



SANYO Semiconductors

DATA SHEET

CPH5863

MOSFET : N-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

General-Purpose Switching Device
Applications

Features

- DC / DC converter applications.
- Composite type with a N-channel silicon MOSFET and a schottky barrier diode contained in one package facilitating high-density mounting.
- [MOSFET]
 - 2.5V drive.
- [SBD]
 - Short reverse recovery time.
 - Low forward voltage.
 - Low reverse current.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V _{DSS}		30	V
Gate-to-Source Voltage	V _{GSS}		±12	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 (1000mm ² ×0.8mm) 1unit	0.9	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : YR

Continued on next page.

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Parameter	Symbol	Conditions	Ratings	Unit
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		30	V
Nonrepetitive Peak Reverse Surge Voltage	V_{RSM}		35	V
Average Output Current	I_O		700	mA
Surge Forward Current	I_{FSM}	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T_J		-55 to +125	°C
Storage Temperature	T_{stg}		-55 to +125	°C

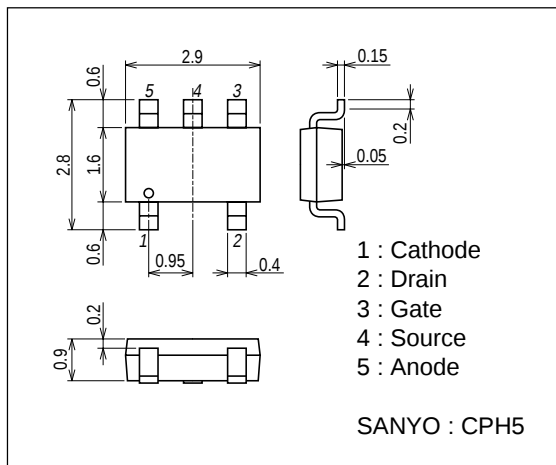
Electrical Characteristics at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	0.4		1.3	V
Forward Transfer Admittance	yfs	VDS=10V, ID=1.3A	1.9	3.2		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=1.3A, VGS=4V		95	125	mΩ
	RDS(on)2	ID=0.7A, VGS=2.5V		120	170	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		270		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		40		pF
Reverse Transfer Capacitance	Crss	VDS=10V, f=1MHz		35		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		10		ns
Rise Time	tr	See specified Test Circuit.		40		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		39		ns
Fall Time	tf	See specified Test Circuit.		38		ns
Total Gate Charge	Qg	VDS=10V, VGS=4V, ID=2.5A		3.7		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=4V, ID=2.5A		0.65		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=10V, VGS=4V, ID=2.5A		1		nC
Diode Forward Voltage	VSD	IS=2.5A, VGS=0V		0.9	1.2	V
[SBD]						
Reverse Voltage	VR	IR=300μA	30			V
Forward Voltage	VF	IF=700mA			0.55	V
Reverse Current	IR	VR=15V			80	μA
Interterminal Capacitance	C	VR=10V, f=1MHz, 1 cycle		25		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			10	ns

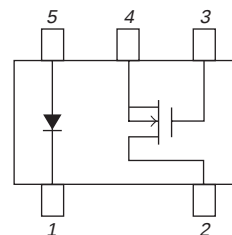
Package Dimensions

unit : mm (typ)

