



SANYO Semiconductors

DATA SHEET

CPH5857

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

General-Purpose Switching Device Applications

Features

- Composite type with a P-Channel Silicon MOSFET and a Schottky Barrier Diode contained in one package facilitating high-density mounting.

[MOSFET]

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

[SBD]

- Short reverse recovery time.
- Low forward voltage.
- Junction temperature 150°C guarantee.

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		-1.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-6.0	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	0.9	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
[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 _F SM	50Hz sine wave, 1 cycle	3	A
Junction Temperature	T _J		-55 to +150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Marking : YK

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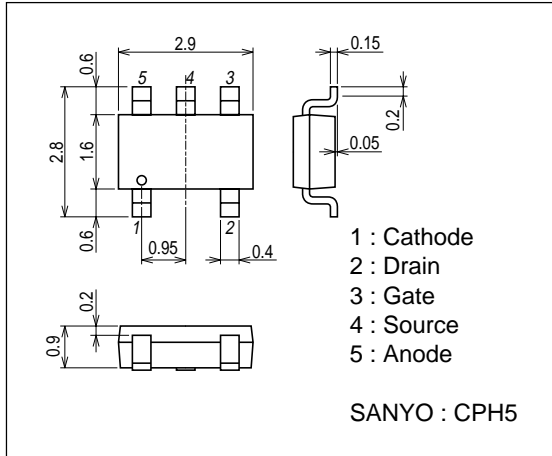
CPH5857

Electrical Characteristics at Ta=25°C

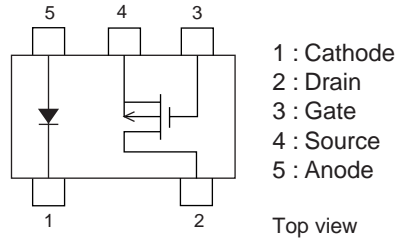
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-800mA$	1.3	2.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-800mA, V_{GS}=-4V$		180	235	m Ω
	$R_{DS(on)2}$	$I_D=-400mA, V_{GS}=-2.5V$		240	340	m Ω
	$R_{DS(on)3}$	$I_D=-70mA, V_{GS}=-1.8V$		350	600	m Ω
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		290		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		40		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		25		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		32		ns
Fall Time	t_f	See specified Test Circuit.		27		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		3.2		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		0.8		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		0.6		nC
Diode Forward Voltage	V_{SD}	$I_S=-1.5A, V_{GS}=0V$		-0.87	-1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R=0.2mA$	15			V
Forward Voltage	V_{F1}	$I_F=0.5A$		0.44	0.49	V
	V_{F2}	$I_F=1A$		0.51	0.56	V
Reverse Current	I_R	$V_R=7.5V$			3	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz, 1\text{ cycle}$		20		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA, \text{ See specified Test Circuit.}$			10	ns

