



SANYO Semiconductors

DATA SHEET

CPH5862

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}		20	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		2	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	8	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 : YQ

Continued on next page.

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SANYO Semiconductor Co., Ltd.

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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

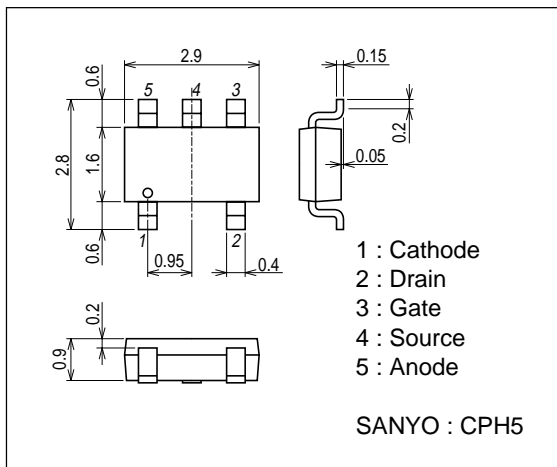
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=1\text{A}$	1.6	2.7		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1\text{A}, V_{GS}=4\text{V}$		100	130	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=0.5\text{A}, V_{GS}=2.5\text{V}$		130	180	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}, f=1\text{MHz}$		190		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}, f=1\text{MHz}$		40		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}, f=1\text{MHz}$		25		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		9		ns
Rise Time	t_r	See specified Test Circuit.		25		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		25		ns
Fall Time	t_f	See specified Test Circuit.		18		ns
Total Gate Charge	Q_g	$V_{DS}=10\text{V}, V_{GS}=4\text{V}, I_D=2\text{A}$		2.7		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10\text{V}, V_{GS}=4\text{V}, I_D=2\text{A}$		0.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10\text{V}, V_{GS}=4\text{V}, I_D=2\text{A}$		0.6		nC
Diode Forward Voltage	V_{SD}	$I_S=2\text{A}, V_{GS}=0\text{V}$		0.87	1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R=300\mu\text{A}$	30			V
Forward Voltage	V_F	$I_F=700\text{mA}$			0.55	V
Reverse Current	I_R	$V_R=15\text{V}$			80	μA
Interterminal Capacitance	C	$V_R=10\text{V}, f=1\text{MHz}, 1\text{ cycle}$		25		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100\text{mA}$, See specified Test Circuit.			10	ns

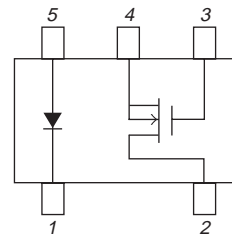
Package Dimensions

unit : mm (typ)

