



SANYO Semiconductors

## DATA SHEET

CPH5810

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

General-Purpose Switching Device  
Applications

## Features

- Composite type with an P-Channel Silicon MOSFET (MCH3312) and a Schottky Barrier Diode (SBS001) contained in one package facilitating high-density mounting.
- [MOSFET]
  - Low ON-resistance.
  - Ultrahigh-speed switching.
  - 4V 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 <sub>DSS</sub>		-30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-2	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-8	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm) 1unit	0.9	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>		11	V
Nonrepetitive Peak Reverse Surge Voltage	V <sub>RSM</sub>		15	V
Average Output Current	I <sub>O</sub>		500	mA
Surge Forward Current	I <sub>FSM</sub>	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T <sub>j</sub>		-55 to +125	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

Marking : QL

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# CPH5810

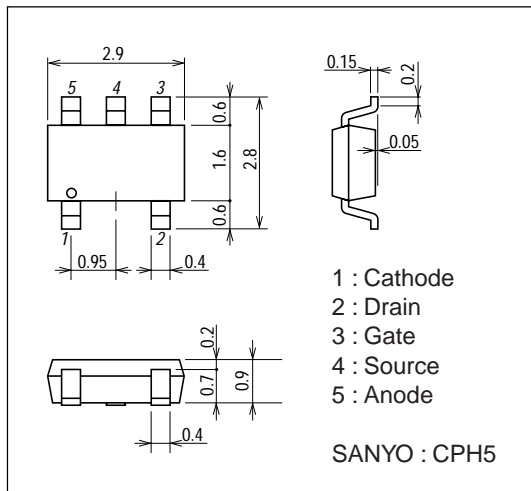
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0	-30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-30V, VGS=0			-1	μA
Gate-to-Source Leakage Current	IGSS	VGSS=±16V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-1.2		-2.6	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-1A	1.4	2.0		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-1A, VGS=-10V		110	145	mΩ
	RDS(on)2	ID=-500mA, VGS=-4V		205	290	mΩ
Input Capacitance	Ciss	VDS=-10V, f=1MHz		200		pF
Output Capacitance	Coss	VDS=-10V, f=1MHz		47		pF
Reverse Transfer Capacitance	Crss	VDS=-10V, f=1MHz		32		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		7.2		ns
Rise Time	tr	See specified Test Circuit.		2.9		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		21		ns
Fall Time	tf	See specified Test Circuit.		8.7		ns
Total Gate Charge	Qg	VDS=-10V, VGS=-10V, ID=-2A		5.5		nC
Gate-to-Source Charge	Qgs	VDS=-10V, VGS=-10V, ID=-2A		0.98		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=-10V, VGS=-10V, ID=-2A		0.82		nC
Diode Forward Voltage	VSD	IS=-2A, VGS=0		-0.85	-1.5	V
[SBD]						
Reverse Voltage	VR	IR=400μA	11			V
Forward Voltage	VF	IF=500mA		0.4	0.45	V
Reverse Current	IR	VR=6V			200	μA
Interterminal Capacitance	C	VR=10V, f=1MHz cycle		50		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			10	ns