Package Dimensions

unit : mm (typ)
7017A-005

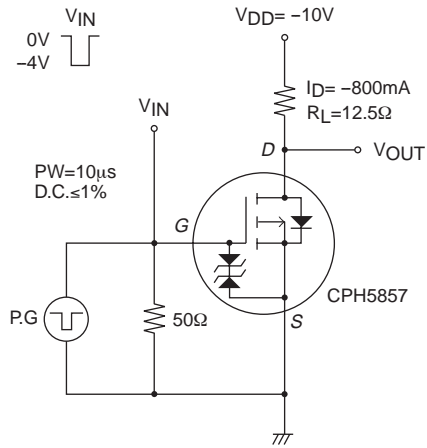


Electrical Connection



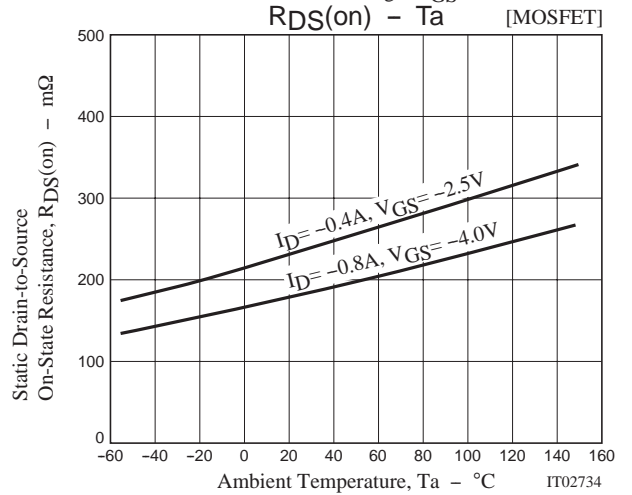
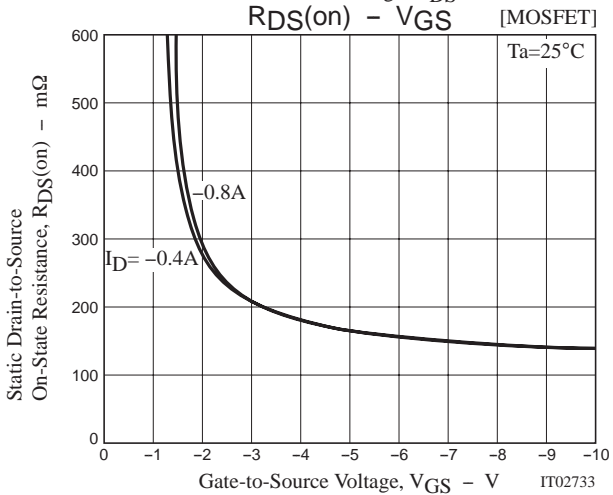
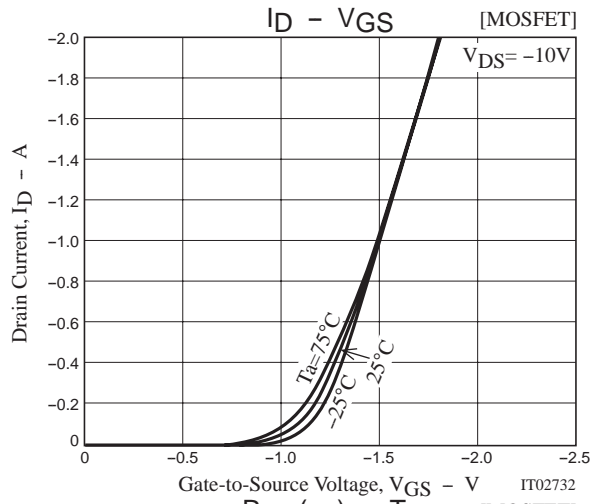
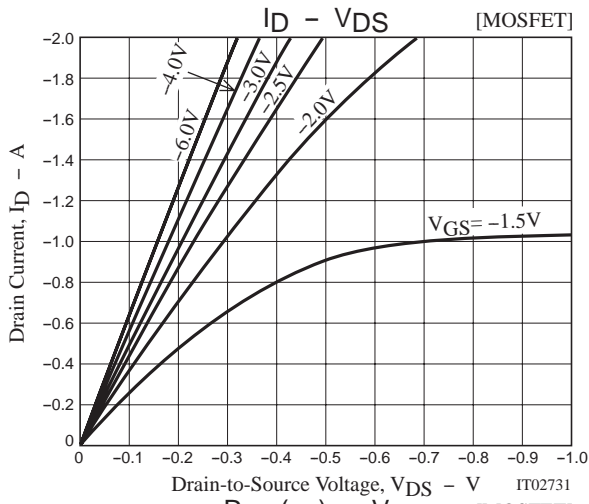
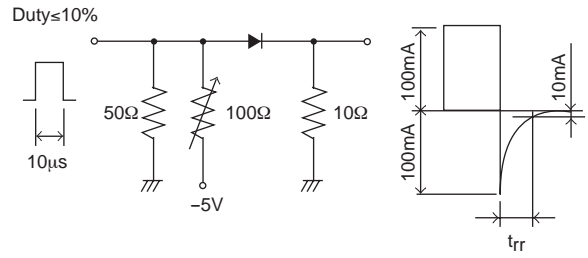
Switching Time Test Circuit

