Ordering number : ENN8107

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

CPH6616 — General-Purpose Switching Device Applications

Features

- Composite type with 2 MOSFETs contained in a single package, facilitating high-density mounting.
- Excellent ON-resistance characteristic.
- Best suited for load switches.
- 4V drive.

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		2.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	10	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²X0.8mm)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=1.5A	1.2	2.0		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=1.5A, V_{GS}=10V		79	105	mΩ
	R_{DS}(on)2	I_D=1A, V_{GS}=4V		150	210	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		187		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		40		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		33		pF

Marking : WC

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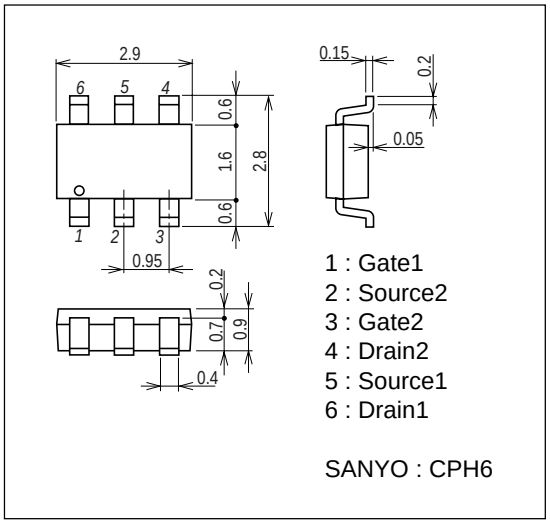
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.8		ns
Rise Time	t_r	See specified Test Circuit.		18.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		22		ns
Fall Time	t_f	See specified Test Circuit.		12		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=2.5A		5.2		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=2.5A		1		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=2.5A		0.97		nC
Diode Forward Voltage	V_{SD}	I_S=2.5A, V_{GS}=0		0.9	1.2	V

Package Dimensions

unit : mm

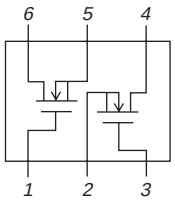
2238



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

SANYO : CPH6

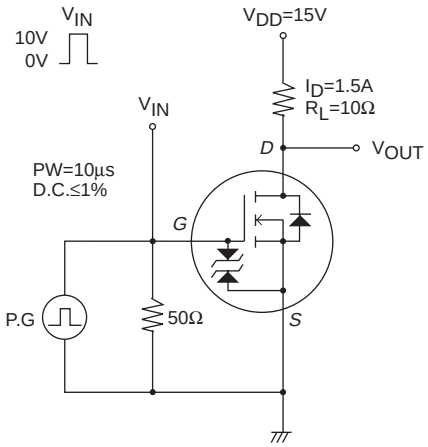
Electrical Connection

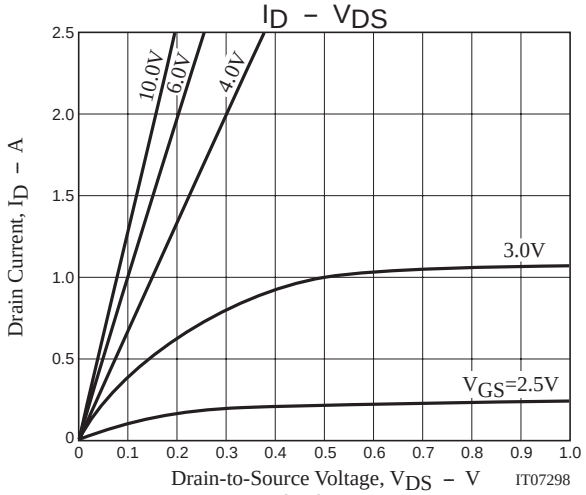


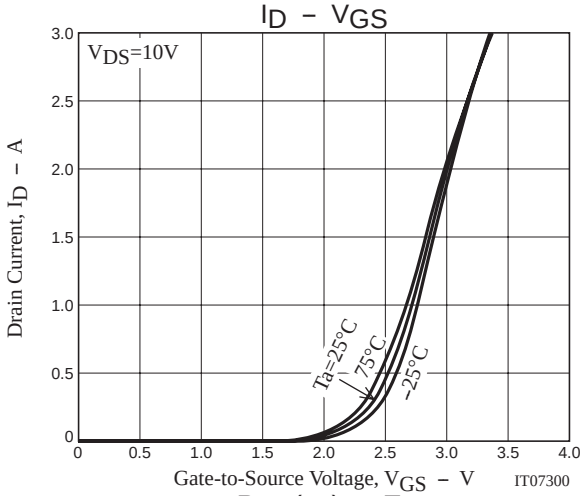
1 : Gate1
2 : Source2
3 : Gate2
4 : Drain2
5 : Source1
6 : Drain1