7017A-005



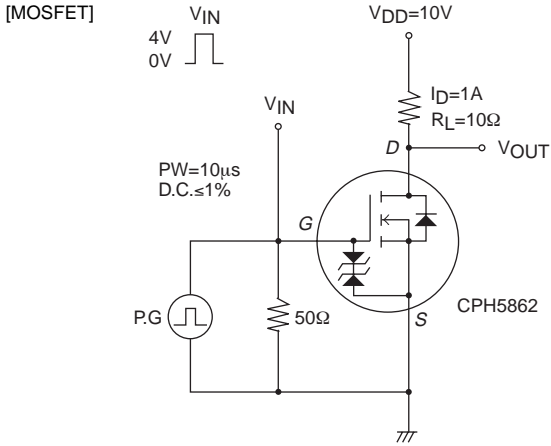
Electrical Connection



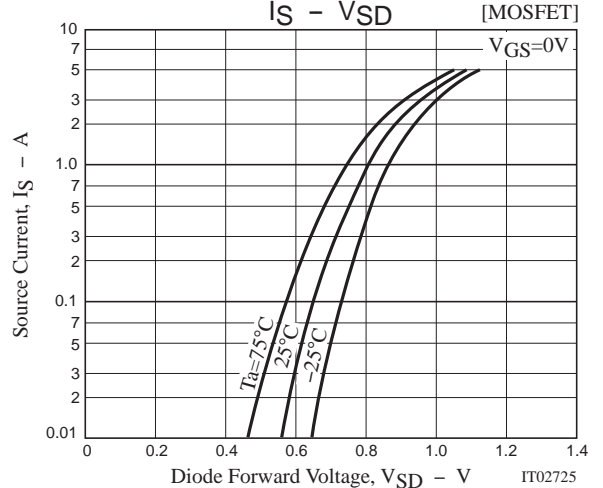
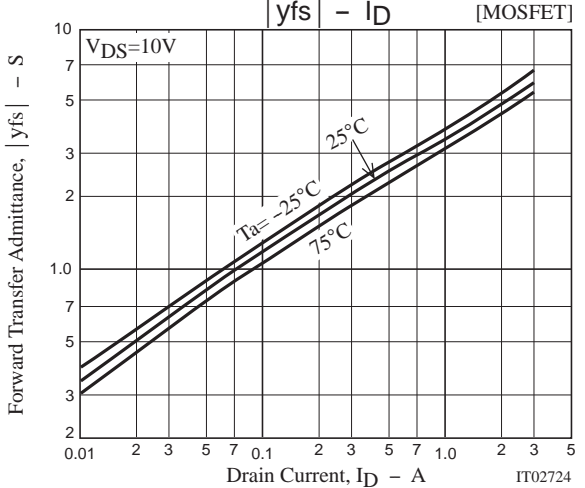
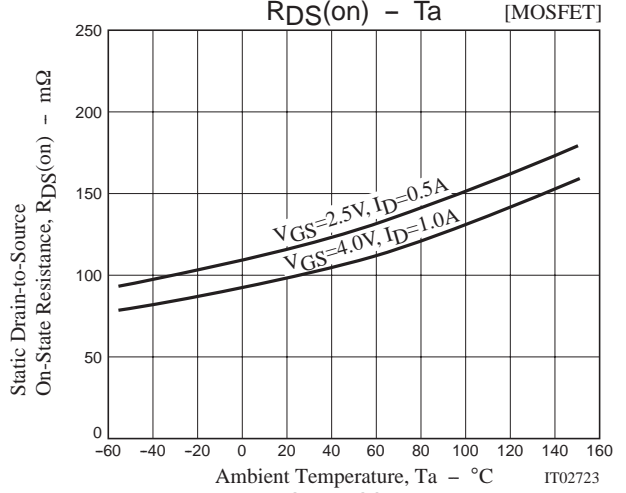