7017A-005



Electrical Connection

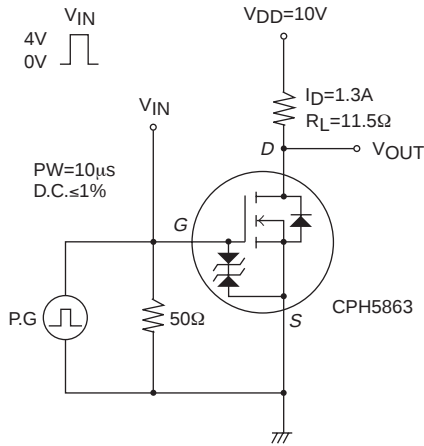


- 1 : Cathode
- 2 : Drain
- 3 : Gate
- 4 : Source
- 5 : Anode

Top view

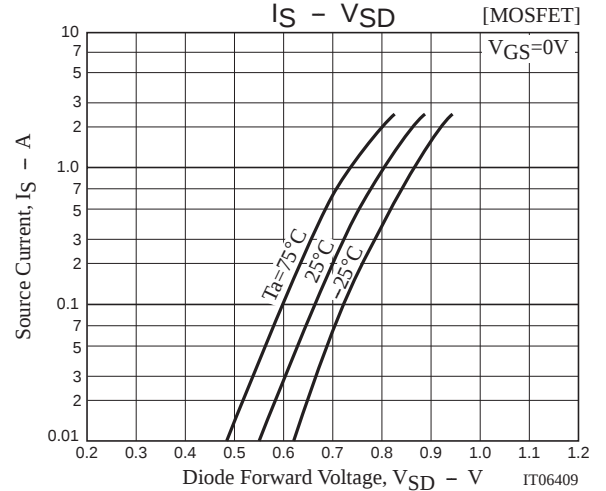
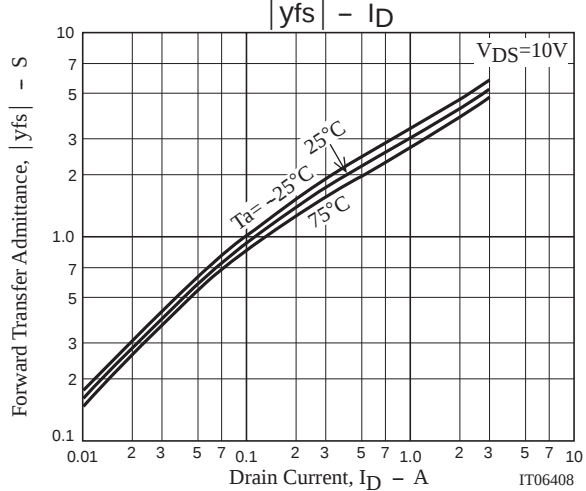
