



SANYO Semiconductors

DATA SHEET

CPH5855 — General-Purpose Switching Device Applications

MOSFET : N-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

Features

- DC / DC converters.

Features

- Composite type with a N-channel silicon MOSFET and a schottky barrier diode contained in one package facilitating high-density mounting.
- [MOSFET]
- 1.8V drive.
- [SBD]
- Short reverse recovery time.
 - Low forward voltage.

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		2.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	10	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (600mm ² ×0.8mm) 1unit	0.9	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : YH

Continued on next page.

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Parameter	Symbol	Conditions	Ratings	Unit
[SBD]				
Repetitive Peak Reverse Voltage	V _R RM		15	V
Nonrepetitive Peak Reverse Surge Voltage	V _R SM		15	V
Average Output Current	I _O		1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	3	A
Junction Temperature	T _J		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

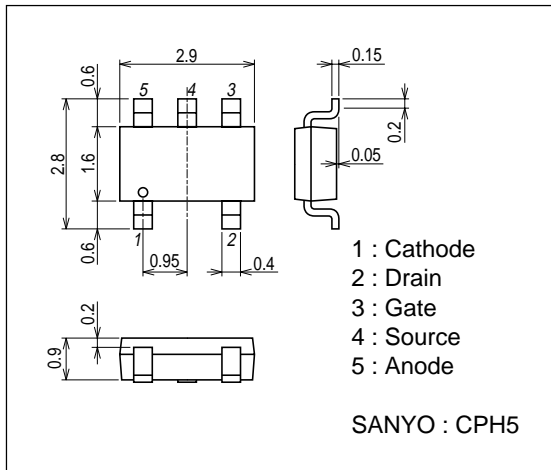
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	I _D =1mA, V _{GS} =0V	20			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =1.5A	1.8	3.0		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =1.5A, V _{GS} =4V		71	93	mΩ
	R _{DS(on)2}	I _D =1A, V _{GS} =2.5V		89	125	mΩ
	R _{DS(on)3}	I _D =0.5A, V _{GS} =1.8V		117	180	mΩ
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		220		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		56		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		43		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		8.0		ns
Rise Time	t _r	See specified Test Circuit.		44		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		28		ns
Fall Time	t _f	See specified Test Circuit.		37		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4V, I _D =2.5A			2.9	nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =4V, I _D =2.5A		0.45		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =10V, V _{GS} =4V, I _D =2.5A		0.97		nC
Diode Forward Voltage	V _{SD}	I _S =2.5A, V _{GS} =0V		0.83	1.2	V
[SBD]						
Reverse Voltage	V _R	I _R =0.5mA	15			V
Forward Voltage	V _{F1}	I _F =0.3A		0.31	0.34	V
	V _{F2}	I _F =0.5A		0.34	0.37	V
Reverse Current	I _R	V _R =6V			90	μA
Interterminal Capacitance	C	V _R =10V, f=1MHz		20		pF
Reverse Recovery Time	t _{rr}	I _F =I _R =100mA, See specified Test Circuit.			10	ns

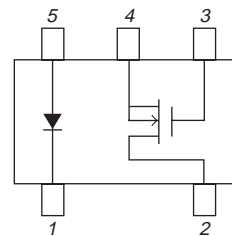
Package Dimensions

unit : mm (typ)