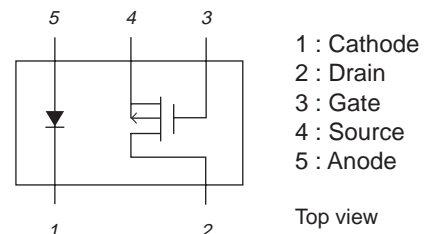
## Package Dimensions

unit : mm

2171

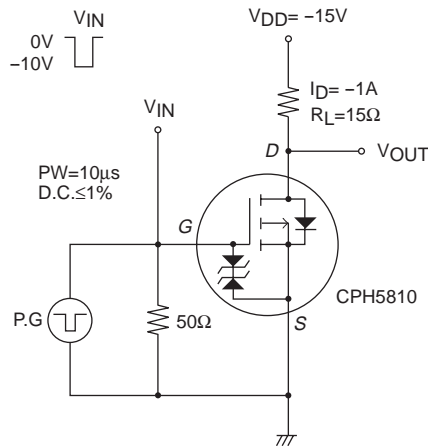


## Electrical Connection



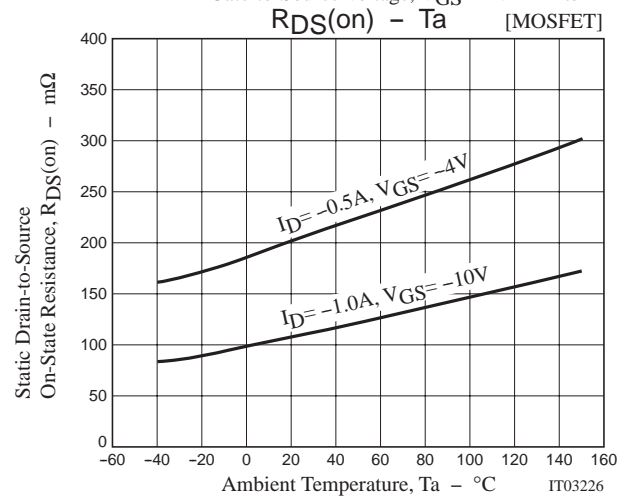
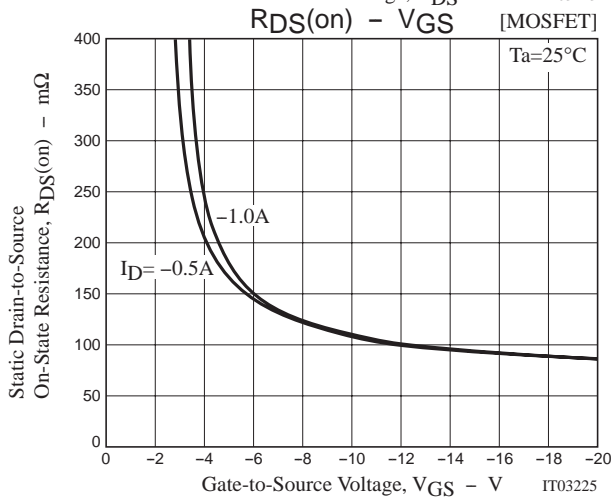
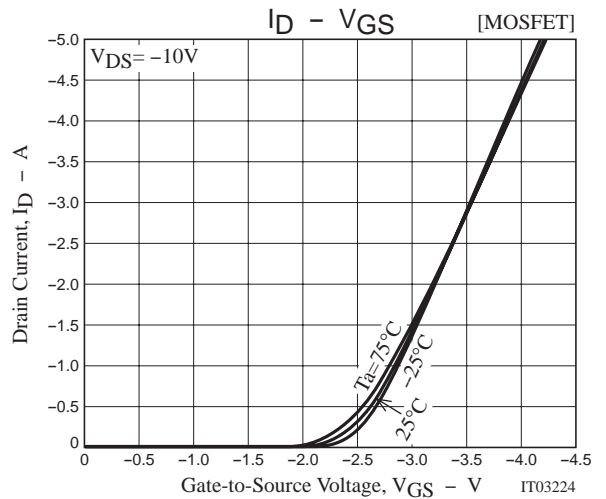
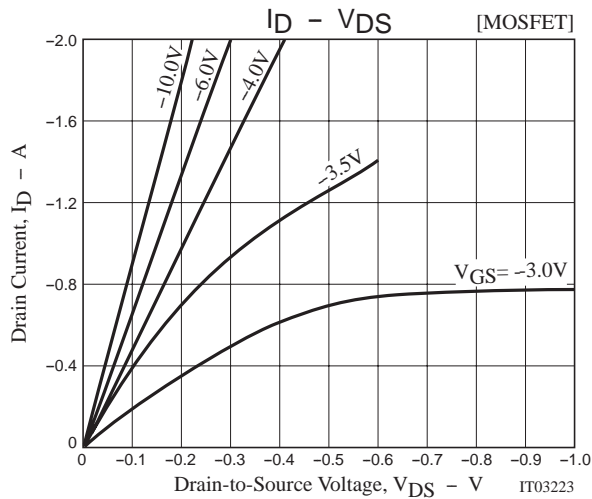
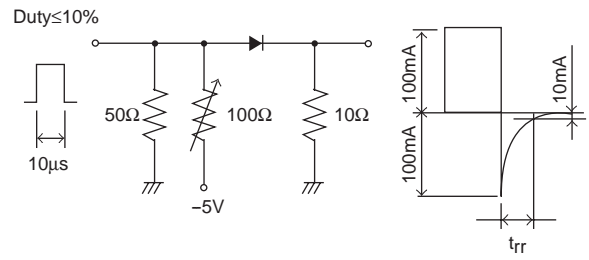
## Switching Time Test Circuit