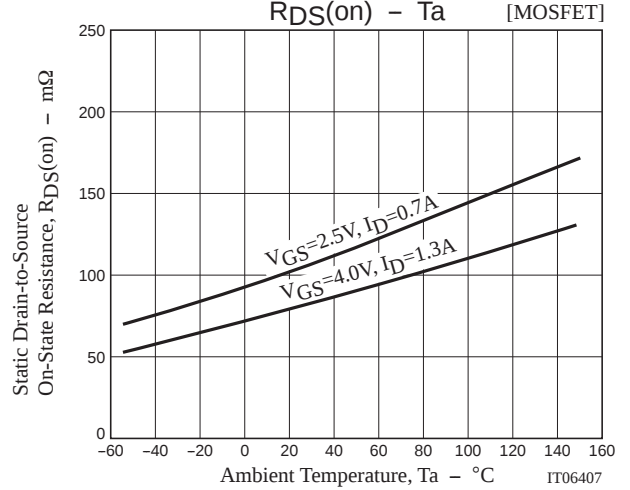
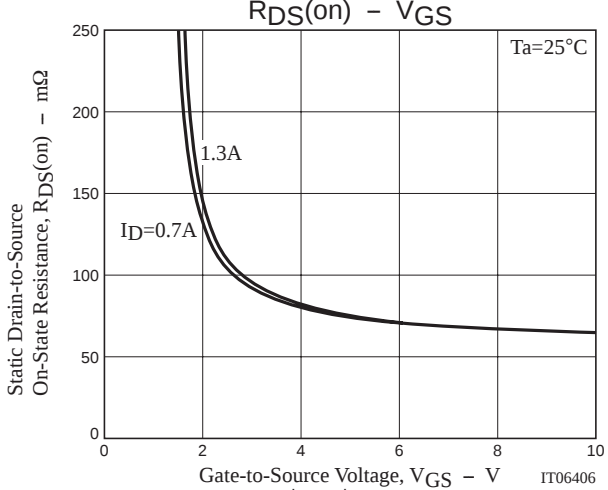
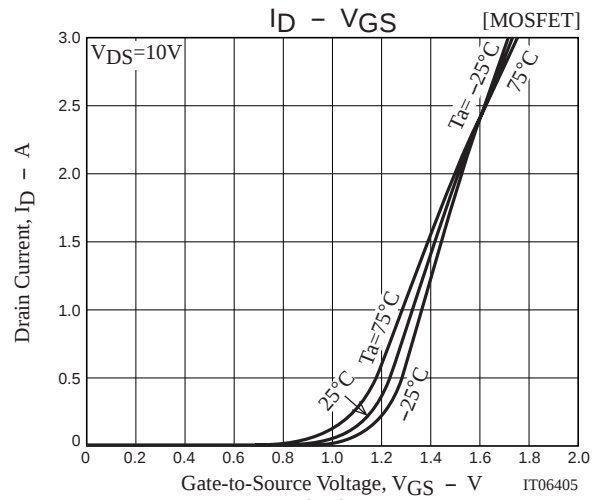
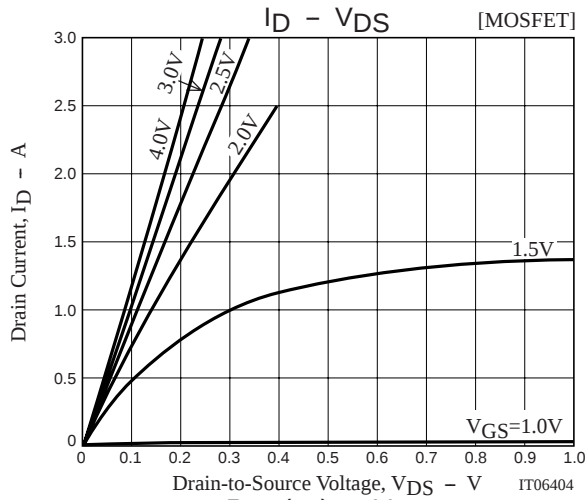
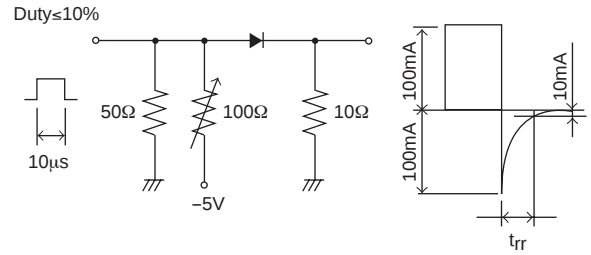
Switching Time Test Circuit

