

**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.

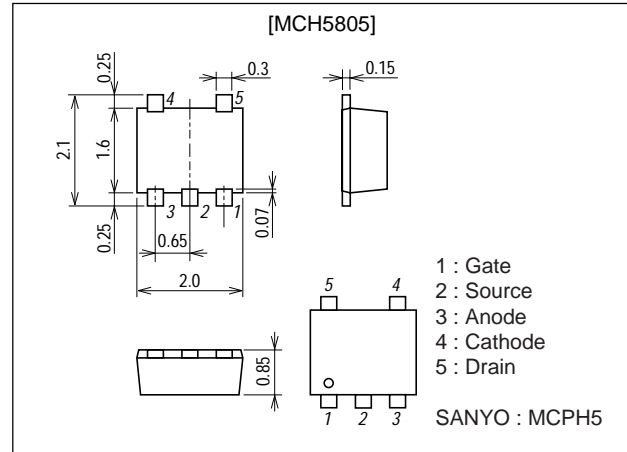
[SBD]

- 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 (900mm ² X0.8mm) 1unit	0.8	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _R RM		50	V
Nonrepetitive Peak Reverse Surge Voltage	V _R S		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

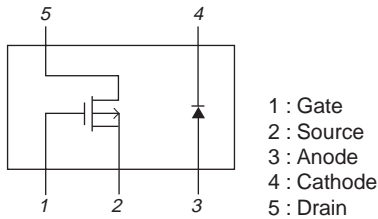
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Electrical Characteristics at Ta=25°C

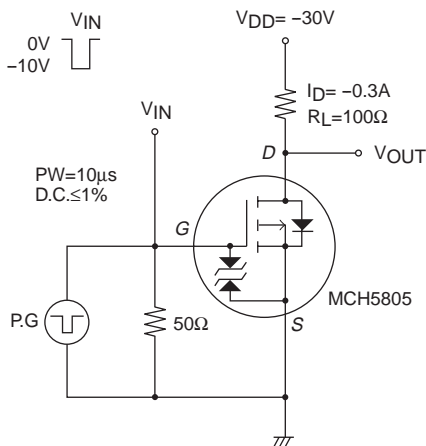
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-0.3A$	460	670		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-0.3A, V_{GS}=-10V$		1.3	1.7	Ω
	$R_{DS(on)2}$	$I_D=-0.2A, V_{GS}=-4V$		1.6	2.3	Ω
Input Capacitance	C_{iss}	$V_{DS}=-20V, f=1MHz$		73		pF
Output Capacitance	C_{oss}	$V_{DS}=-20V, f=1MHz$		7		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-20V, f=1MHz$		4		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		6		ns
Rise Time	t_r	See specified Test Circuit.		3.5		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		12.5		ns
Fall Time	t_f	See specified Test Circuit.		3		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-10V, I_D=-0.6A$		2.4		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-0.6A$		0.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-0.6A$		0.2		nC
Diode Forward Voltage	V_{SD}	$I_S=-0.6A, V_{GS}=0$		-0.88	-1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R=50\mu A$	50			V
Forward Voltage	V_{F1}	$I_F=100mA$			0.55	V
Reverse Current	I_R	$V_R=25V$			15	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$		4.4		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit.			10	ns

Electrical Connection (Top view)



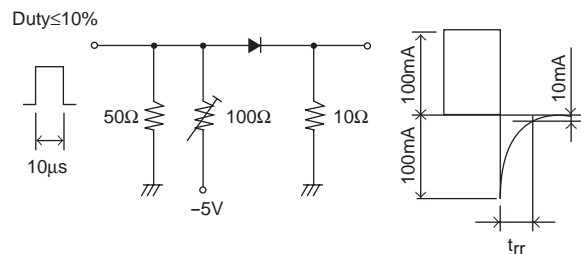
Switching Time Test Circuit

[MOSFET]

