



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 _{DSS}		-30	V
Gate-to-Source Voltage	V _{GSS}		±20	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 (600mm ² ×0.8mm) 1unit	0.9	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _{RRM}		11	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		15	V
Average Output Current	I _O		500	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

Marking : QL

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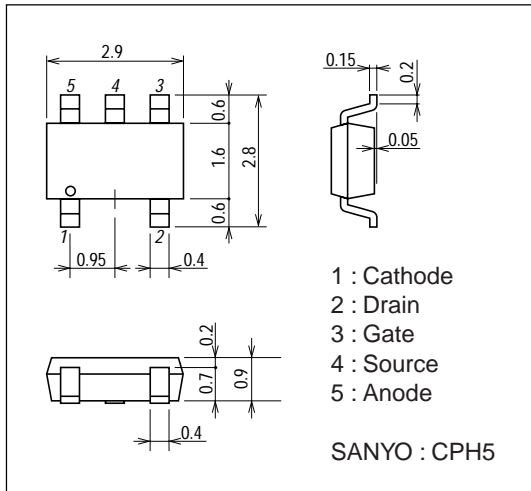
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GSS}=\pm 16V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-1A$	1.4	2.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-1A, V_{GS}=-10V$		110	145	$m\Omega$
	$R_{DS(on)2}$	$I_D=-500mA, V_{GS}=-4V$		205	290	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		200		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		47		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		32		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.2		ns
Rise Time	t_r	See specified Test Circuit.		2.9		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		21		ns
Fall Time	t_f	See specified Test Circuit.		8.7		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		5.5		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		0.98		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		0.82		nC
Diode Forward Voltage	V_{SD}	$I_S=-2A, V_{GS}=0$		-0.85	-1.5	V
[SBD]						
Reverse Voltage	V_R	$I_R=400\mu A$	11			V
Forward Voltage	V_F	$I_F=500mA$		0.4	0.45	V
Reverse Current	I_R	$V_R=6V$			200	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$ cycle		50		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit.			10	ns