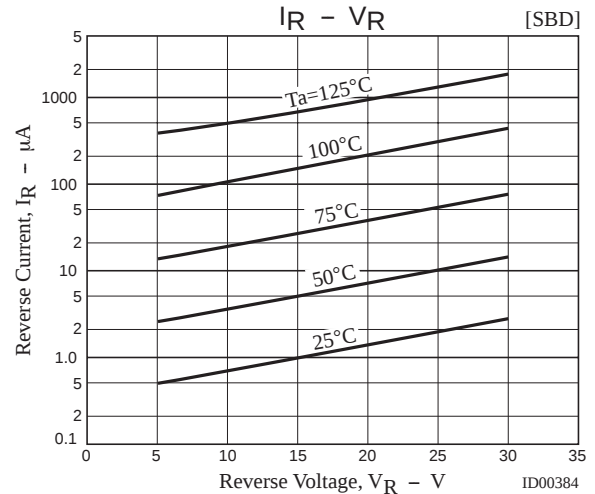
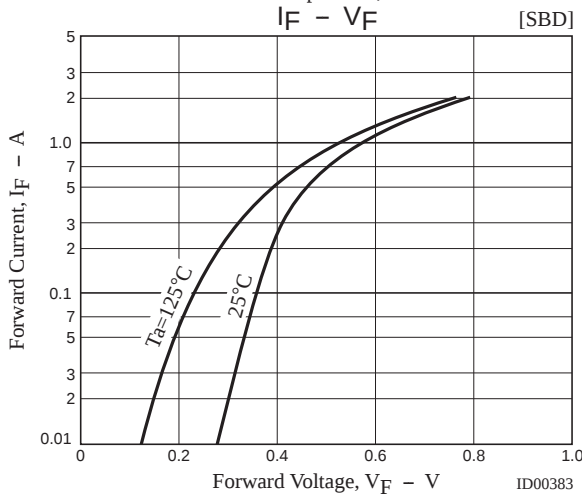
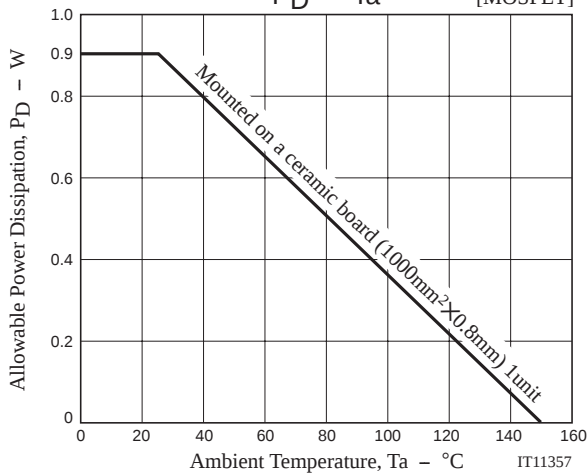
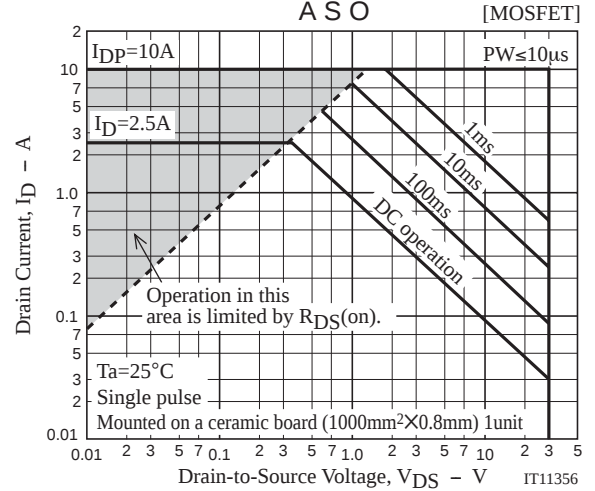
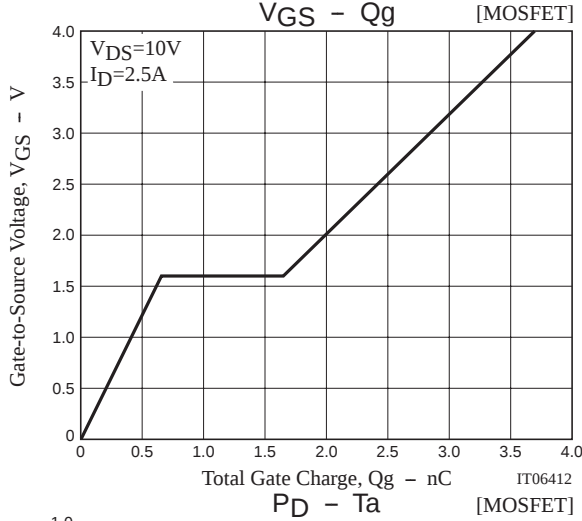
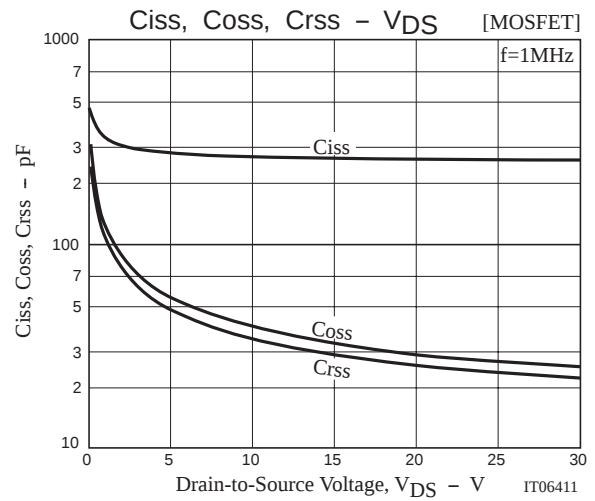
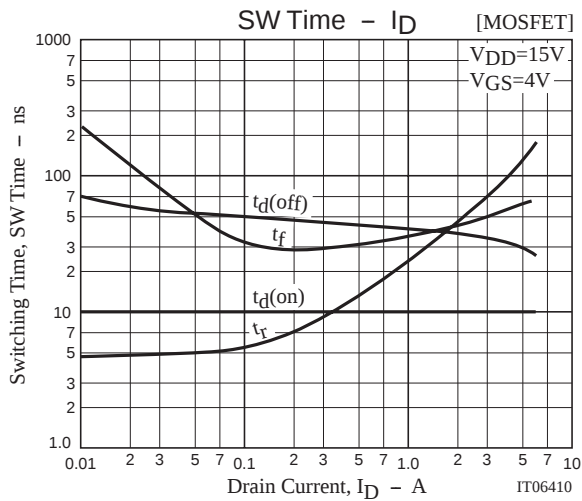
[MOSFET]

