

**MCH5805****DC / DC Converter Applications****Features**

- Composite type with a P-channel silicon MOSFET (MCH3314) and a Schottky barrier diode (SB01-05) contained in one package facilitating high-density mounting.

[MOSFET]

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

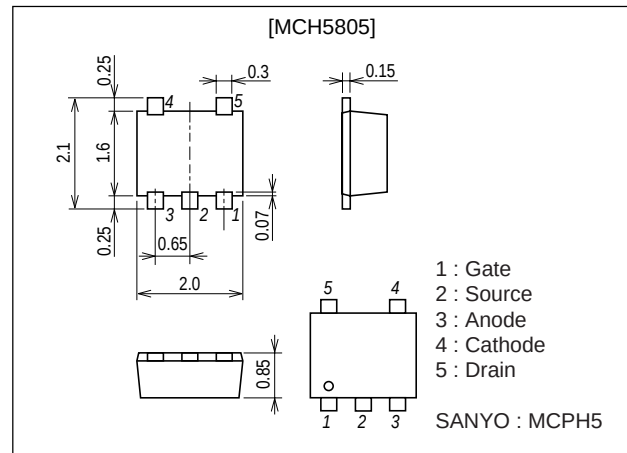
[SBD]

- Short reverse recovery time.
- Low forward voltage.

Package Dimensions

unit : mm

2195

**Specifications****Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V _{DSS}		-60	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		-0.6	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-2.4	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm²×0.8mm) 1unit	0.8	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _{RRM}		50	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		50	V
Average Output Current	I _O		0.1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	2	A
Junction Temperature	T _J		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

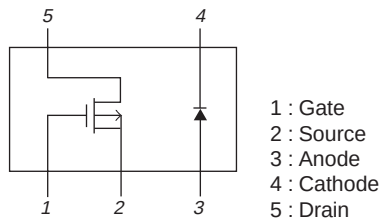
Marking : QE

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Electrical Characteristics at Ta=25°C

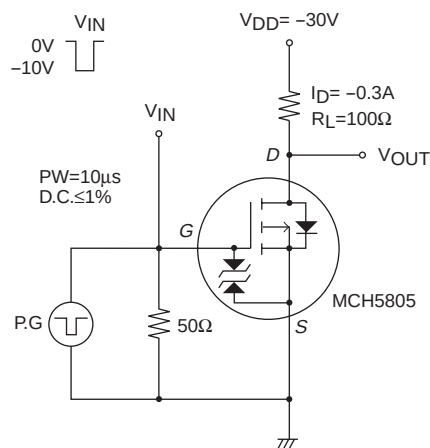
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0	-60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-60V, VGS=0			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-1.2		-2.6	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-0.3A	460	670		mS
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-0.3A, VGS=-10V		1.3	1.7	Ω
	RDS(on)2	ID=-0.2A, VGS=-4V		1.6	2.3	Ω
Input Capacitance	Ciss	VDS=-20V, f=1MHz		73		pF
Output Capacitance	Coss	VDS=-20V, f=1MHz		7		pF
Reverse Transfer Capacitance	Crss	VDS=-20V, f=1MHz		4		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		6		ns
Rise Time	tr	See specified Test Circuit.		3.5		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		12.5		ns
Fall Time	tf	See specified Test Circuit.		3		ns
Total Gate Charge	Qg	VDS=-10V, VGS=-10V, ID=-0.6A		2.4		nC
Gate-to-Source Charge	Qgs	VDS=-10V, VGS=-10V, ID=-0.6A		0.6		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=-10V, VGS=-10V, ID=-0.6A		0.2		nC
Diode Forward Voltage	VSD	IS=-0.6A, VGS=0		-0.88	-1.2	V
[SBD]						
Reverse Voltage	VR	IR=50μA	50			V
Forward Voltage	VF1	IF=100mA			0.55	V
Reverse Current	IR	VR=25V			15	μA
Interterminal Capacitance	C	VR=10V, f=1MHz		4.4		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			10	ns

Electrical Connection (Top view)