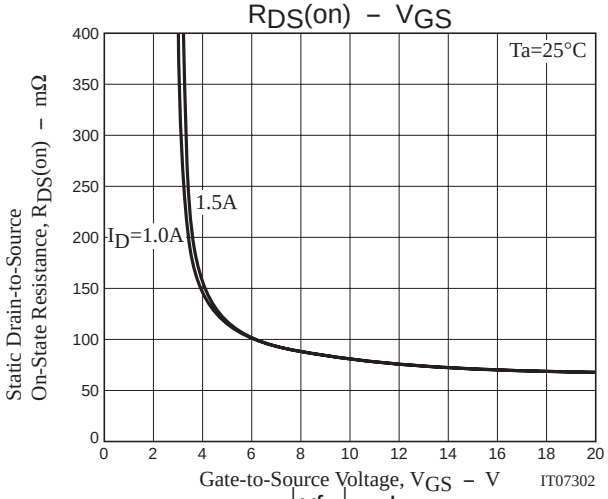
Top view

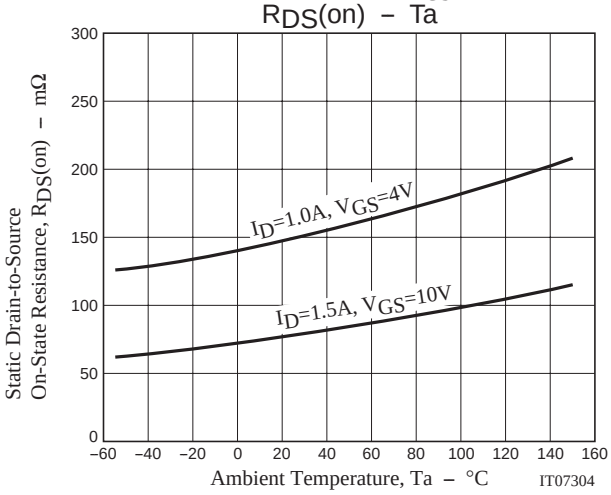
Switching Time Test Circuit

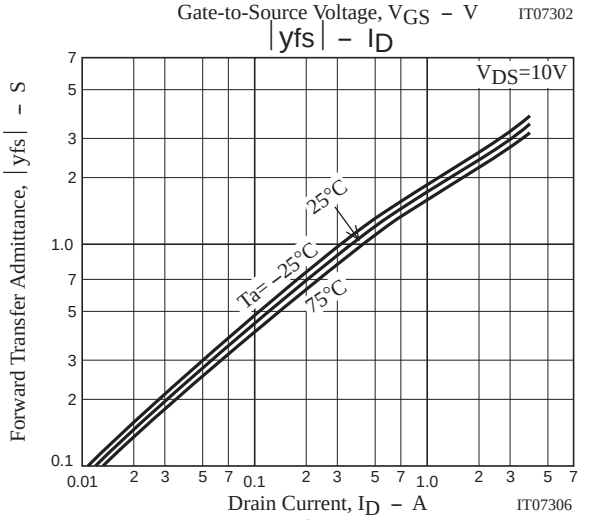


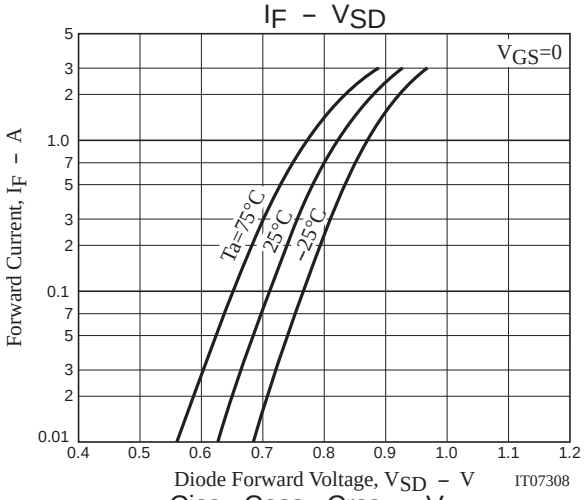

ID – VDS
Drain Current, ID – A
10.0V
6.0V
4.0V
3.0V
VGS=2.5V
Drain-to-Source Voltage, VDS – V
IT07298

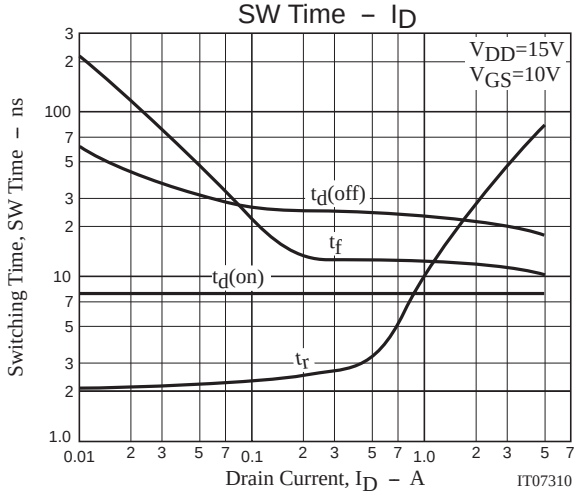

ID – VGS
VDS=10V
Drain Current, ID – A
Ta=25°C
75°C
–25°C
Gate-to-Source Voltage, VGS – V
IT07300