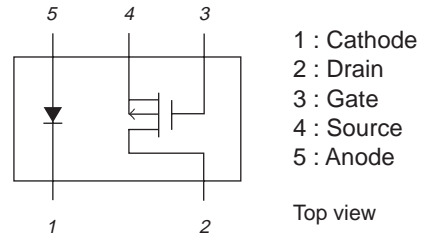
Package Dimensions

unit : mm

2171



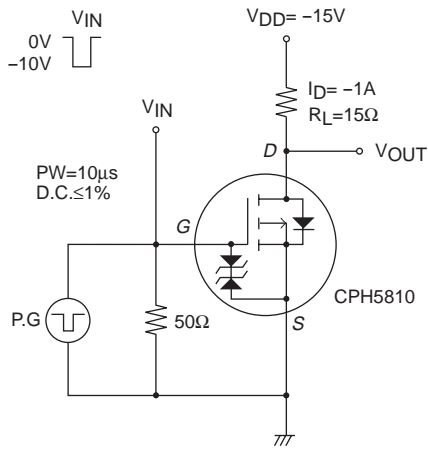
Electrical Connection



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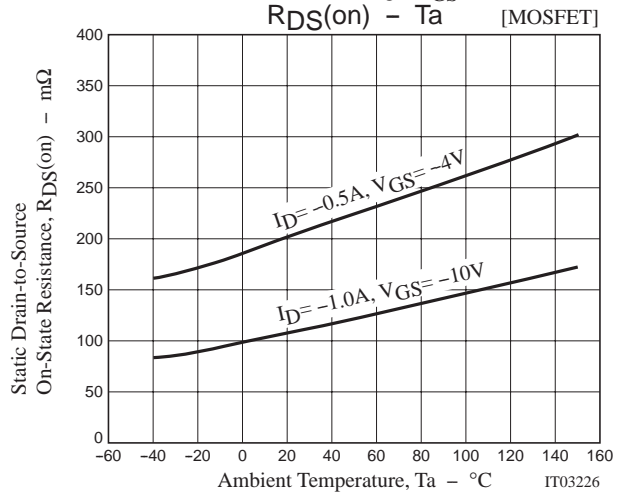
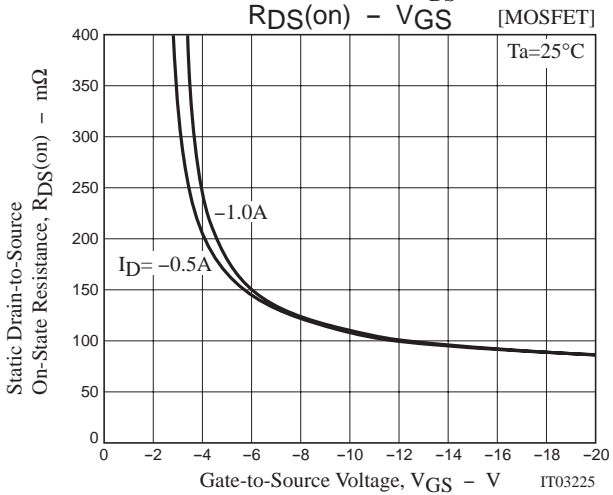
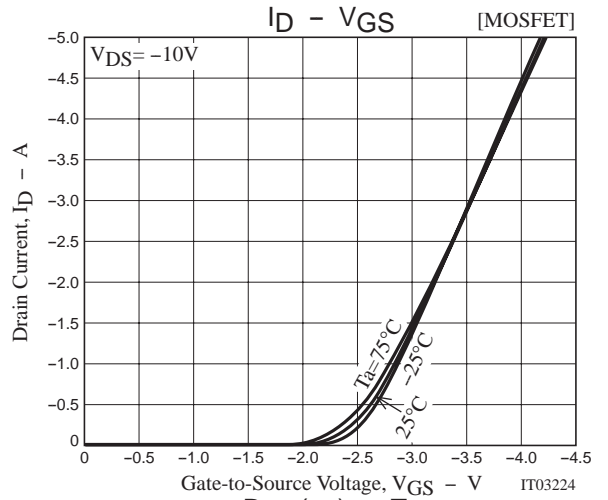
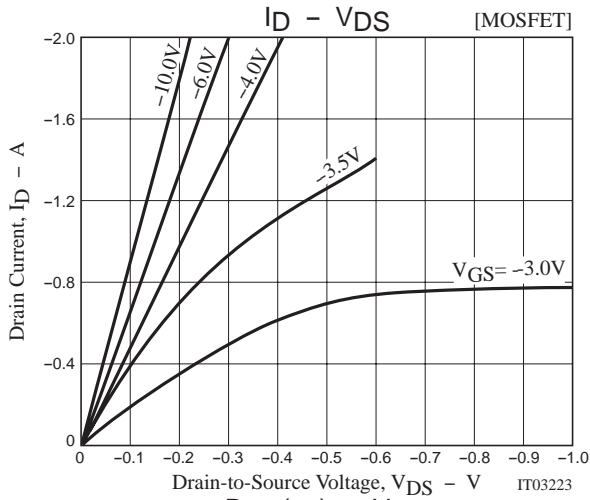
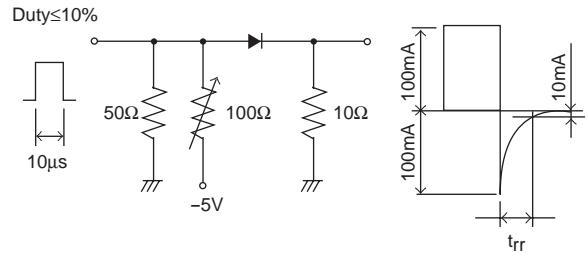
Switching Time Test Circuit