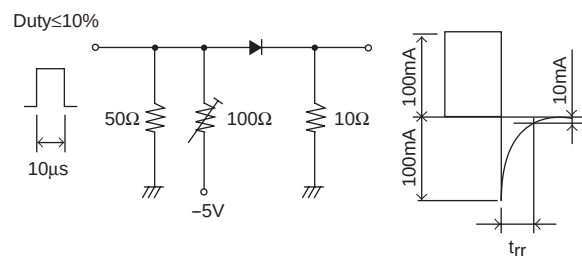
Switching Time Test Circuit

[MOSFET]

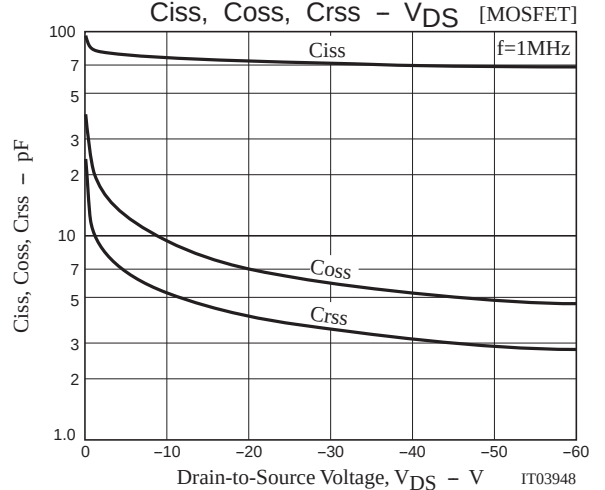
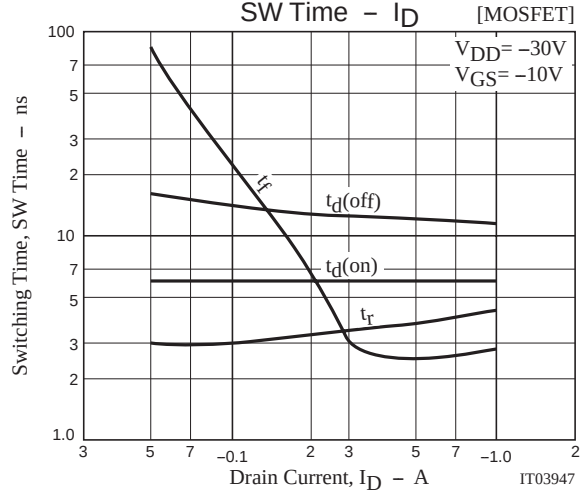
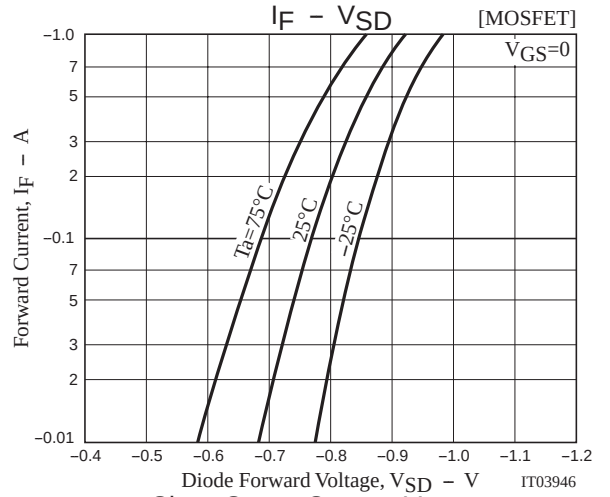
