



SANYO Semiconductors

DATA SHEET

CPH5811

MOSFET : N-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

DC / DC Converter Applications

Features

- Composite type with an N-Channel Silicon MOSFET (MCH3406) and a Schottky Barrier Diode (SBS004) contained in one package facilitating high-density mounting.

[MOSFET]

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

[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		3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	12	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}		15	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		15	V
Average Output Current	I _O		1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	10	A
Junction Temperature	T _j		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : QM

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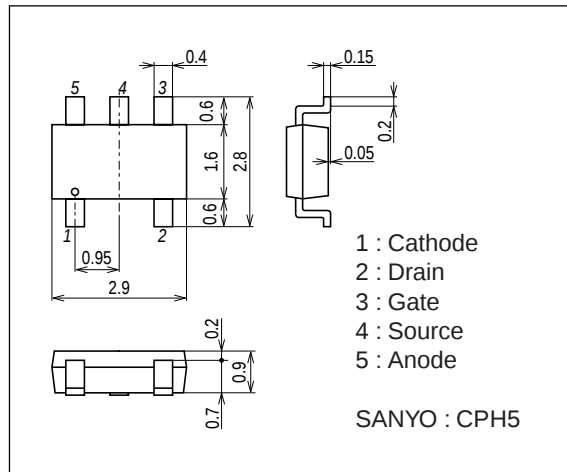
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0	20			V
Zero-Gate Voltage Drain Current	IDSS	VDS=20V, VGS=0			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	0.4		1.3	V
Forward Transfer Admittance	yfs	VDS=10V, ID=1.5A	3.36	5.6		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=1.5A, VGS=4V		48	63	mΩ
	RDS(on)2	ID=1A, VGS=2.5V		58	82	mΩ
	RDS(on)3	ID=0.5A, VGS=1.8V		72	100	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		280		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		60		pF
Reverse Transfer Capacitance	Crss	VDS=10V, f=1MHz		38		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		13		ns
Rise Time	tr	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		35		ns
Fall Time	tf	See specified Test Circuit.		25		ns
Total Gate Charge	Qg	VDS=10V, VGS=4V, ID=3A		8.8		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=4V, ID=3A		0.85		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=10V, VGS=4V, ID=3A		0.85		nC
Diode Forward Voltage	VSD	IS=3A, VGS=0		0.82	1.2	V
[SBD]						
Reverse Voltage	VR	IR=1mA	15			V
Forward Voltage	VF1	IF=0.5A		0.30	0.35	V
	VF2	IF=1A		0.35	0.40	V
Reverse Current	IR	VR=6V			500	μA
Interterminal Capacitance	C	VR=10V, f=1MHz cycle		42		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			15	ns
Thermal Resistance	Rth(j-a)	Mounted on a ceramic board (600mm²X0.8mm)		110		°C / W