7017A-005



Electrical Connection

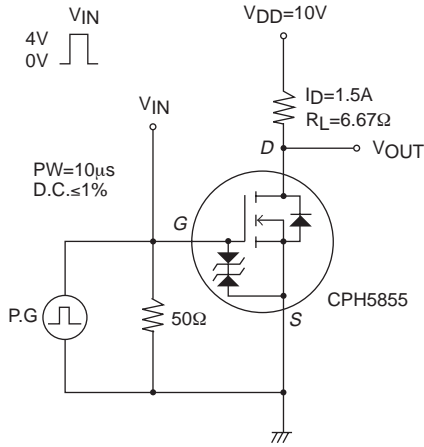


- 1 : Cathode
- 2 : Drain
- 3 : Gate
- 4 : Source
- 5 : Anode

Top view

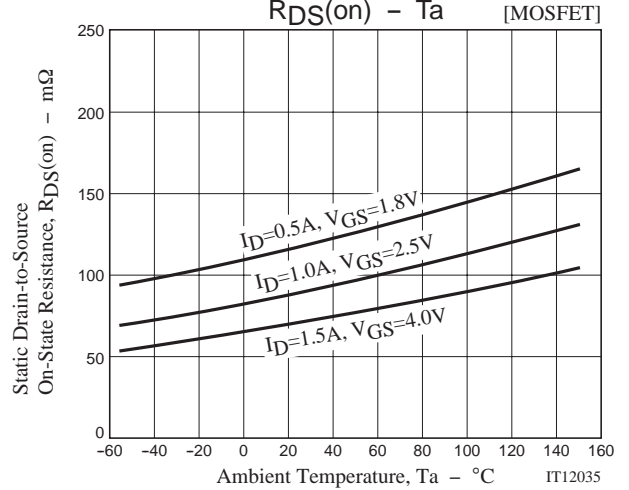
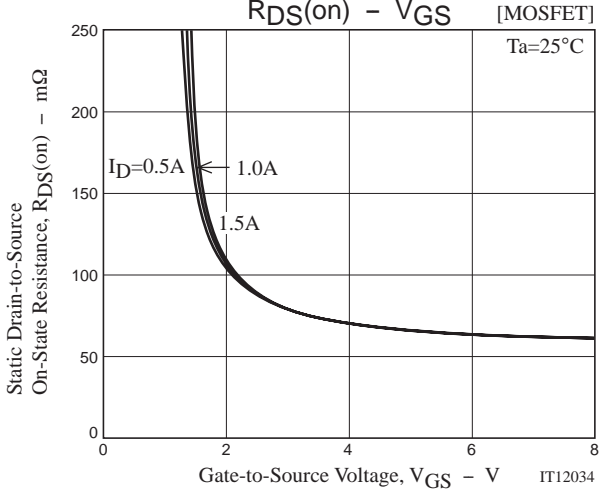
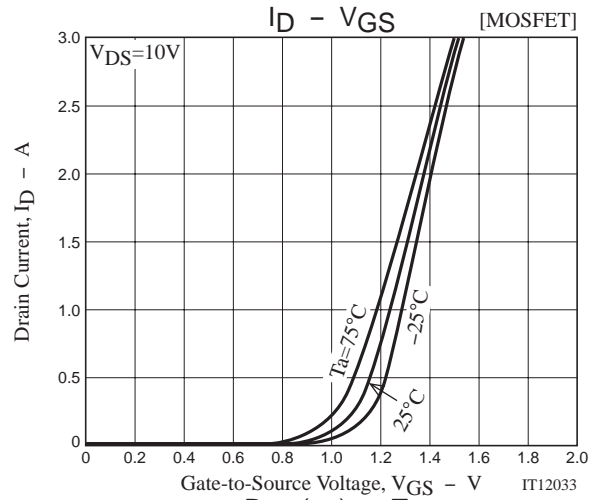
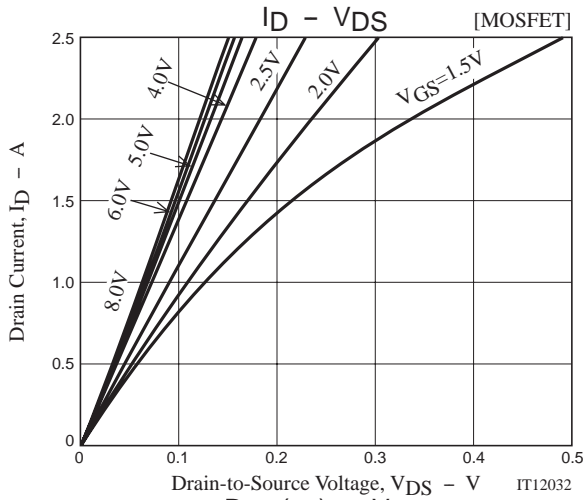
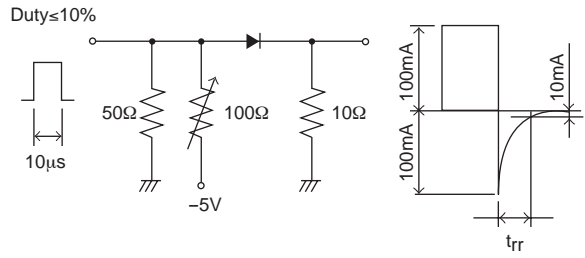
Switching Time Test Circuit

