

Ordering number : ENN6981

MOSFET : N-Channel Silicon MOSFET
SBD : Schottky Barrier Diode

SANYO

CPH5805

DC / DC Converter Applications

Features

- Composite type with an N-Channel Silicon MOSFET (MCH3412) and a Schottky Barrier Diode (SBS006) contained in one package facilitating high-density mounting.

[MOSFET]

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

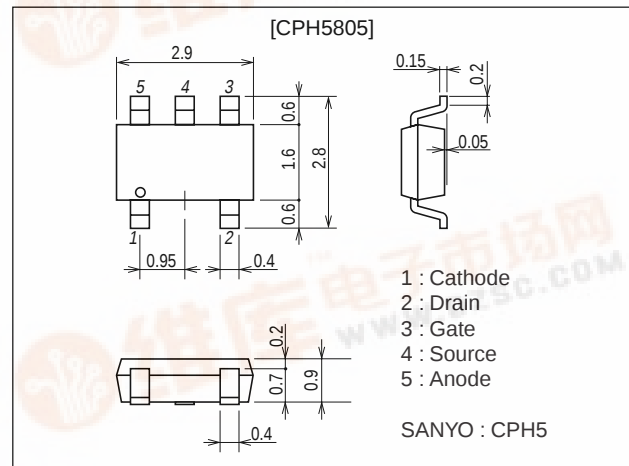
[SBD]

- Short reverse recovery time.
- Low forward voltage.

Package Dimensions

unit : mm

2171



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V_{DS}		30	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		3	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	12	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (600mm ² X 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}		30	V
Nonrepetitive Peak Reverse Surge Voltage	V_{RSM}		30	V
Average Output Current	I_O		0.5	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 : QF

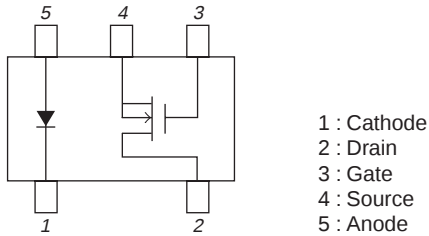
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Electrical Characteristics at Ta=25°C

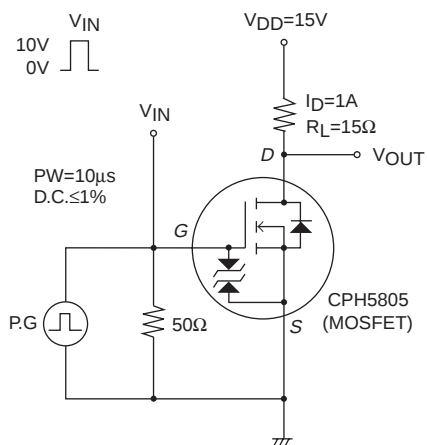
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=1.5A	2.1	3		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=1.5A, VGS=10V		64	84	mΩ
	RDS(on)2	ID=1A, VGS=4V		105	150	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		180		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		42		pF
Reverse Transfer Capacitance	Crss	VDS=10V, f=1MHz		25		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit		7		ns
Rise Time	tr	See specified Test Circuit		28		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit		18.5		ns
Fall Time	tf	See specified Test Circuit		4.4		ns
Total Gate Charge	Qg	VDS=10V, VGS=10V, ID=3A		4.9		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=10V, ID=3A		0.93		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=10V, VGS=10V, ID=3A		0.63		nC
Diode Forward Voltage	VSD	IS=3A, VGS=0		0.85	1.2	V
[SBD]						
Reverse Voltage	VR	IR=0.5mA	30			V
Forward Voltage	VF1	IF=0.3A		0.35	0.4	V
	VF2	IF=0.5A		0.42	0.47	V
Reverse Current	IR	VR=10V			200	μA
Interterminal Capacitance	C	VR=10V, f=1MHz cycle		20		pF
Reverse Recovery Time	trr	IF=IR=100mA			10	ns

Electrical Connection (Top view)