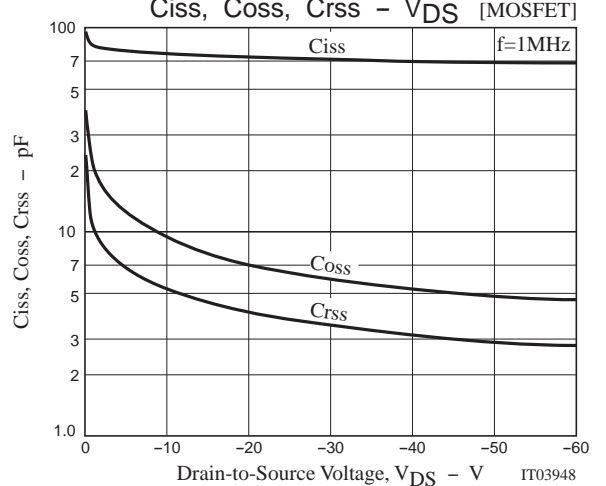
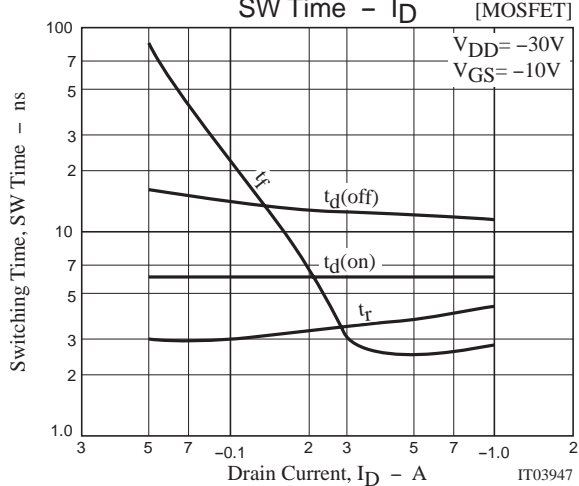
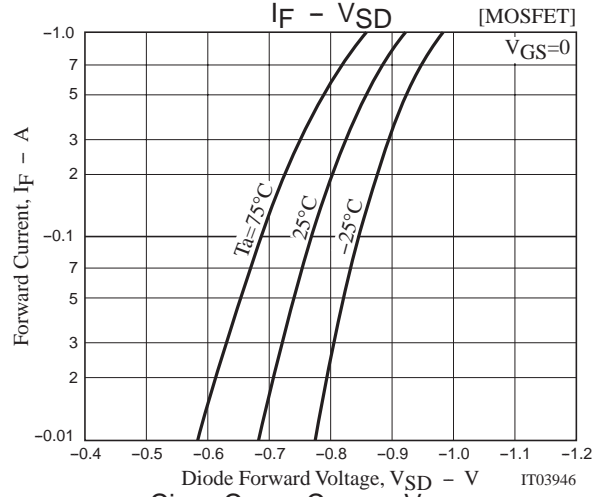
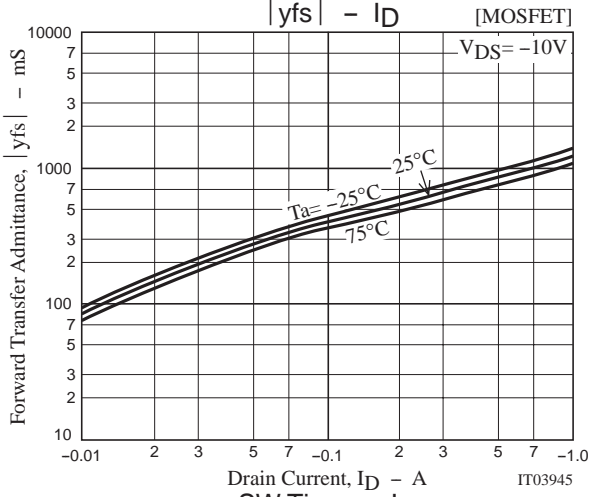