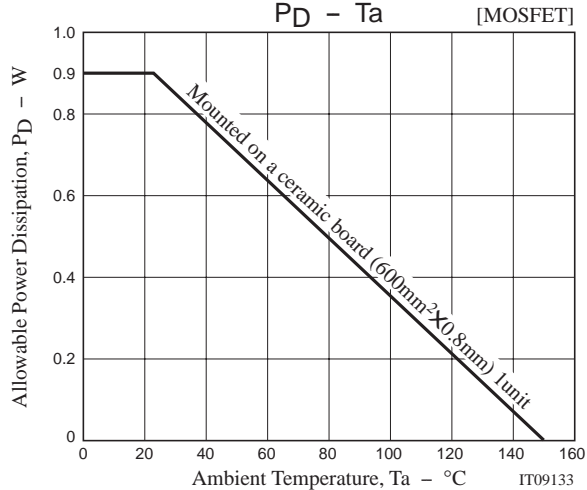
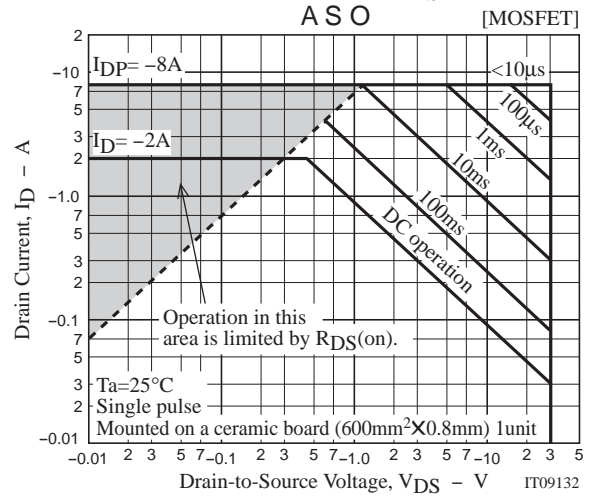
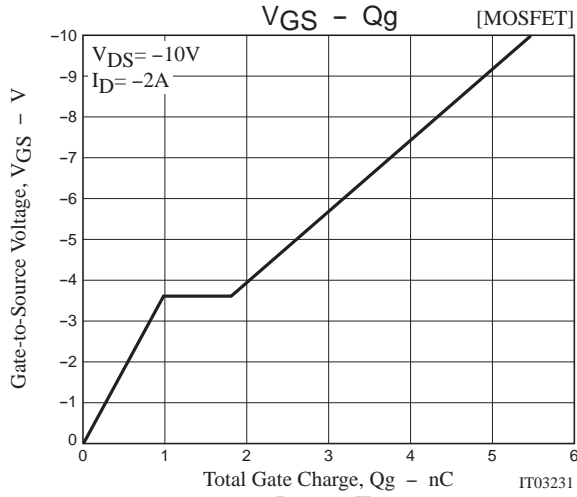
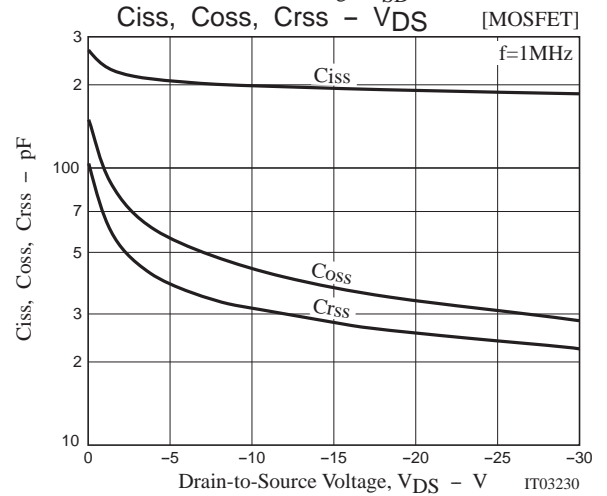
