Ordering number : ENN6961

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

MCH5802

DC / DC Converter Applications

Features

- Composite type with a P-Channel Sillicon MOSFET (MCH3308) and a Schottky Barrier Diode (SBS006M) contained in one package facilitating high-density mounting.

[MOSFET]

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

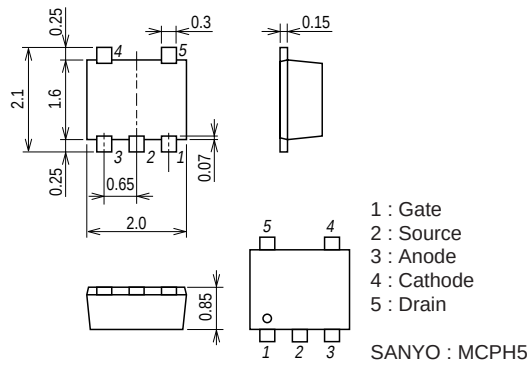
[SBD]

- Short reverse recovery time.
- Low forward voltage.

Package Dimensions

unit : mm
2195

[MCH5802]



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		−1	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−4	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm) 1unit	0.8	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−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	Tj		−55 to +125	°C
Storage Temperature	Tstg		−55 to +125	°C

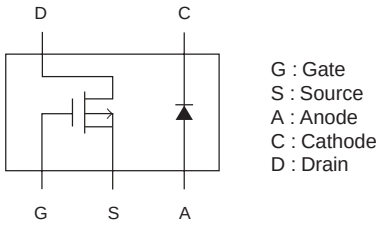
Marking : QB

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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_{GS}=±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	$\|yfs\|$	V_{DS}=–10V, I_D=–500mA	570	820		mS
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=–500mA, V_{GS}=–10V		430	560	mΩ
	$R_{DS}(on)2$	I_D=–300mA, V_{GS}=–4V		780	1090	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		80		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		15		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		13		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		7		ns
Rise Time	t_r	See specified Test Circuit		20		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		15		ns
Fall Time	t_f	See specified Test Circuit		7		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–1A		2.6		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–1A		0.5		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–1A		0.6		nC
Diode Forward Voltage	V_{SD}	I_S=–1A, V_{GS}=0		–0.9	–1.5	V
[SBD]						
Reverse Voltage	V_R	I_R=0.5mA	30			V
Forward Voltage	V_F1	I_F=0.3A		0.35	0.40	V
	V_F2	I_F=0.5A		0.42	0.47	V
Reverse Current	I_R	V_R=10V			200	μA
Interterminal Capacitance	C	V_R=10V, f=1MHz		20		pF
Reverse Recovery Time	t_{rr}	I_F=I_R=100mA, See specified Test Circuit.			10	ns

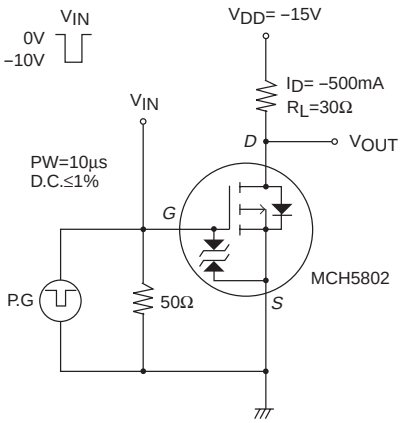
Electrical Connection (Top view)



G : Gate
S : Source
A : Anode
C : Cathode
D : Drain

Switching Time Test Circuit

[MOSFET]



trr Test Circuit

[SBD]