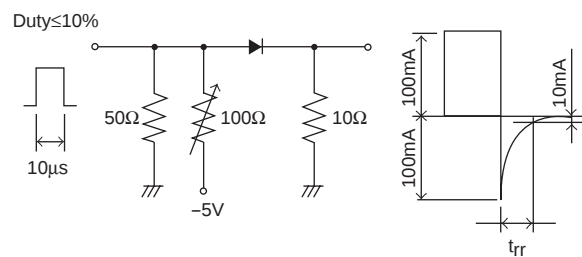
Switching Time Test Circuit

[MOSFET]

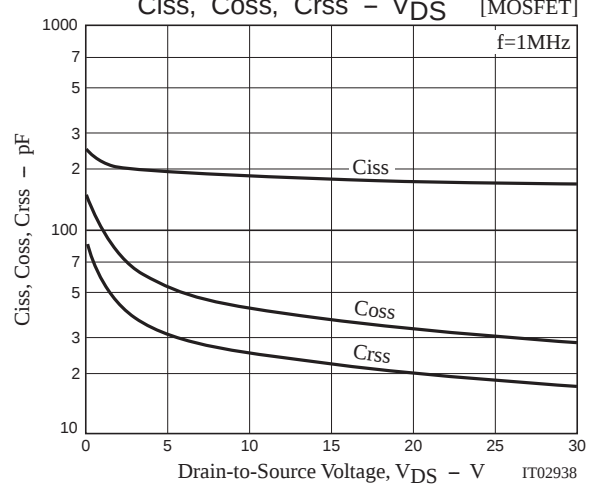
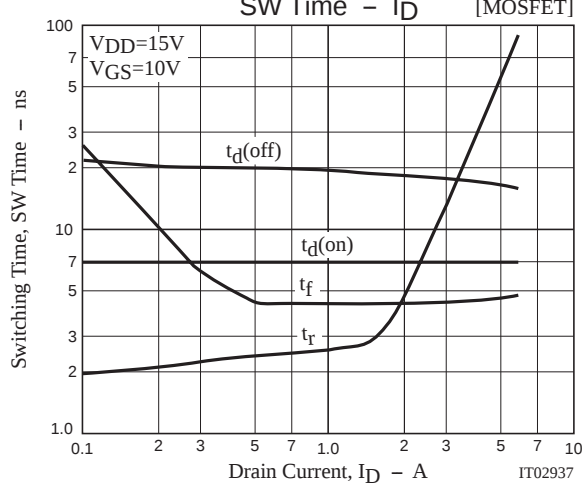
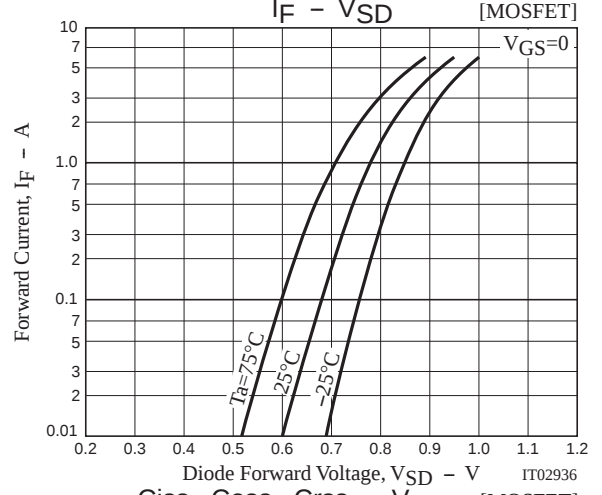