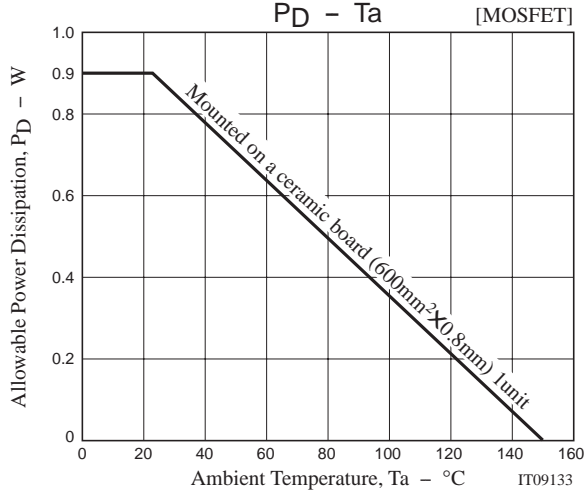
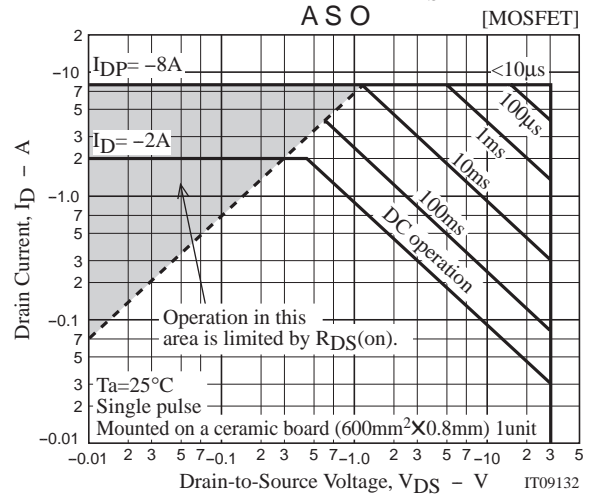
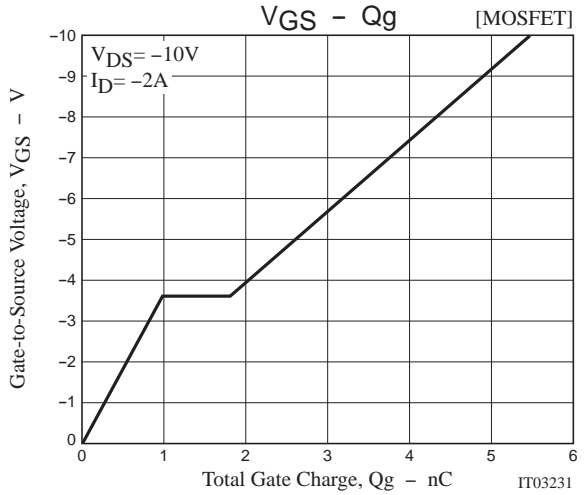
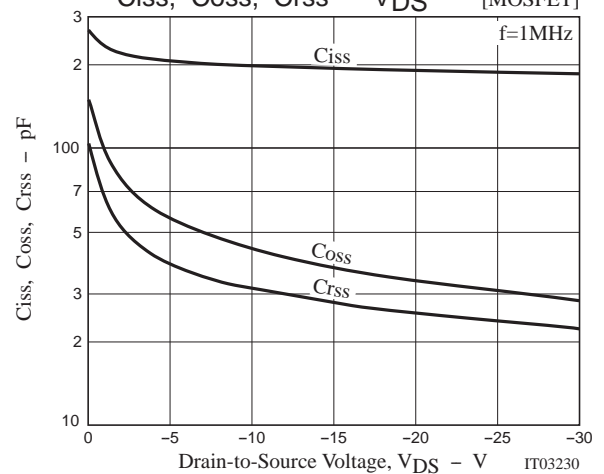
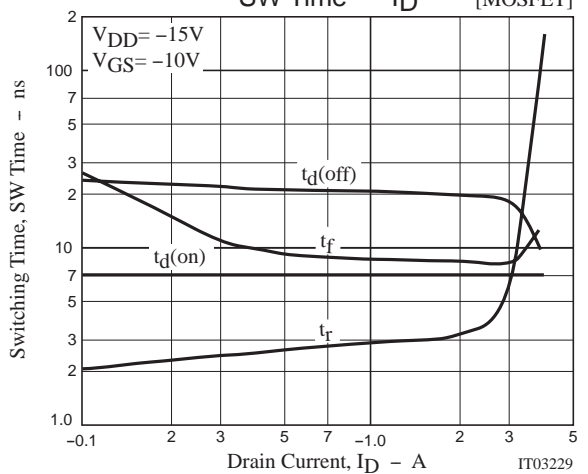
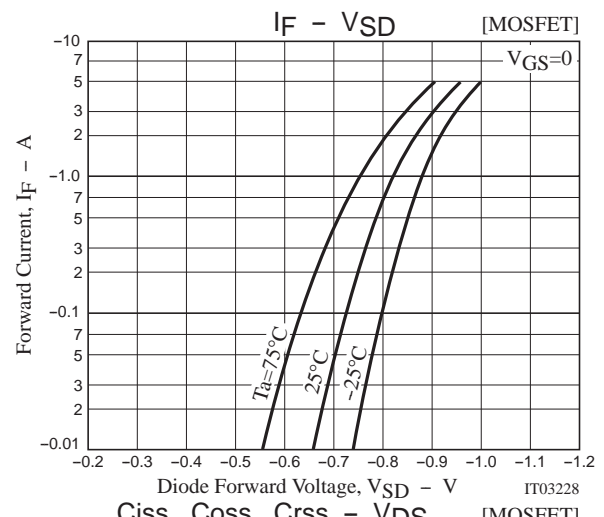
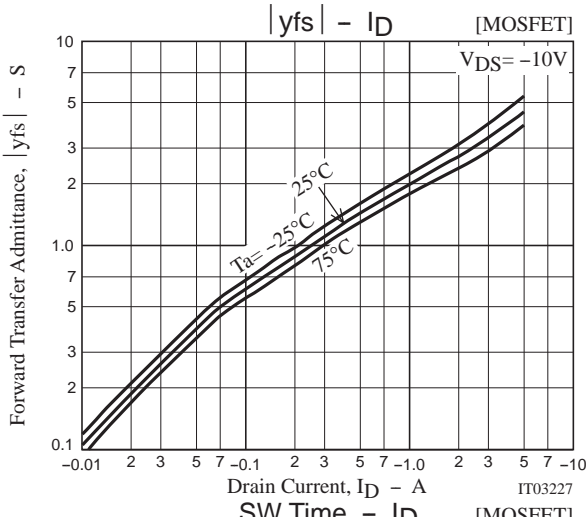
[MOSFET]