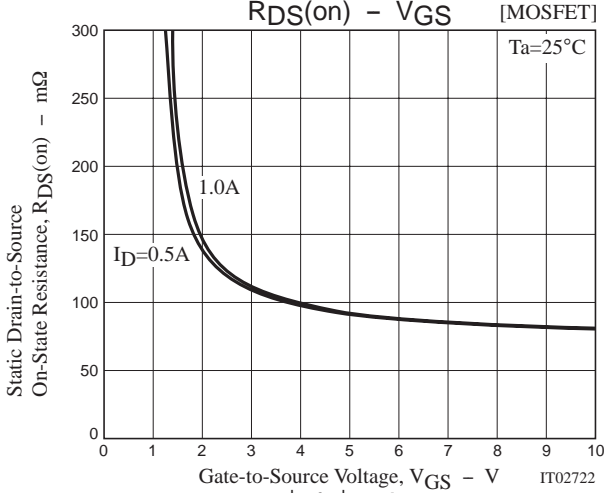
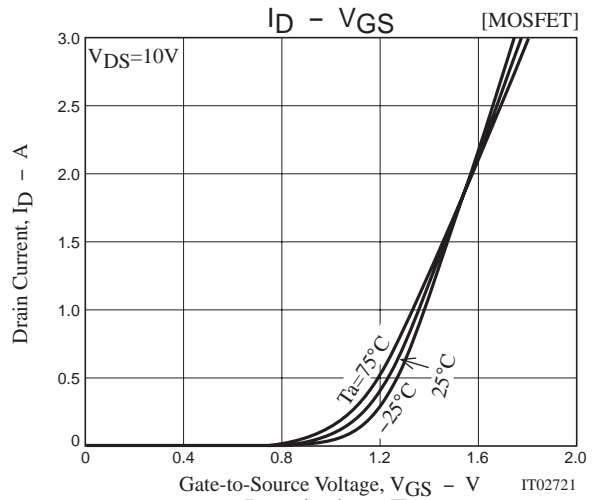
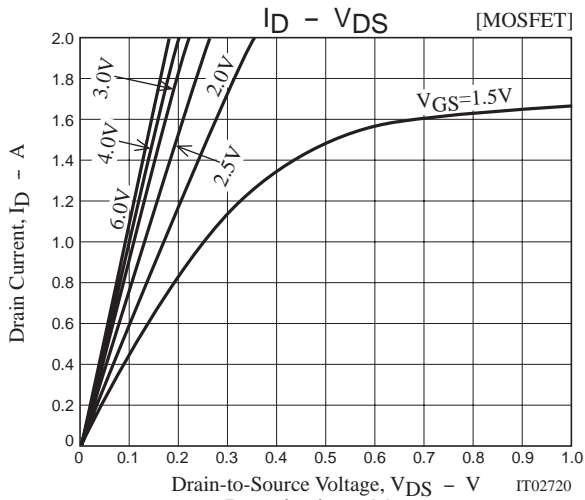
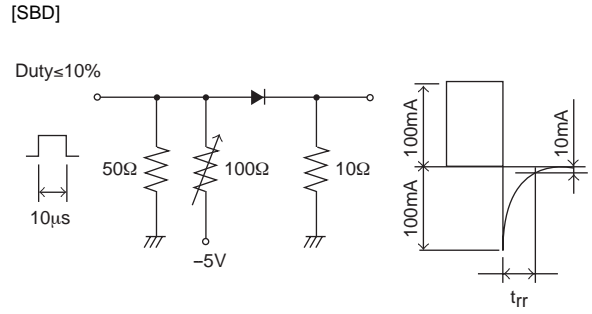
- 1 : Cathode
- 2 : Drain
- 3 : Gate
- 4 : Source
- 5 : Anode