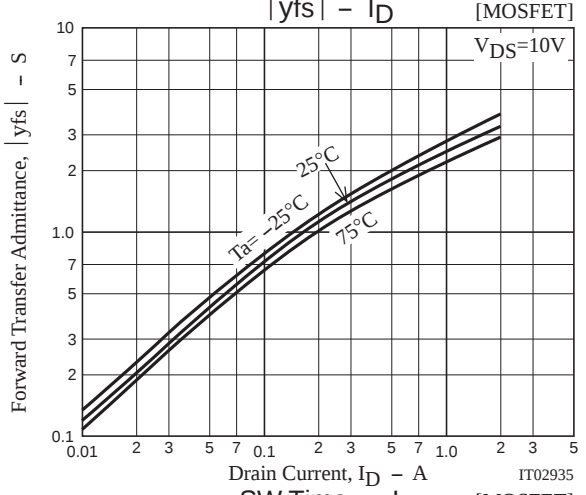
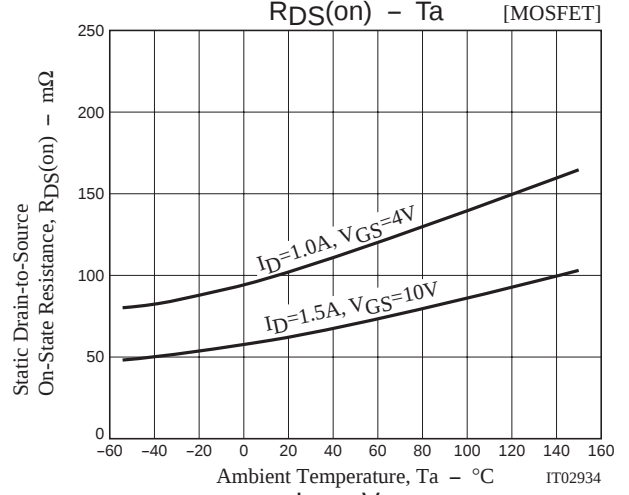
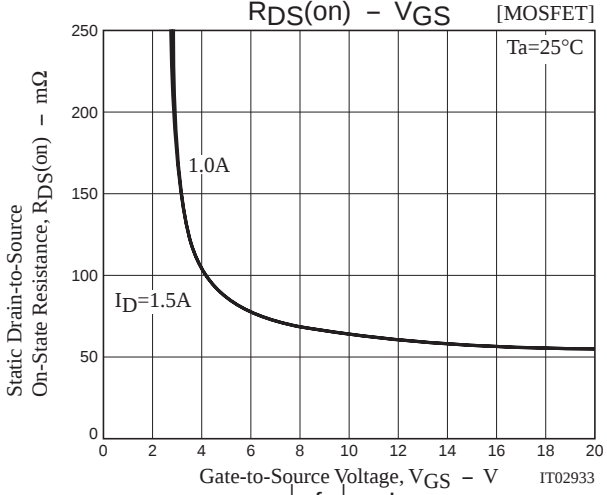
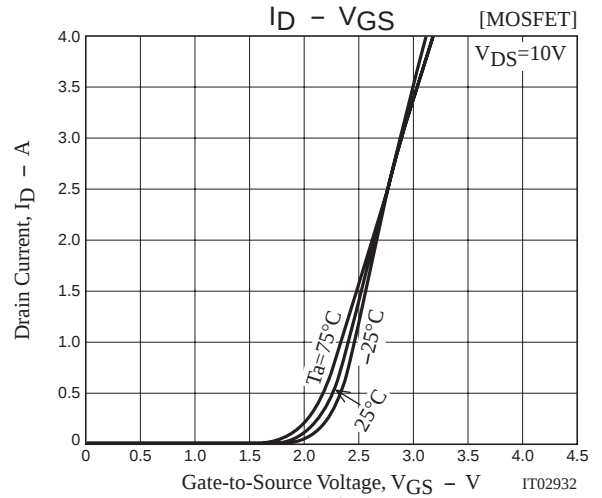
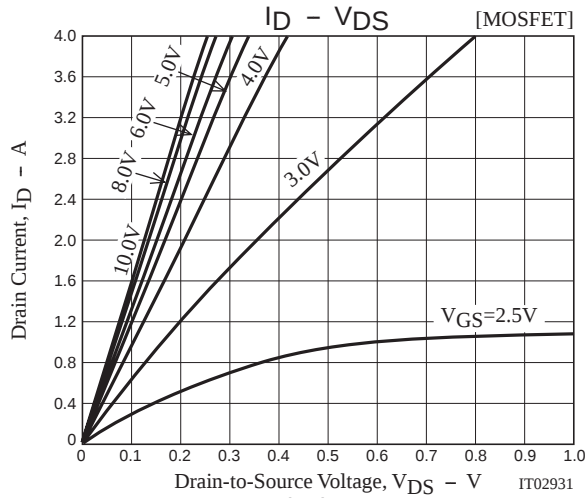