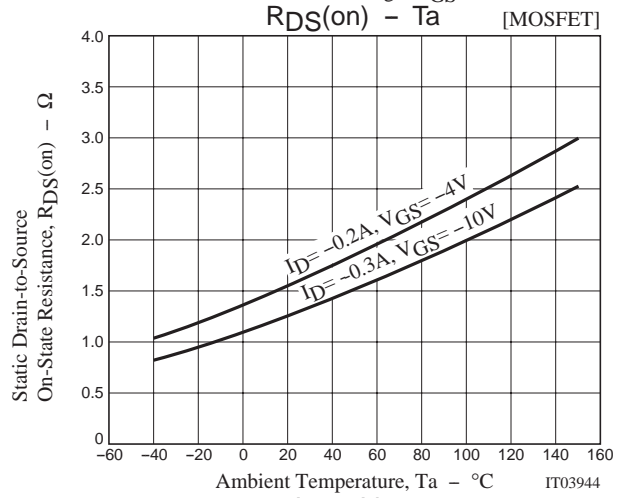
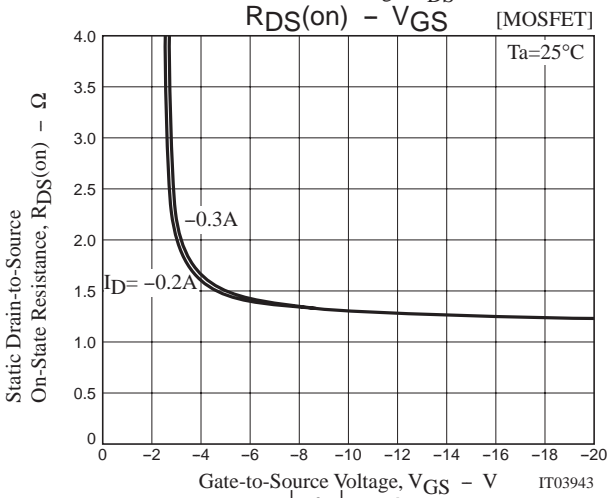
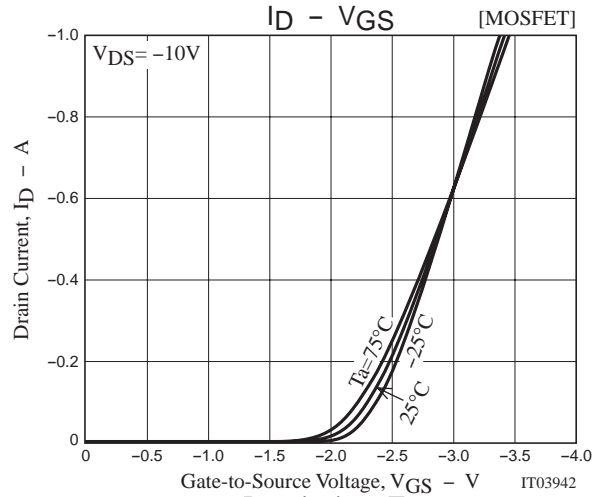
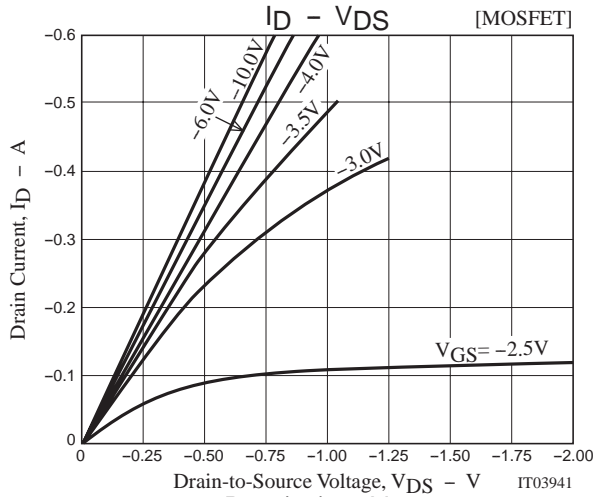