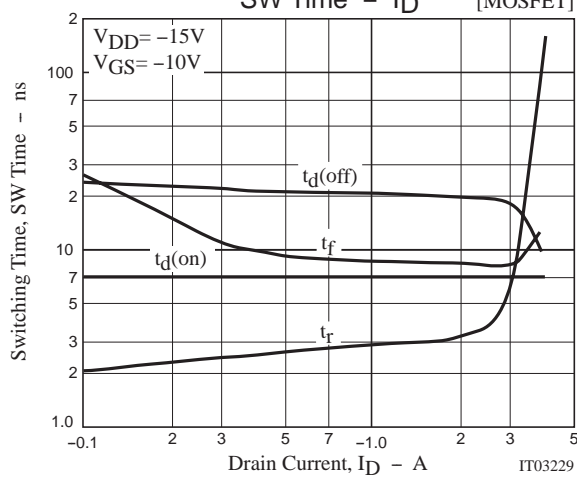
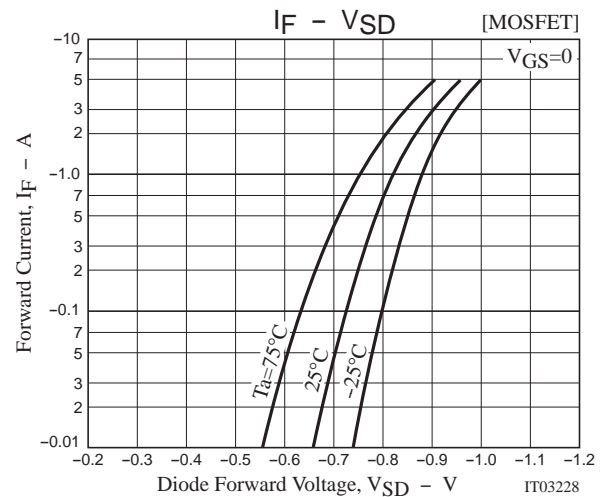
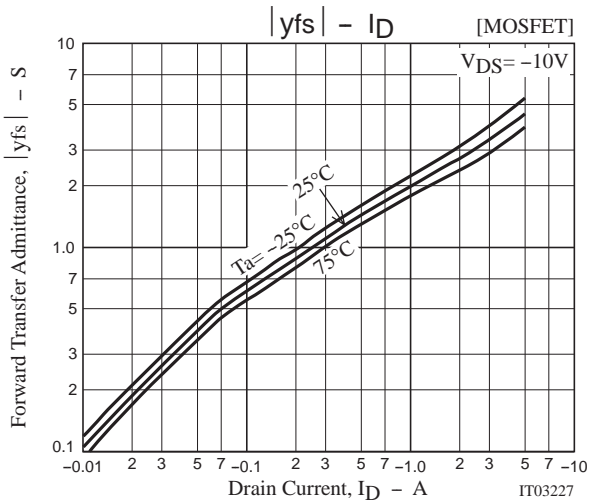
[MOSFET]