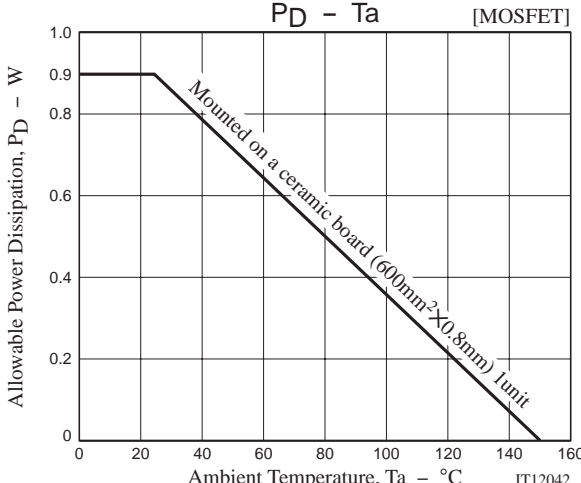
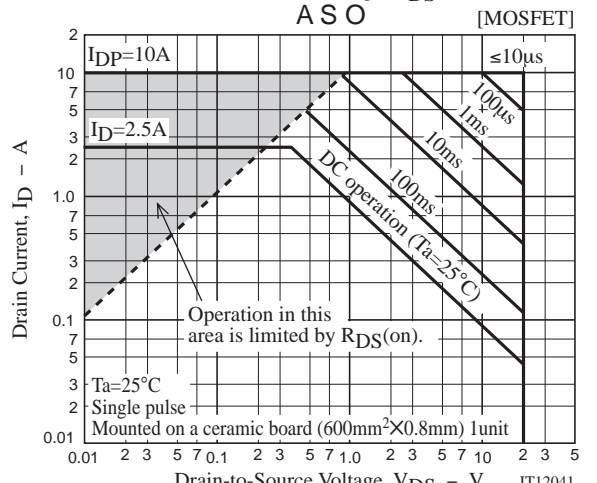
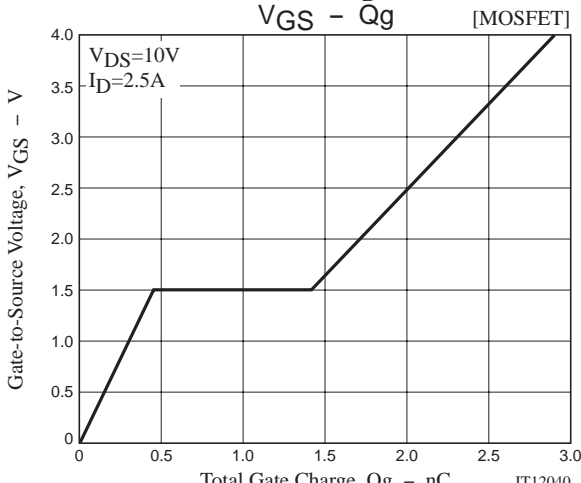
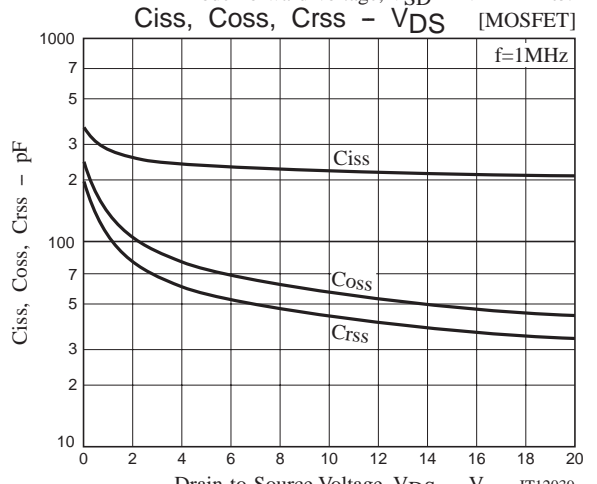