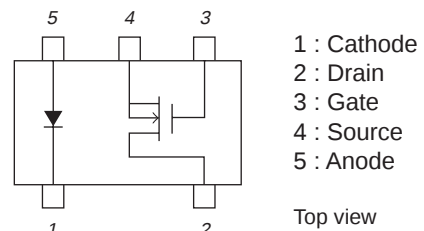
Package Dimensions

unit : mm

2171A

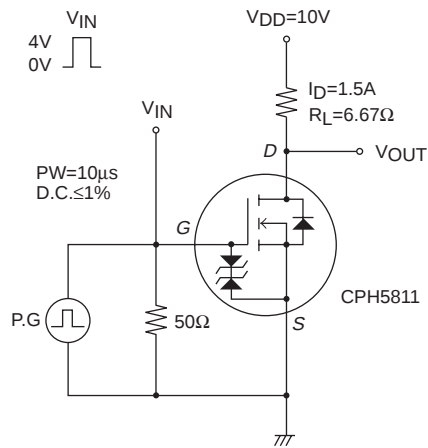


Electrical Connection

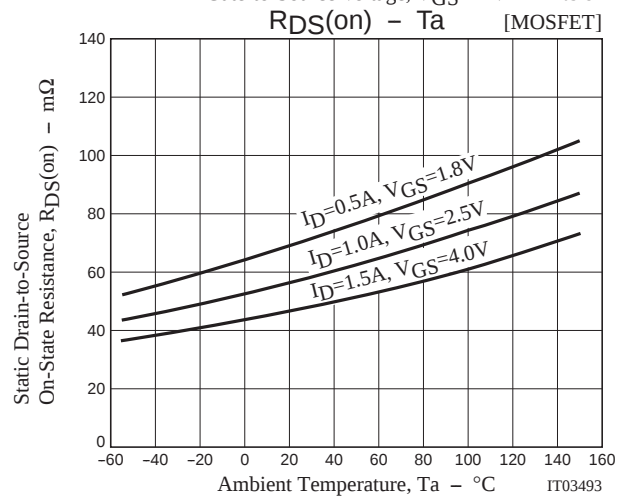
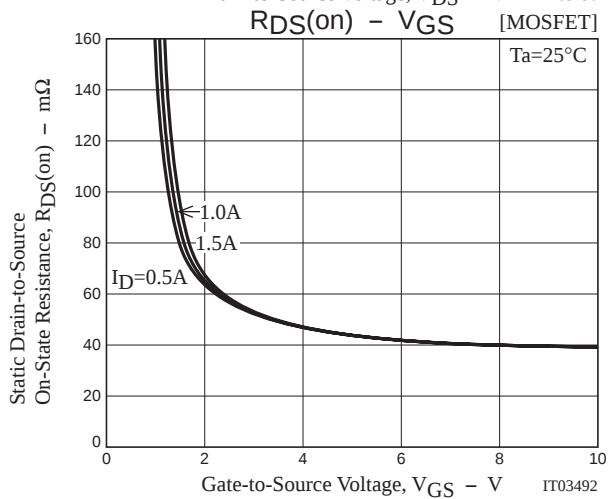
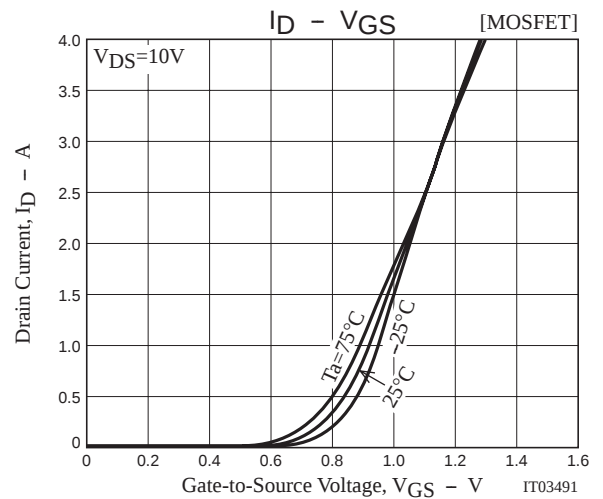
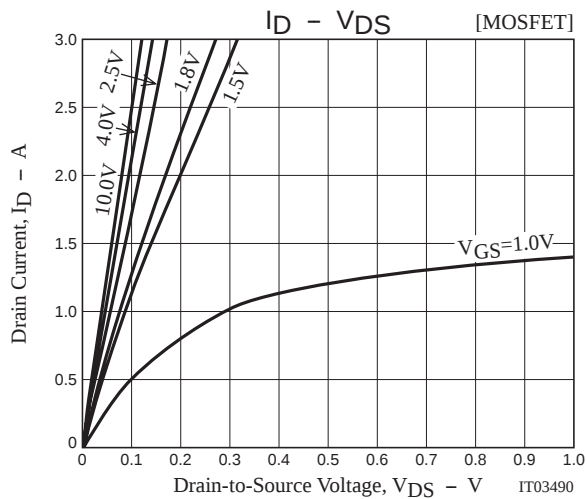
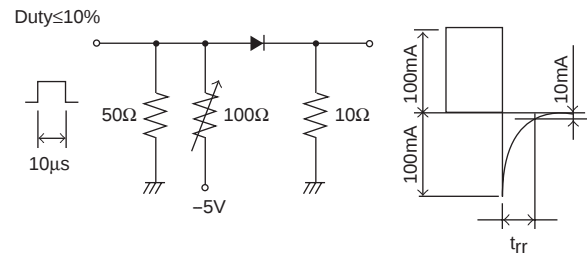