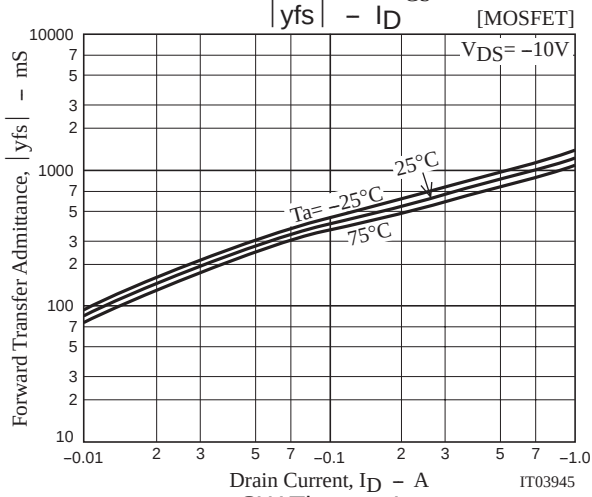
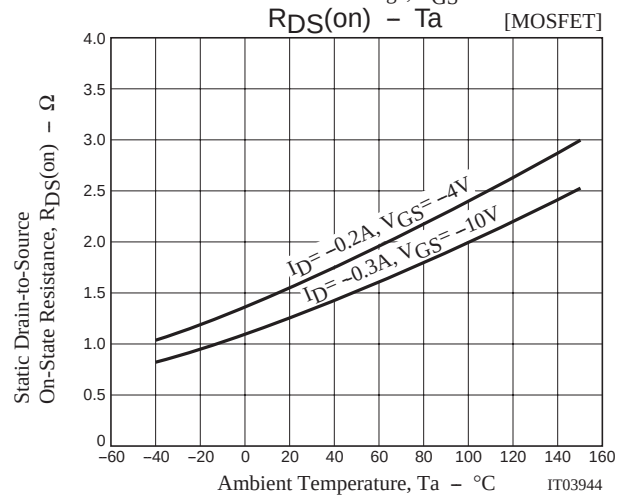
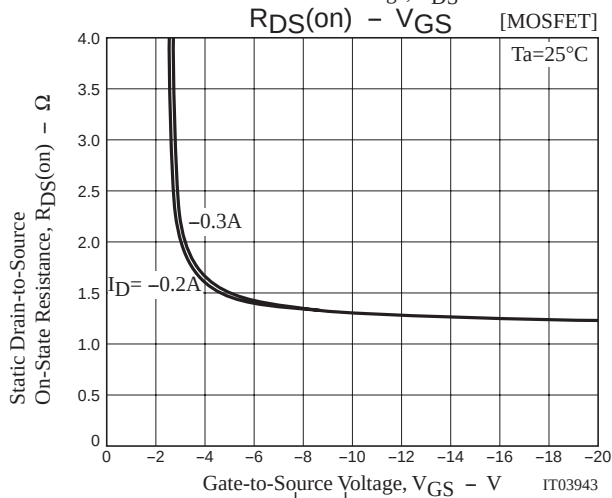
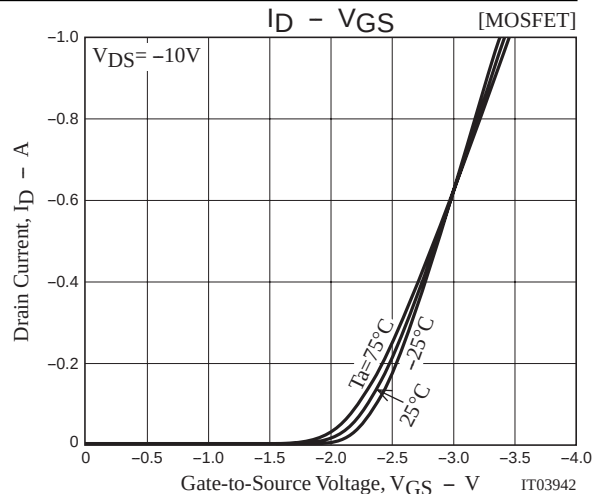
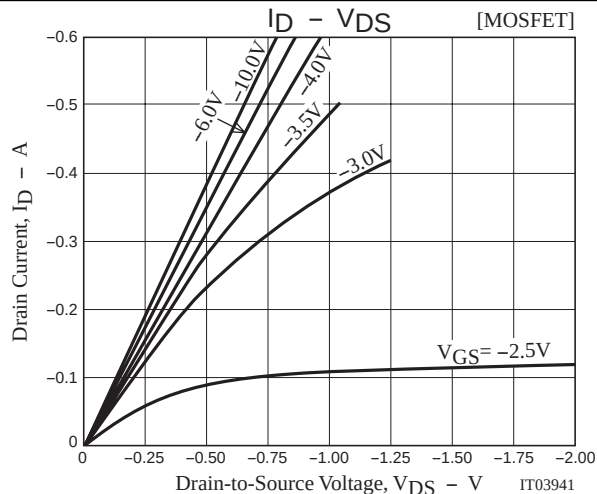