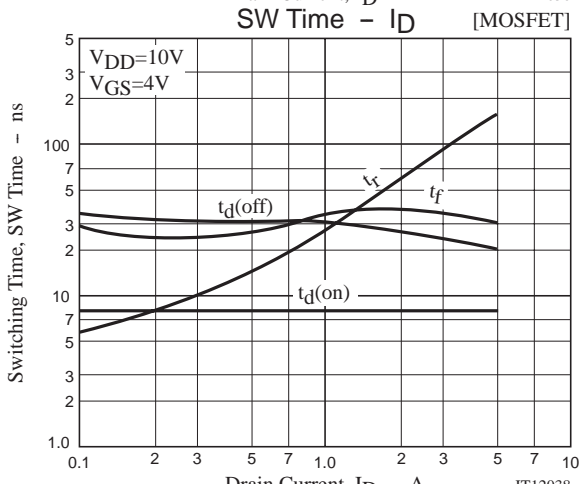
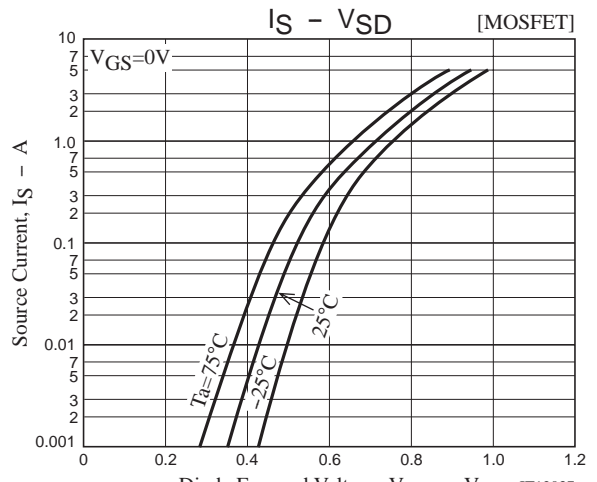
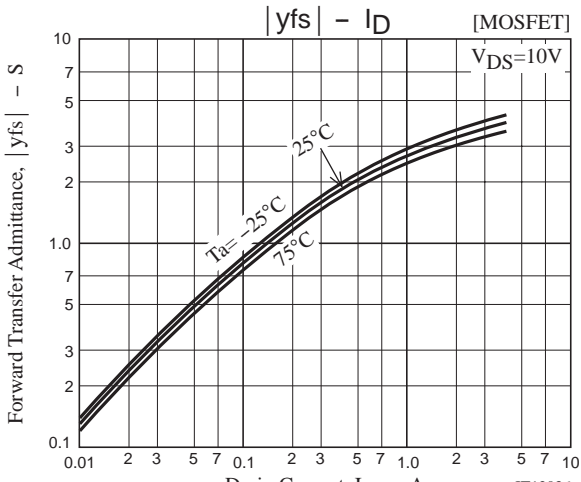
[MOSFET]