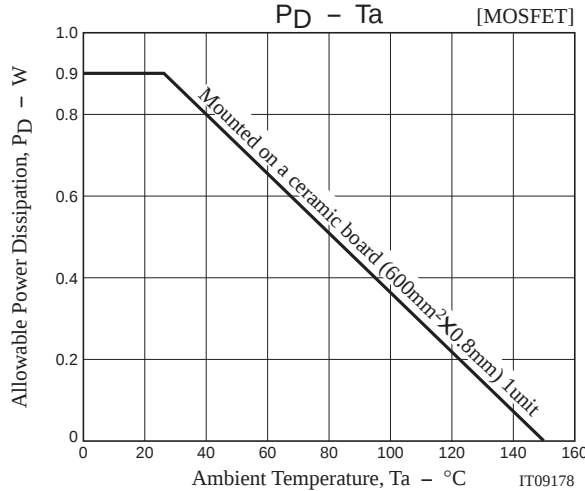
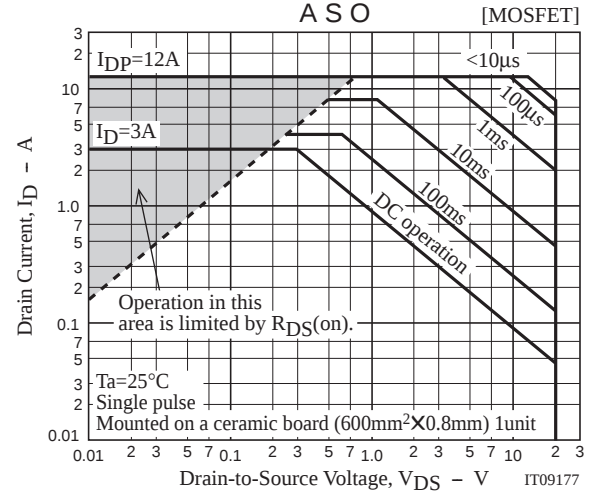
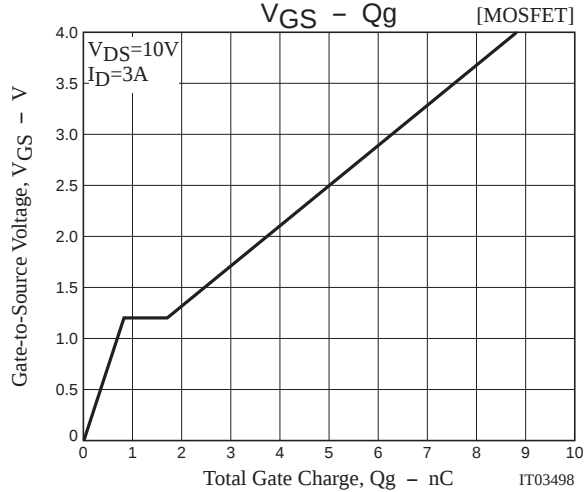
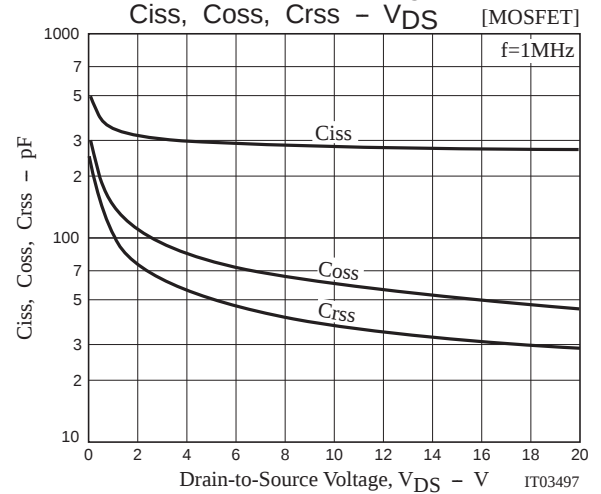