t_{rr} Test Circuit

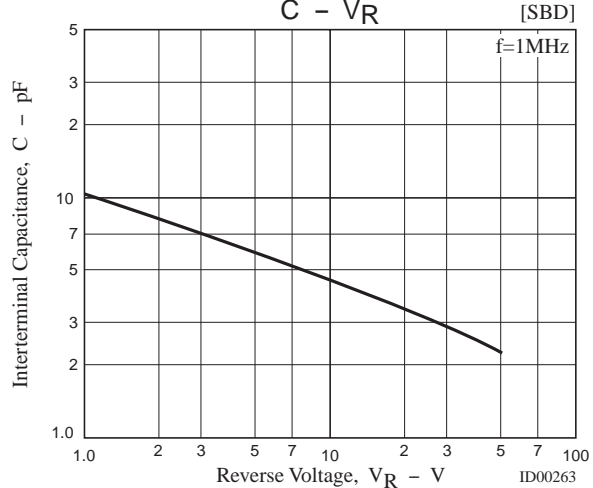
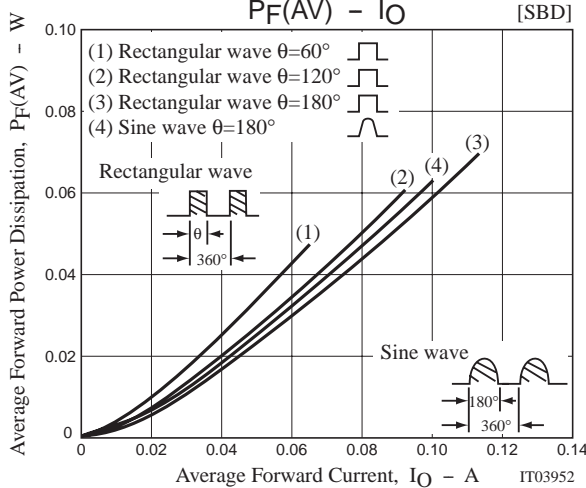
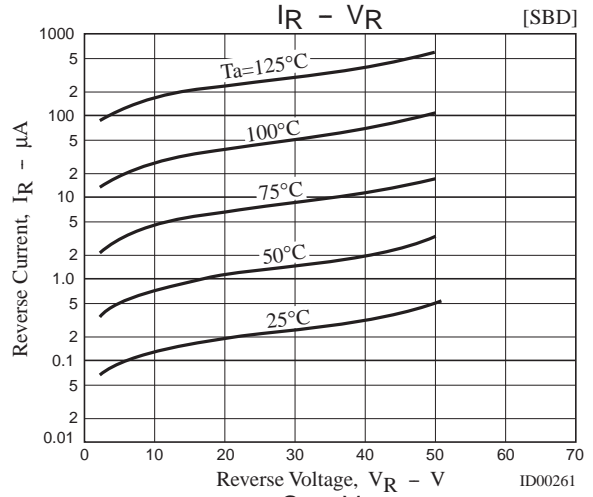
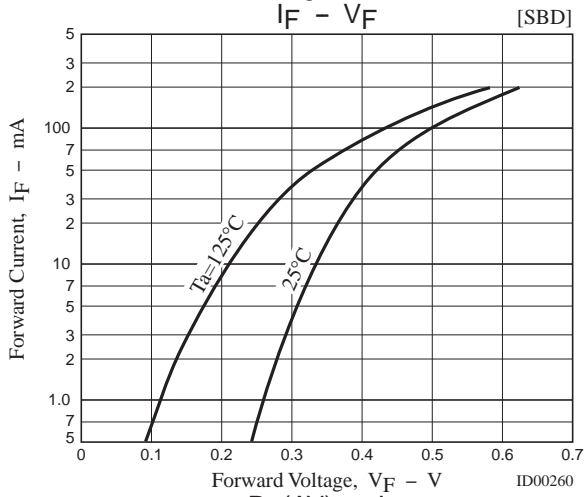
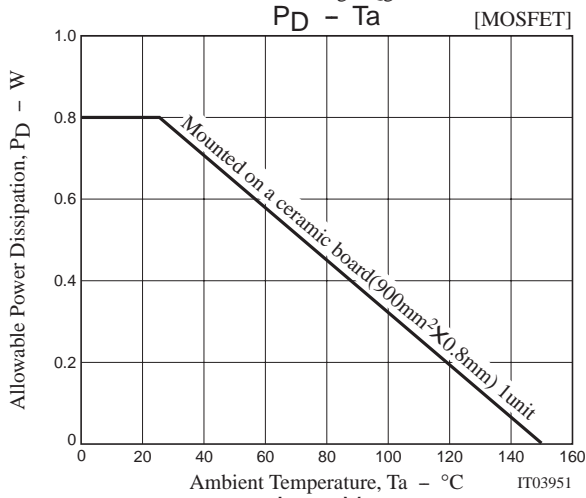