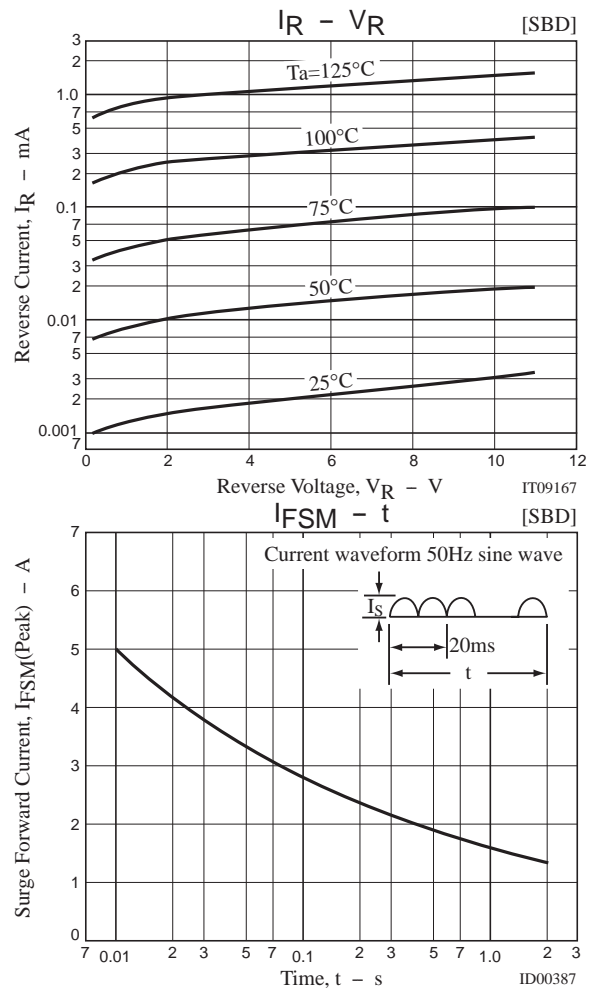
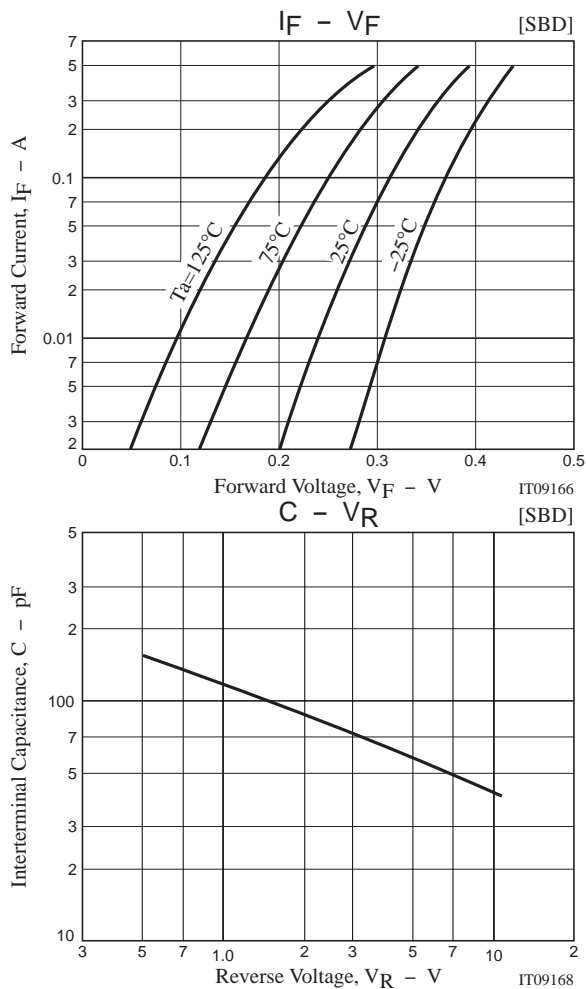


## $t_{rr}$ Test Circuit

[SBD]







Note on usage : Since the CPH5810 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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