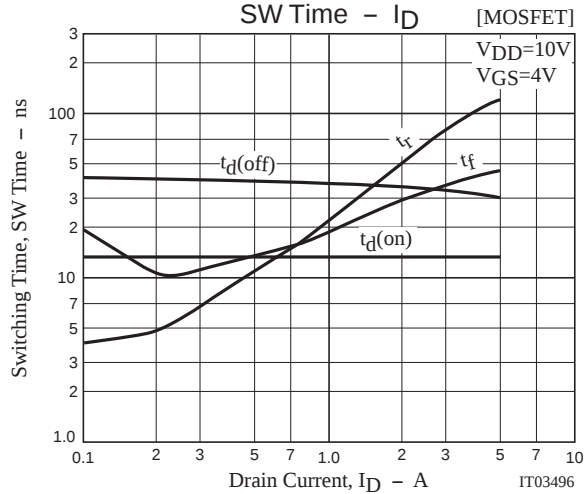
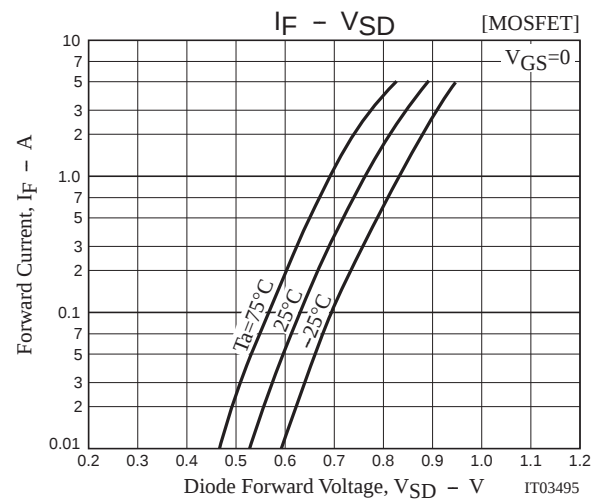
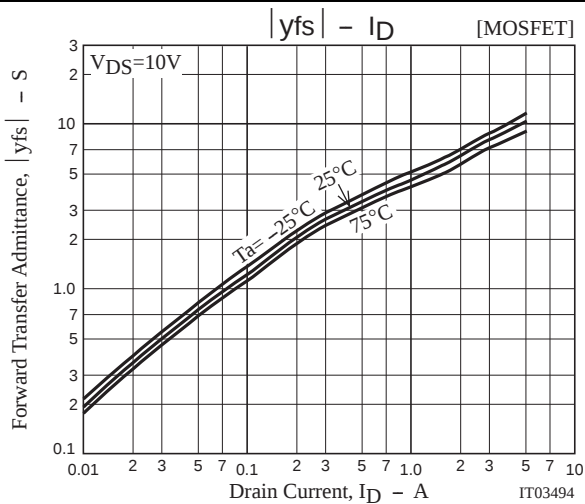
Switching Time Test Circuit