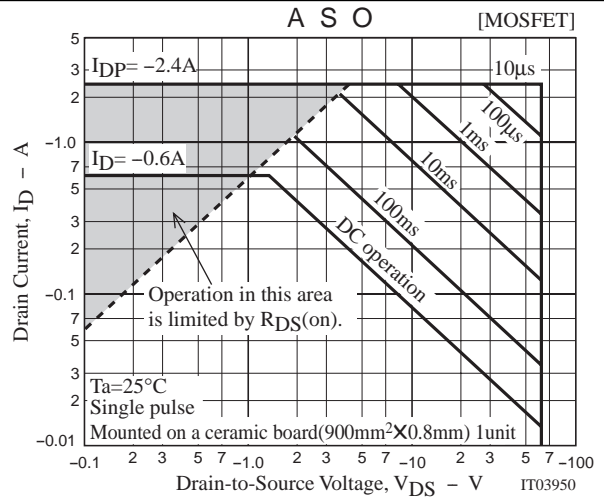
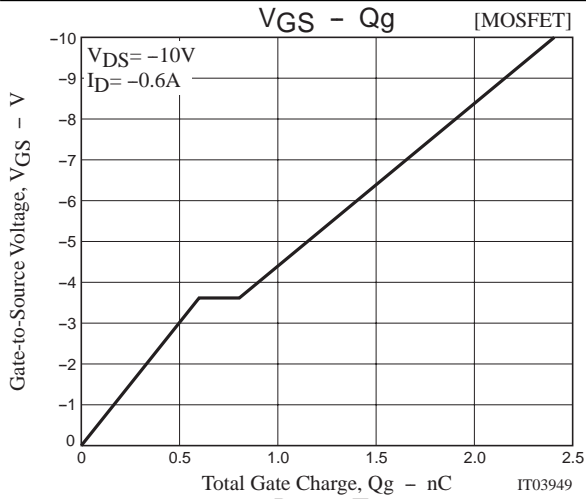
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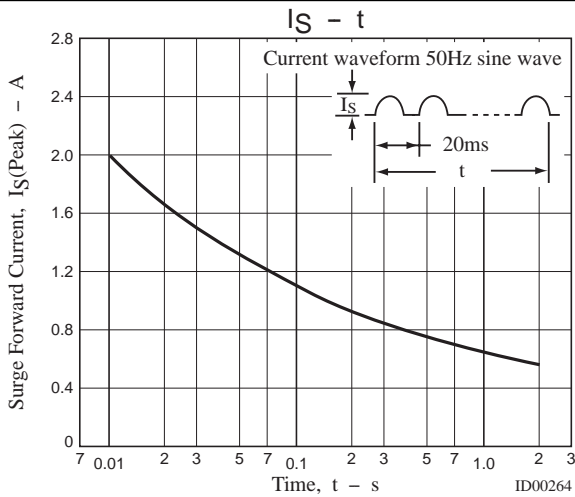


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