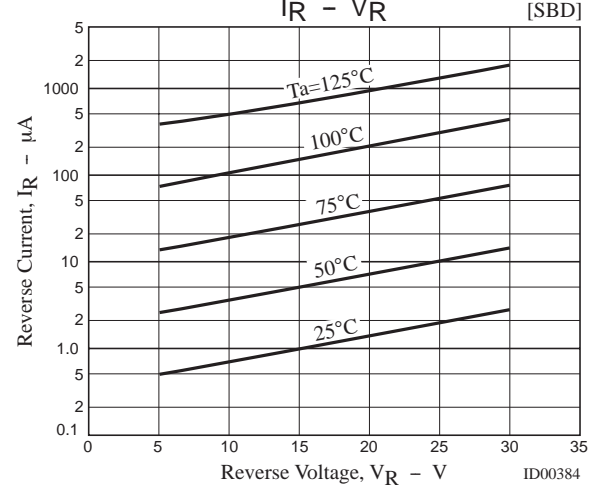
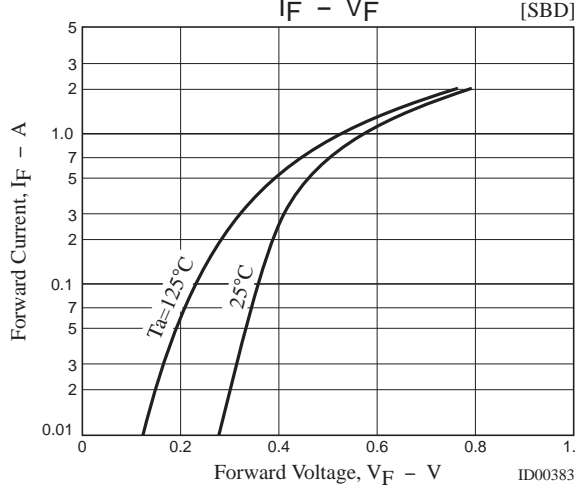
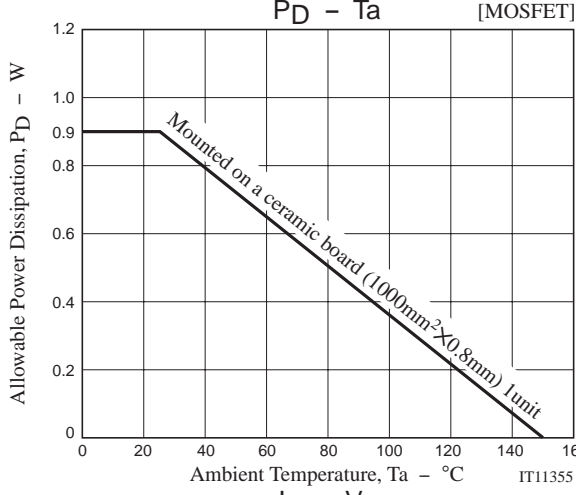
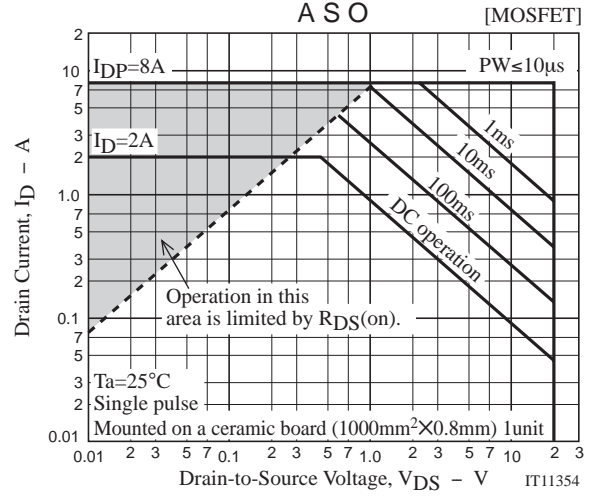
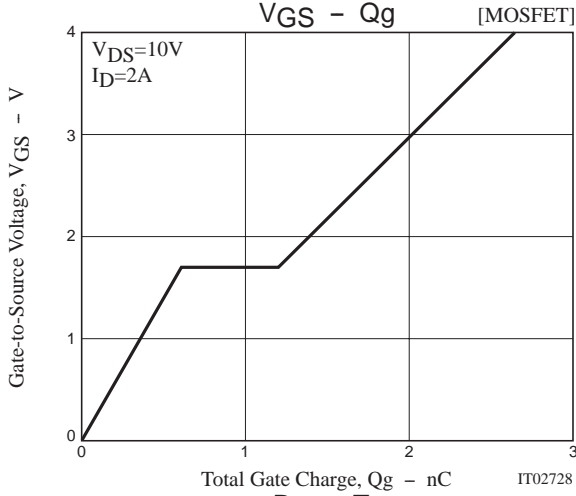
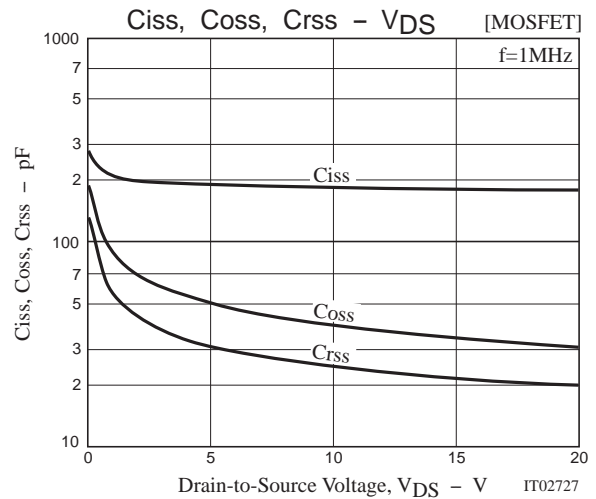
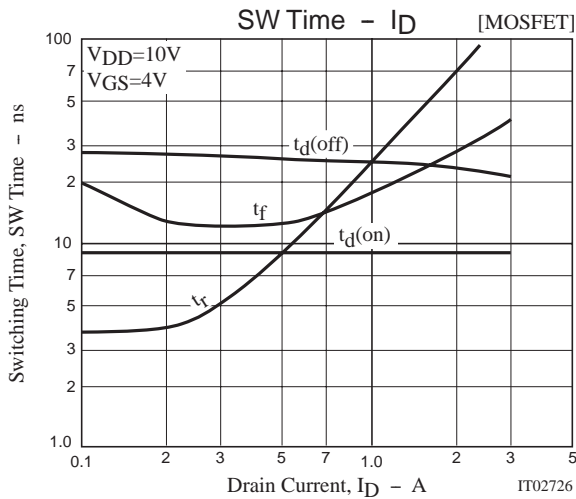
Top view