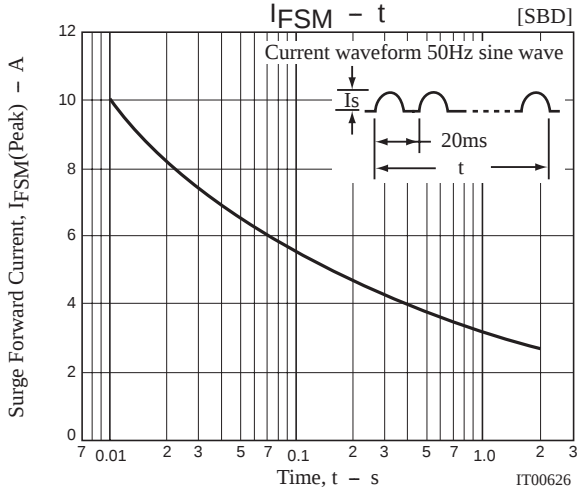
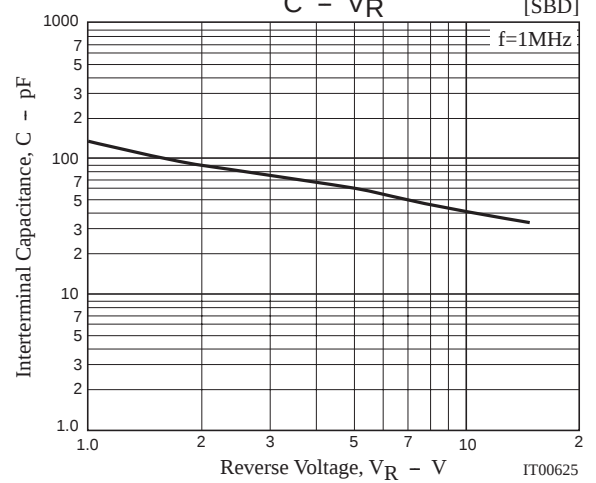
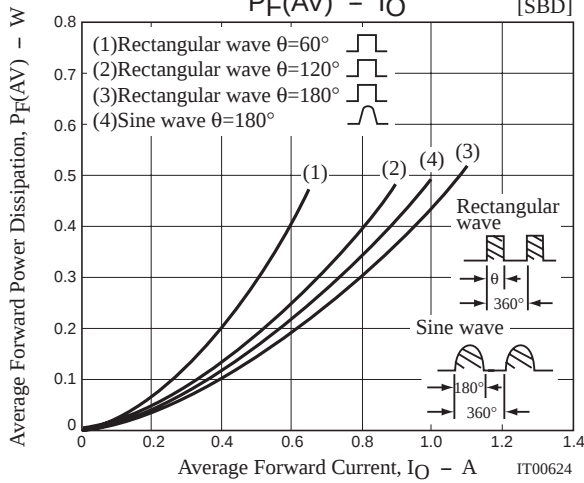
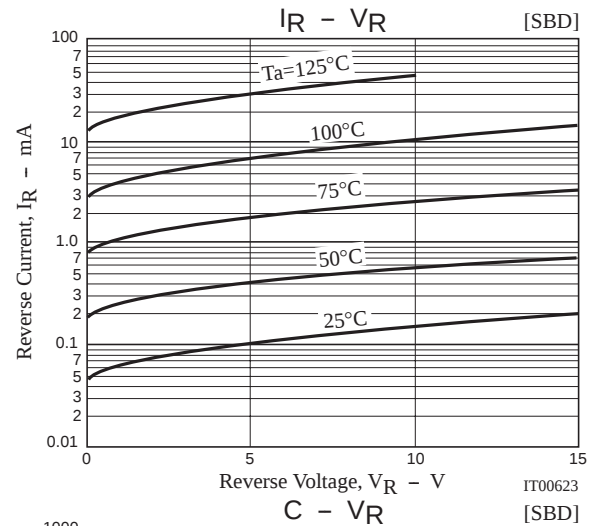
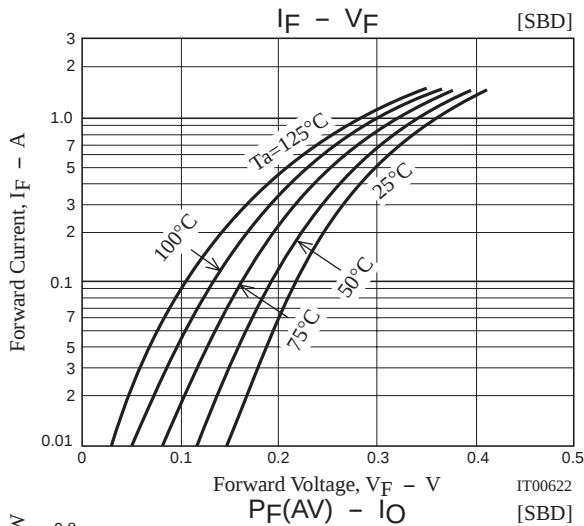
[MOSFET]

 t_{rr} Test Circuit

[SBD]







Note on usage : Since the CPH5811 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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