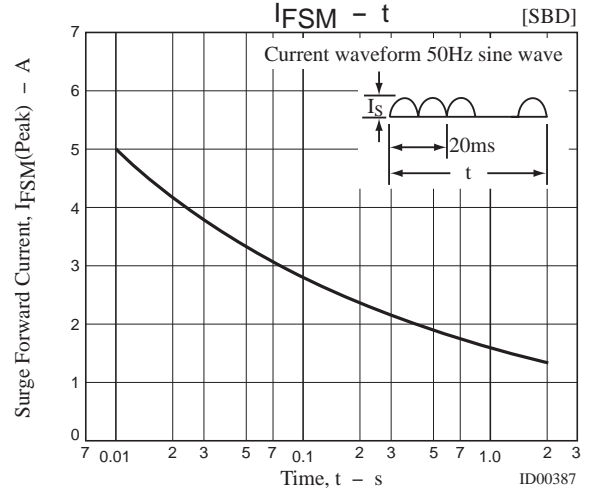
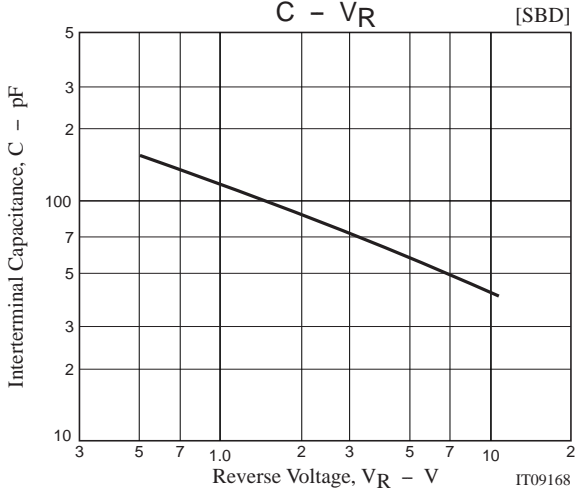
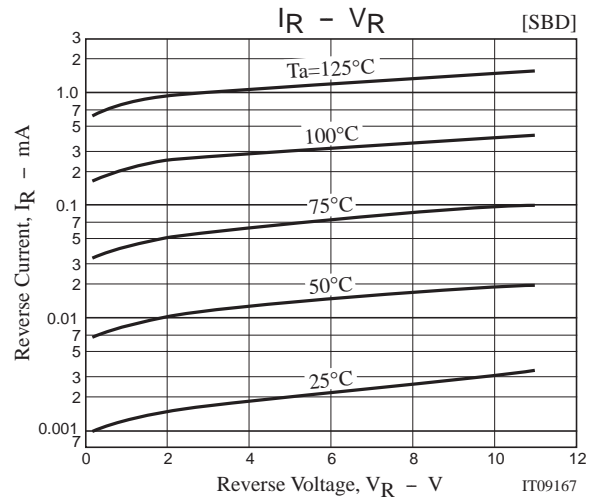
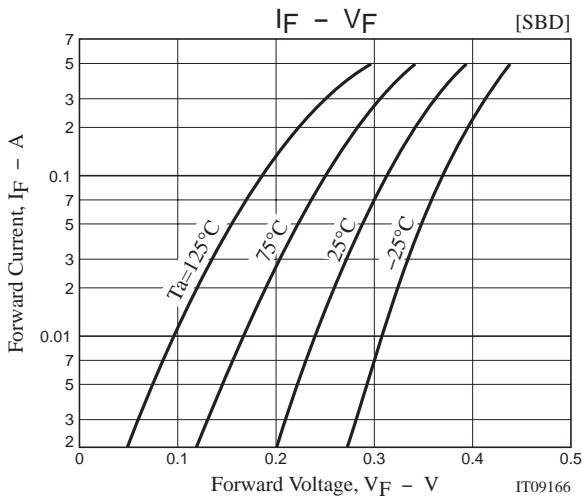
t_{rr} Test Circuit

[SBD]





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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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