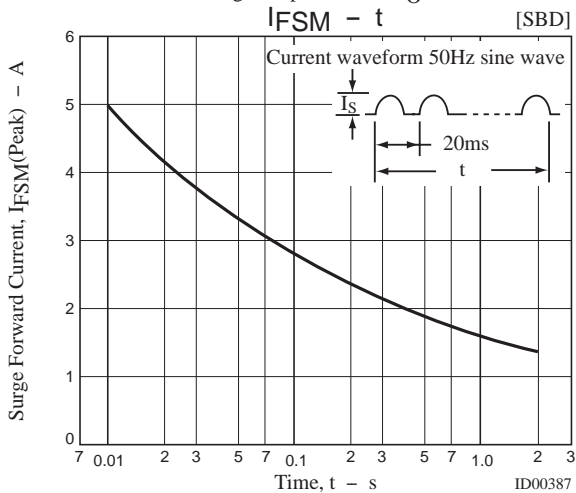
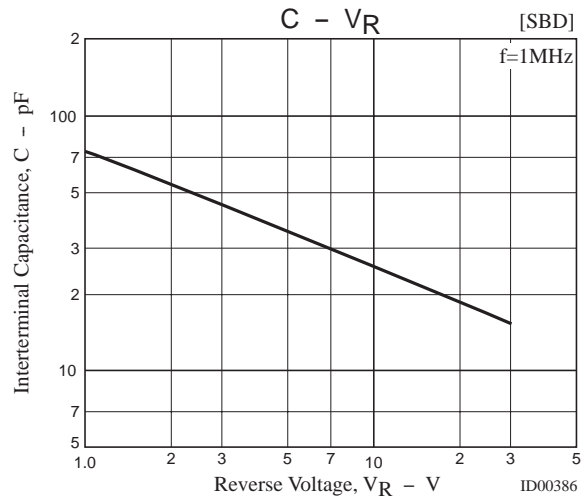
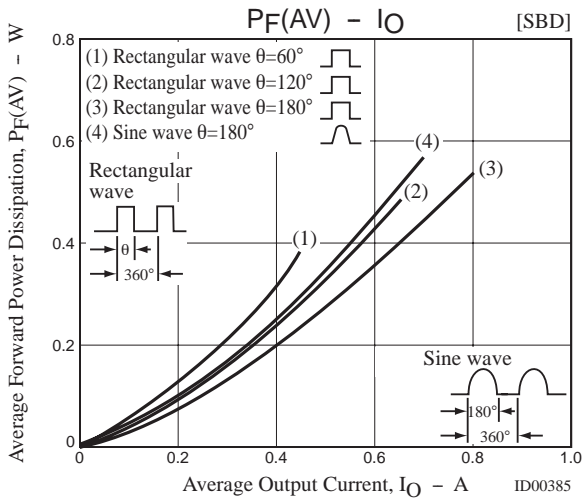
Switching Time Test Circuit



t_{rr} Test Circuit







Note on usage : Since the CPH5862 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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