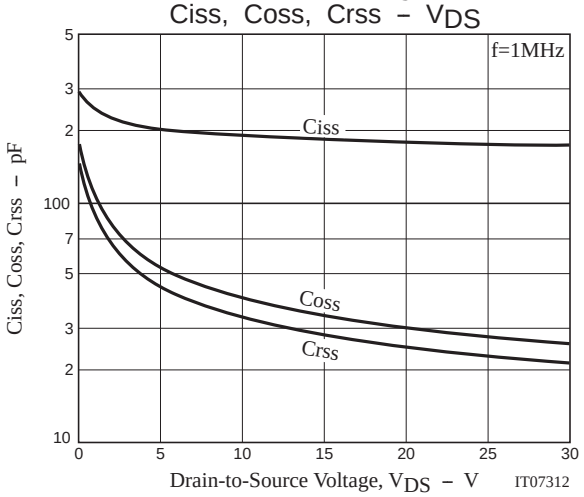

RDS(on) – VGS
Ta=25°C
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
1.5A
ID=1.0A
Gate-to-Source Voltage, VGS – V
IT07302

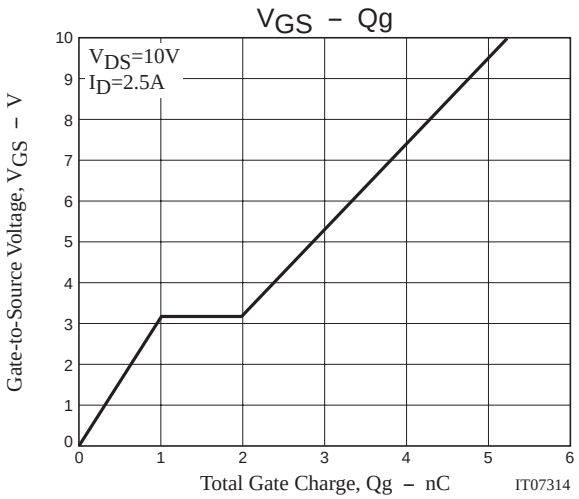

RDS(on) – Ta
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
ID=1.0A, VGS=4V
ID=1.5A, VGS=10V
Ambient Temperature, Ta – °C
IT07304

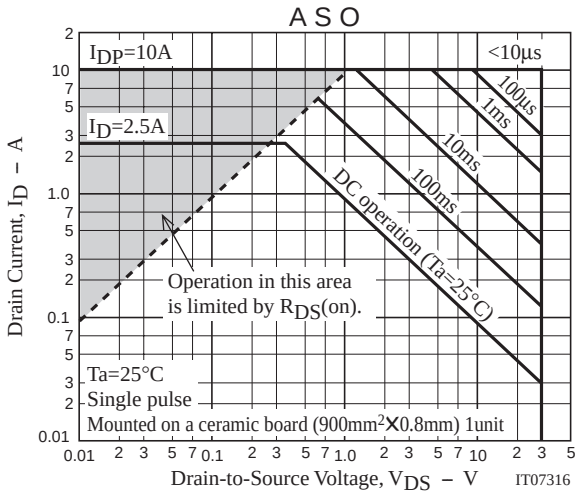

|yfs| – ID
VDS=10V
Forward Transfer Admittance, |yfs| – S
25°C
Ta=–25°C
75°C
Drain Current, ID – A
IT07306

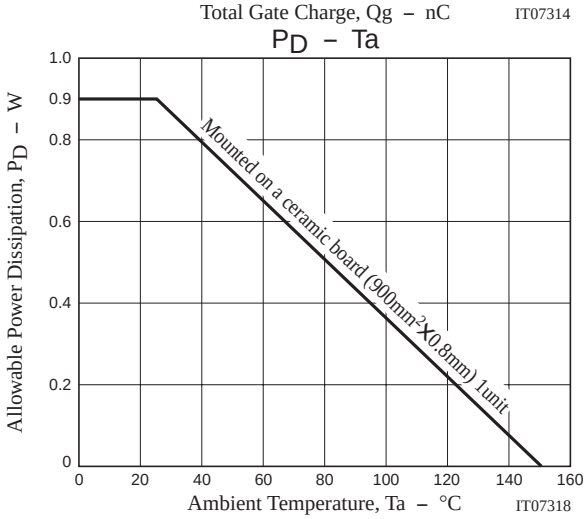

IF – VSD
VGS=0
Forward Current, IF – A
Ta=75°C
25°C
–25°C
Diode Forward Voltage, VSD – V
IT07308


SW Time – ID
VDD=15V
VGS=10V
Switching Time, SW Time – ns
td(off)
tf
td(on)
tr
Drain Current, ID – A
IT07310


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT07312







Note on usage : Since the CPH6616 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.