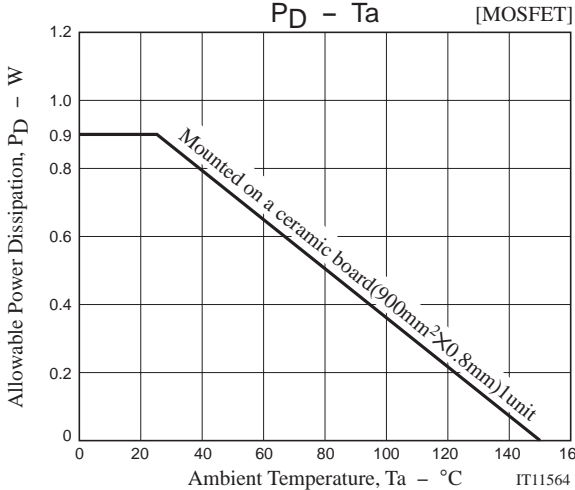
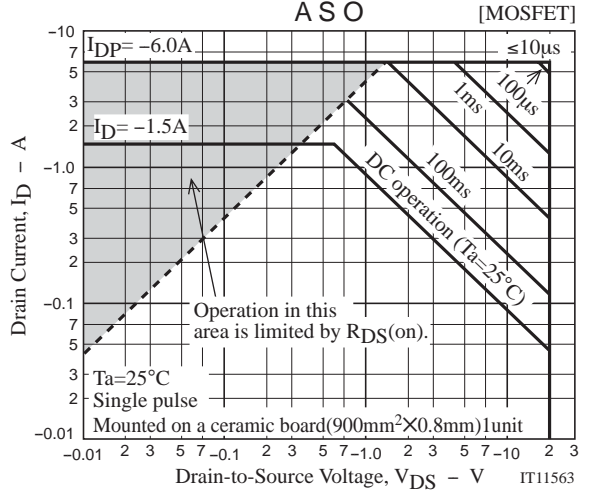
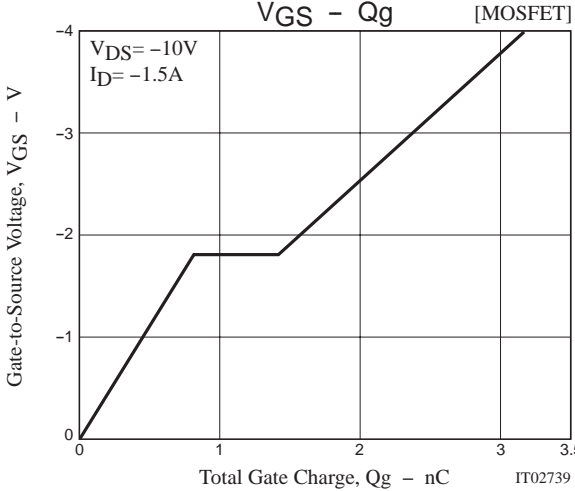
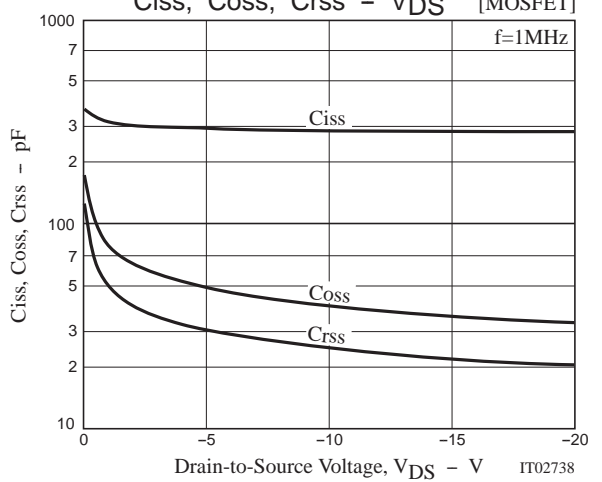