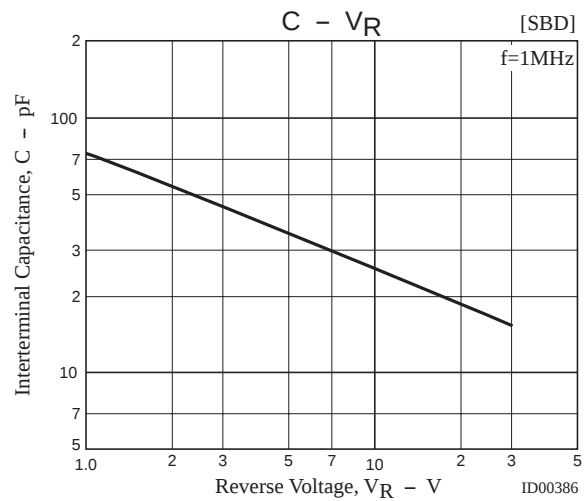
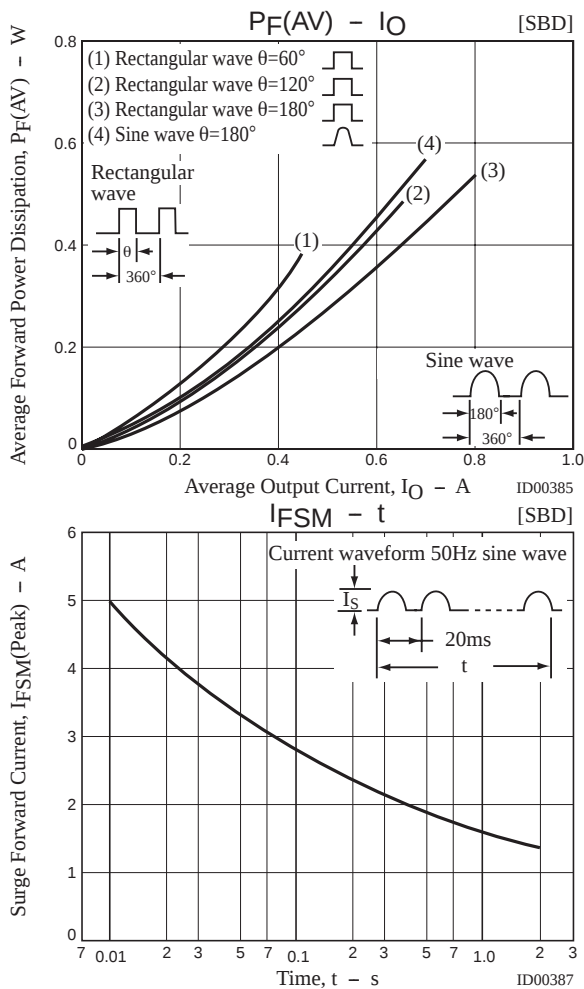


t_{rr} Test Circuit

[SBD]







Note on usage : Since the CPH5863 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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