t_{rr} Test Circuit

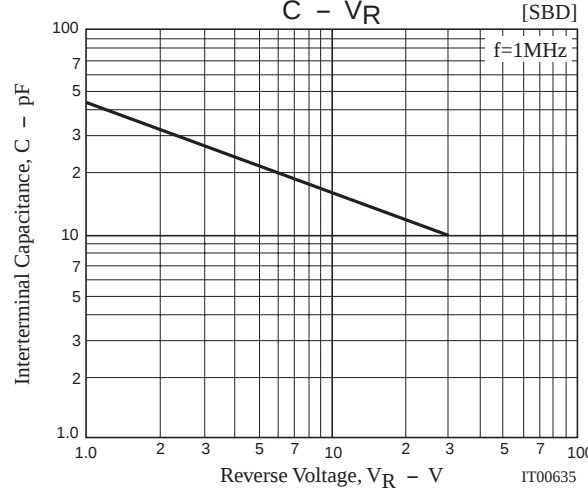
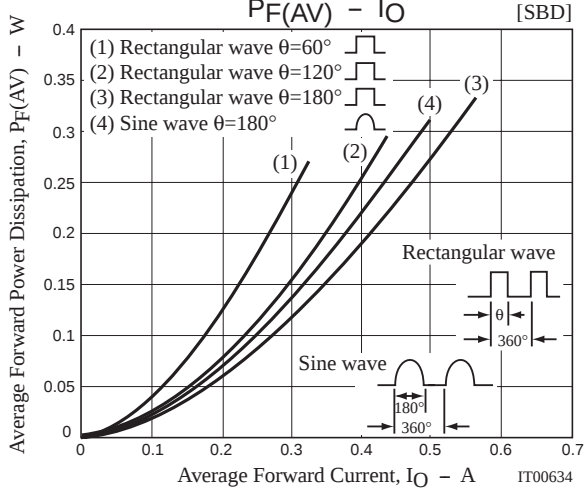
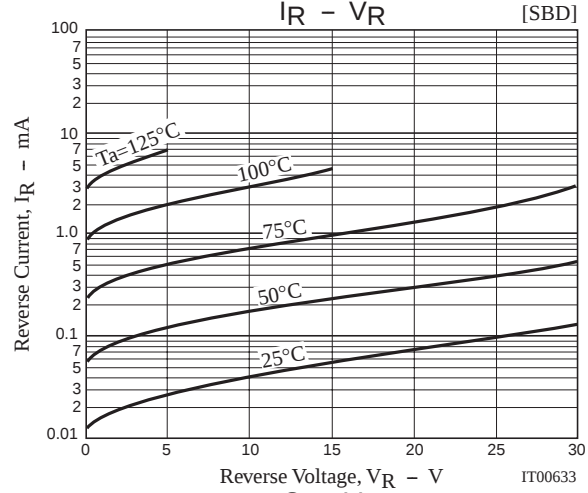
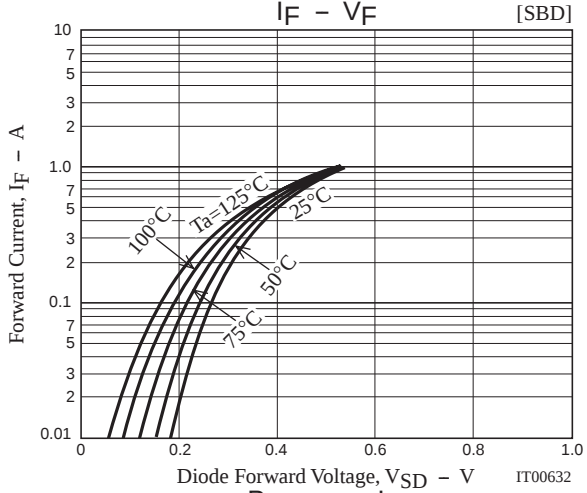
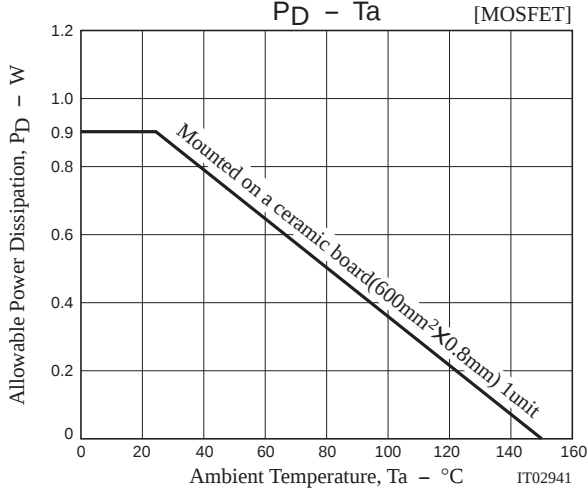