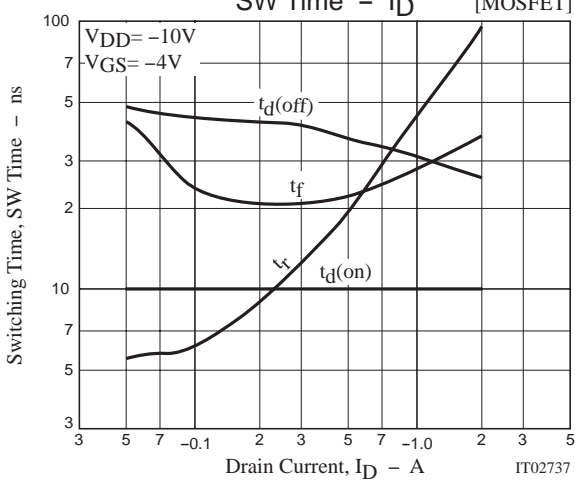
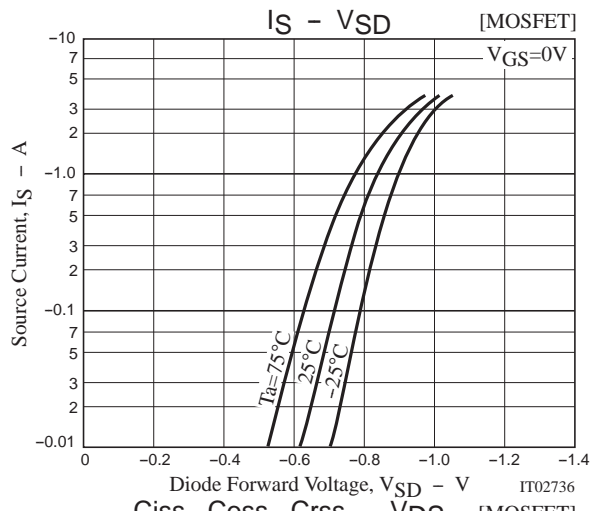
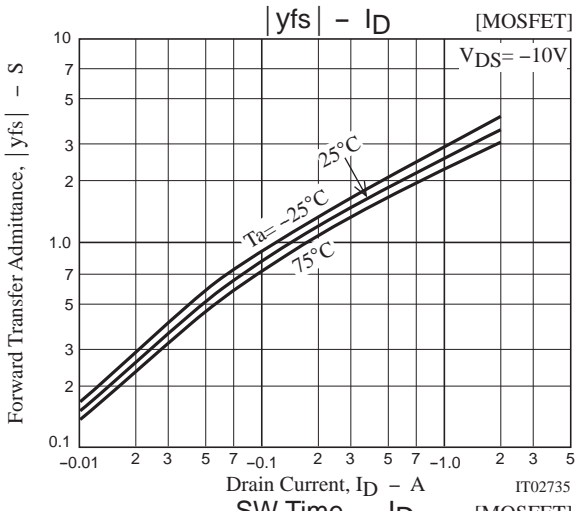
[MOSFET]