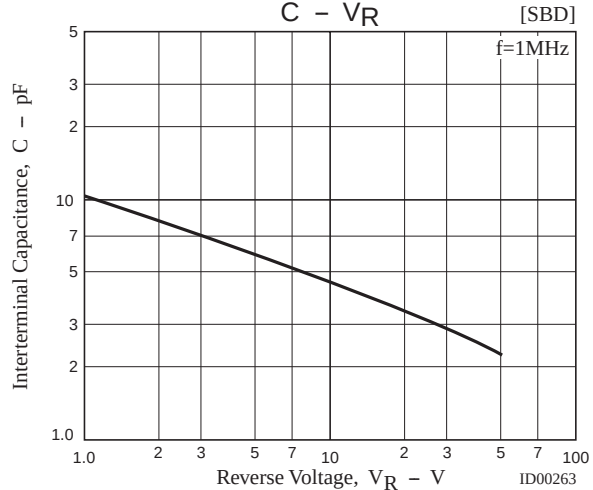
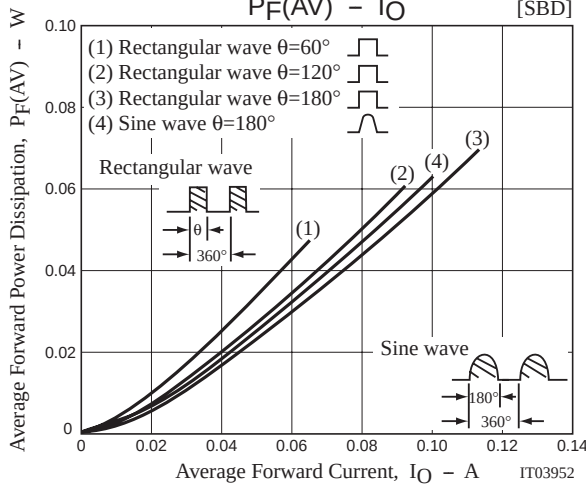
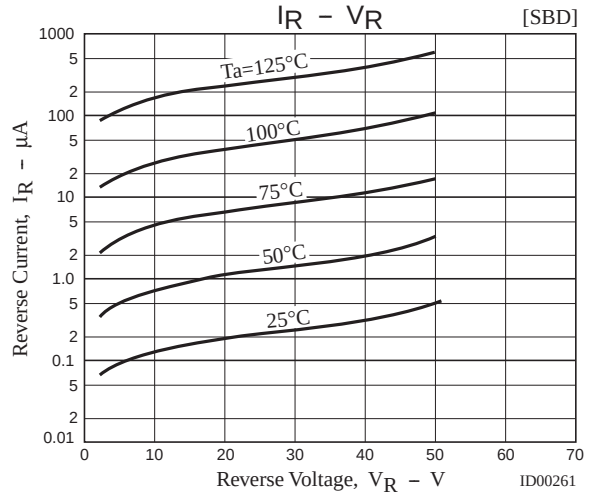
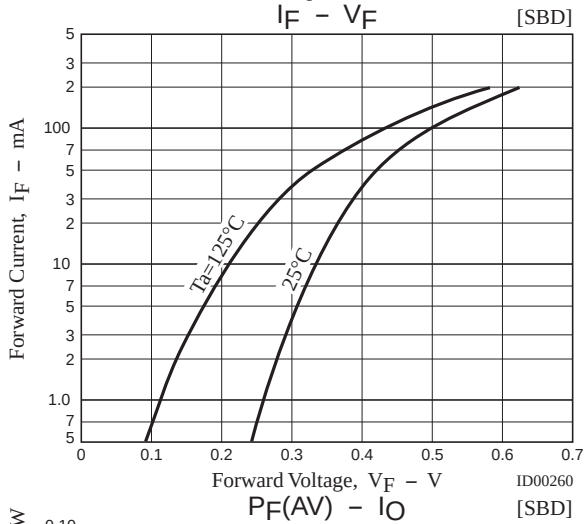
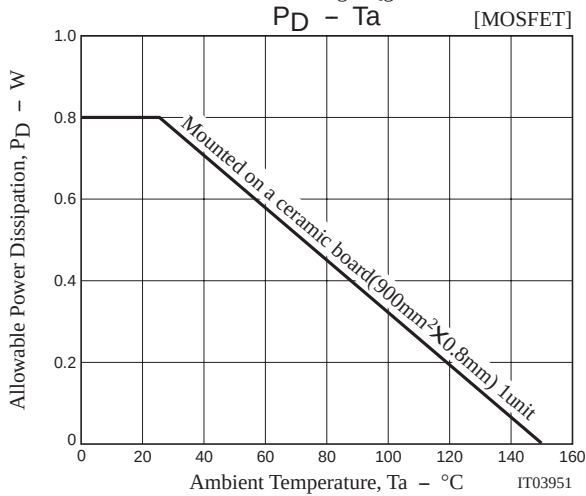
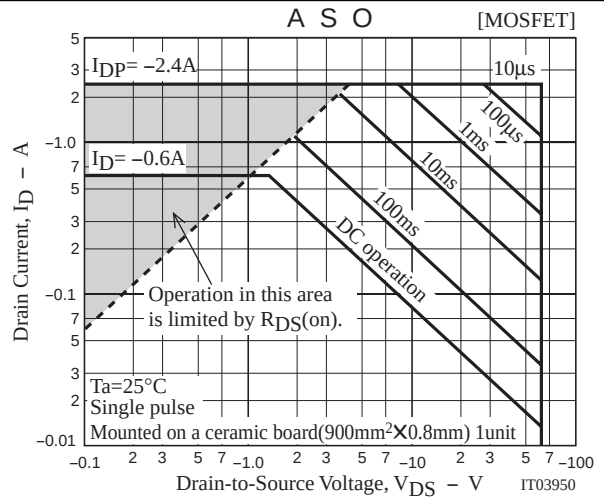