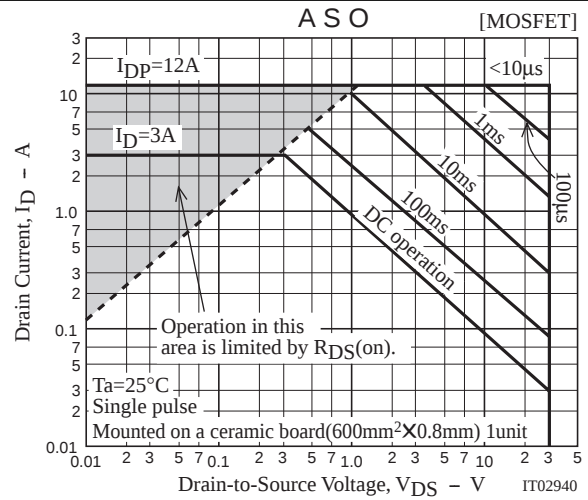
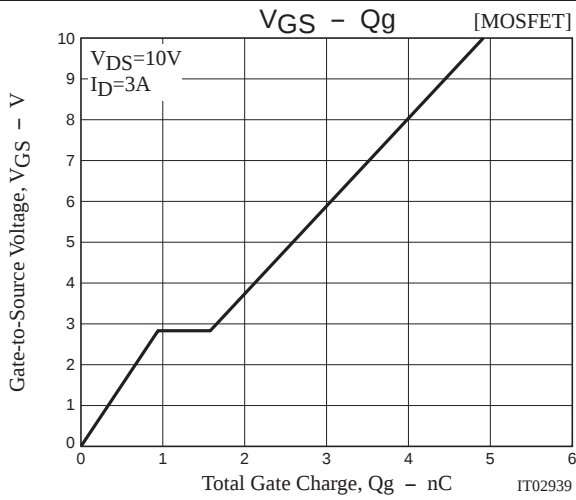
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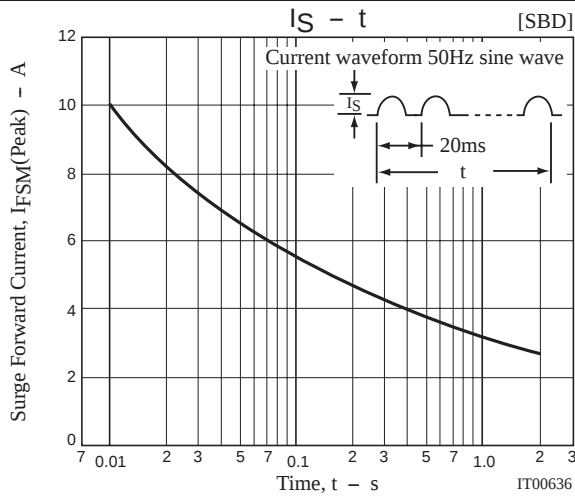


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