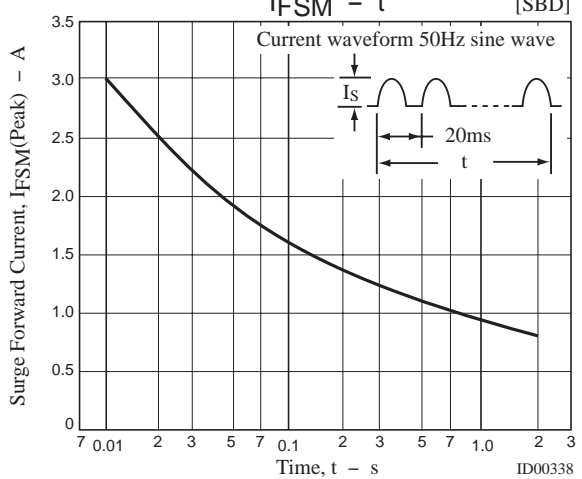
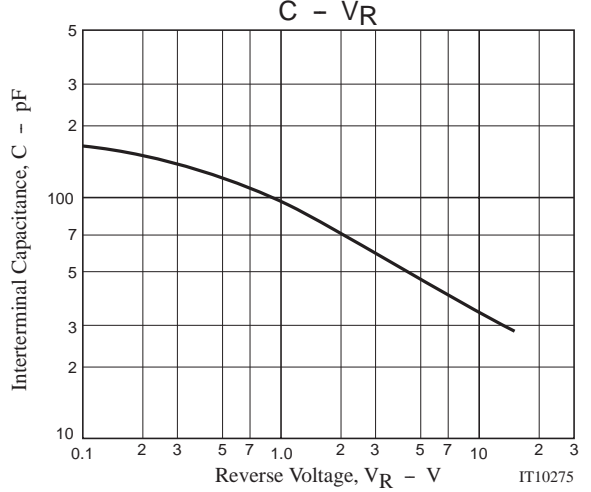
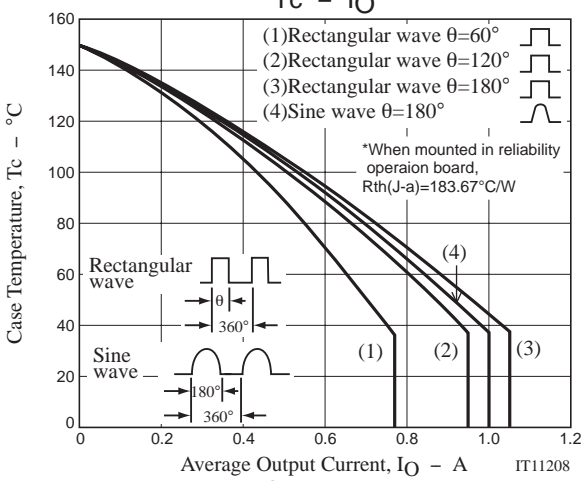
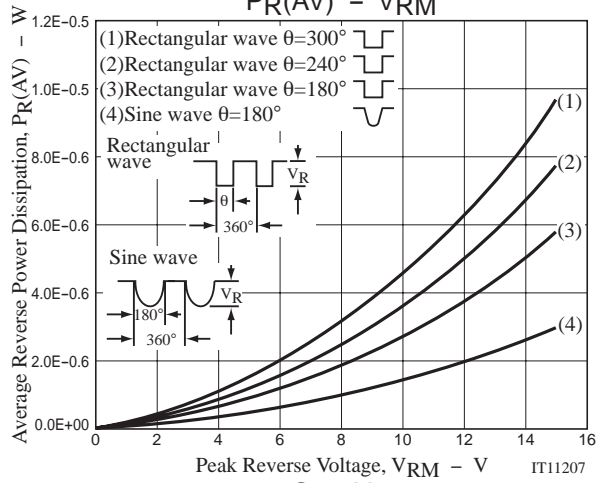
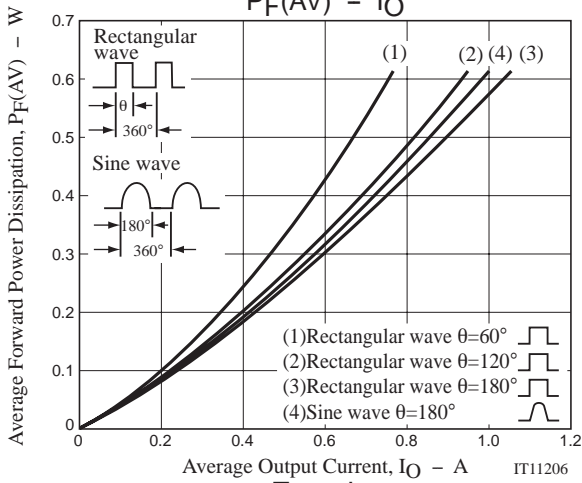
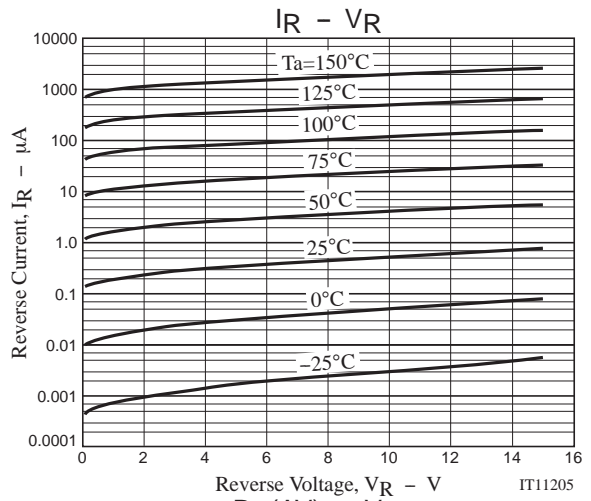
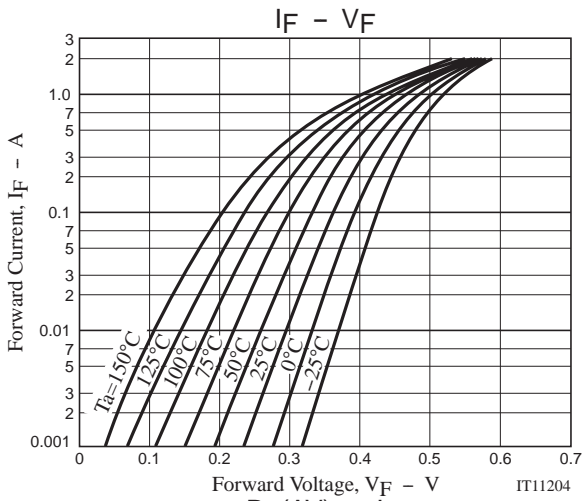


t_{rr} Test Circuit

[SBD]







Note on usage : Since the CPH5857 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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