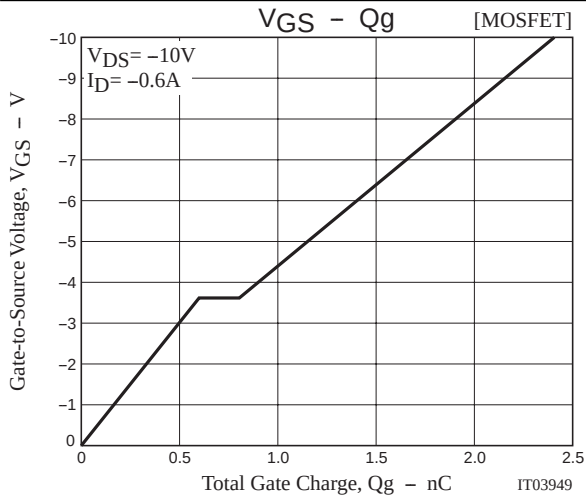
trr Test Circuit

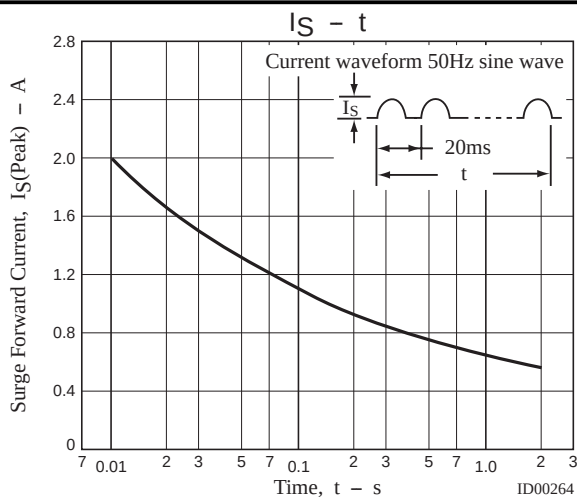
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MCH5805







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