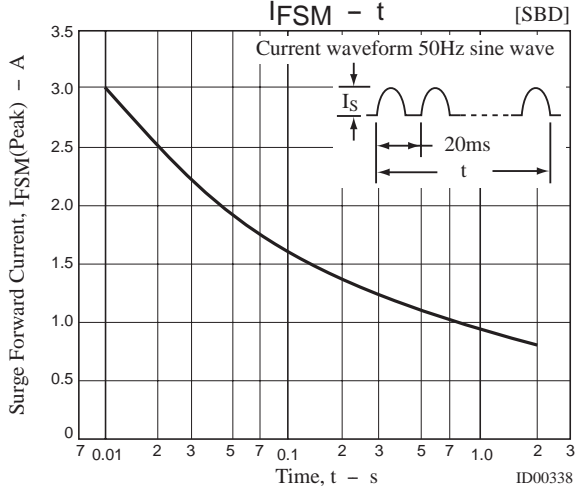
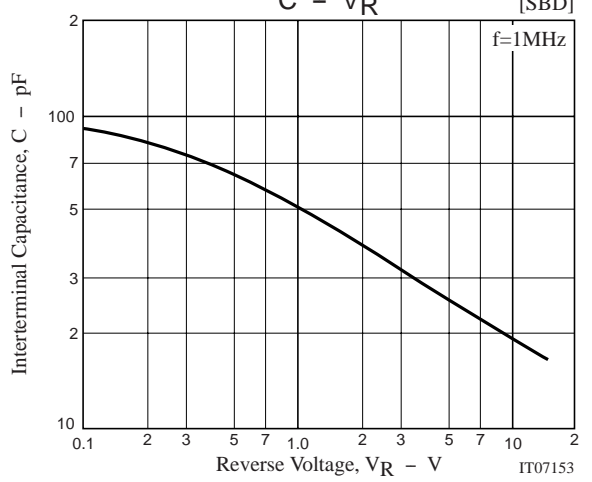
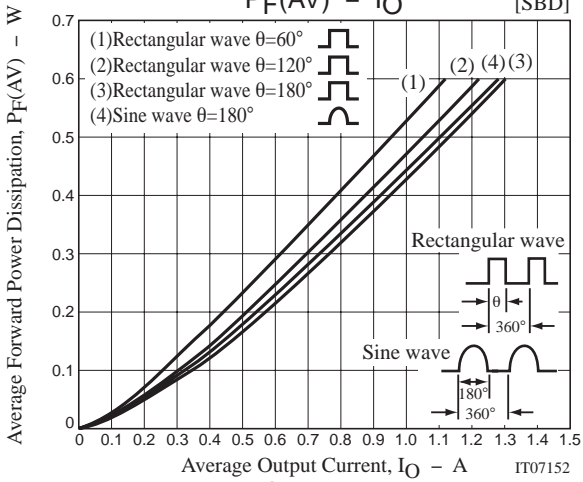
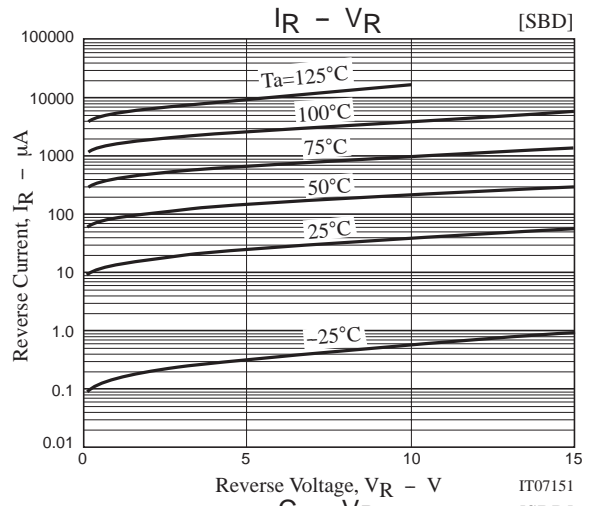
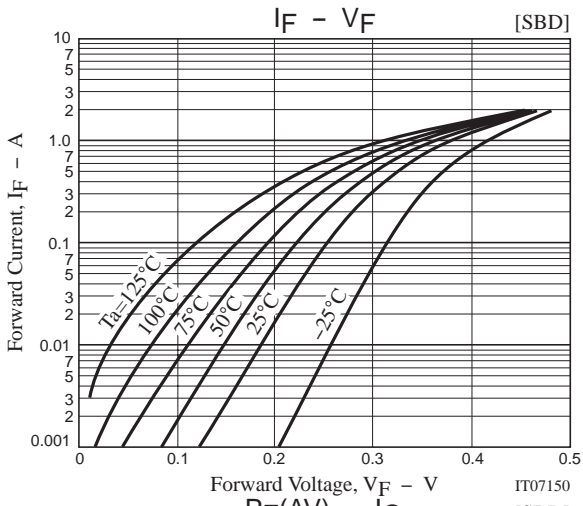
t_{rr} Test Circuit

[SBD]





CPH5855



Note on usage : Since the CPH5855 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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