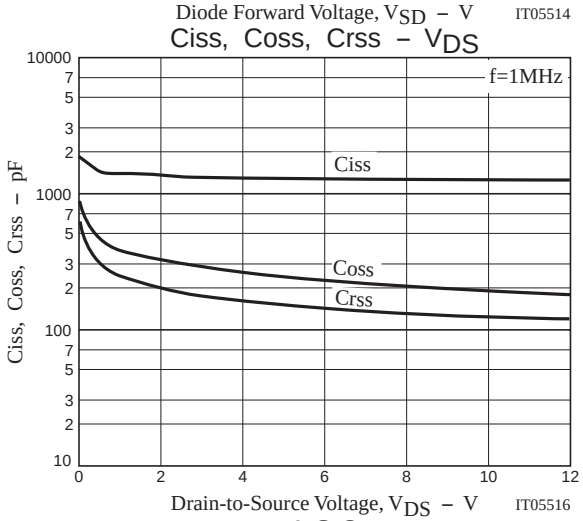


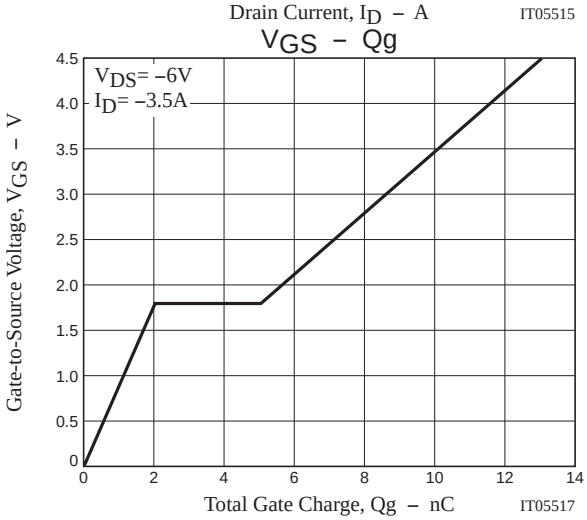


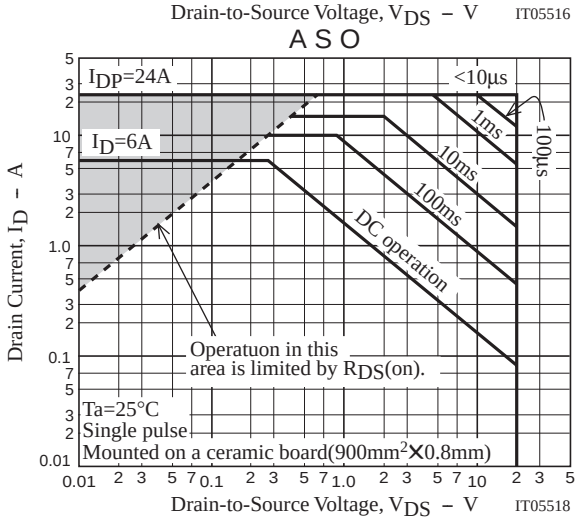

|yfs| – ID
VDS=10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT05513

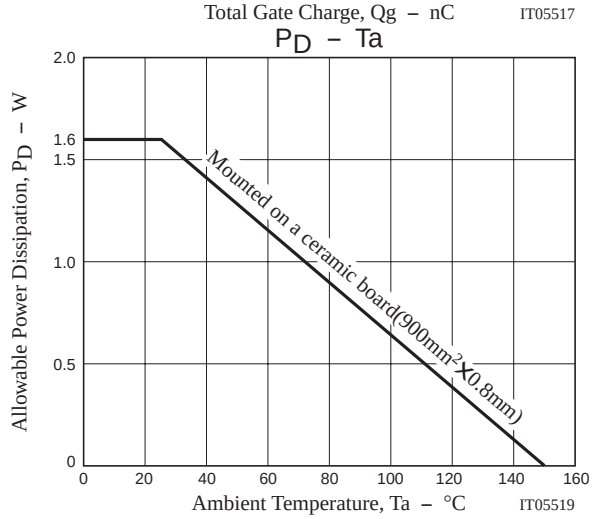

IF – VSD
VGS=0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT05514


SW Time – ID
VDD= –10V
VGS= –4.5V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT05515


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT05516


VGS – Qg
VDS= –6V
ID= –3.5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT05517


A S O
IDP=24A
ID=6A
<10µs
1ms
10ms
100ms
DC operation
100µs
Operatuon 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
IT05518


PD – Ta
Mounted on a ceramic board(900mm2×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT05519

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