



SANYO Semiconductors

DATA SHEET

MCH5818

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

DC / DC Converter Applications**Features**

- Composite type with a P-Channel Silicon MOSFET (MCH3339) and a Schottky Barrier Diode (SBS007M) contained in one package facilitating high-density mounting.
- [MOSFET]
- Low ON-resistance.
 - Ultrahigh-speed switching.
- [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}		-12	V
Gate-to-Source Voltage	V _{GSS}		±12	V
Drain Current (DC)	I _D		-1.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-6.0	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×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}		15	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		15	V
Average Output Current	I _O		0.5	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	3	A
Junction Temperature	T _j		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : QU

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SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

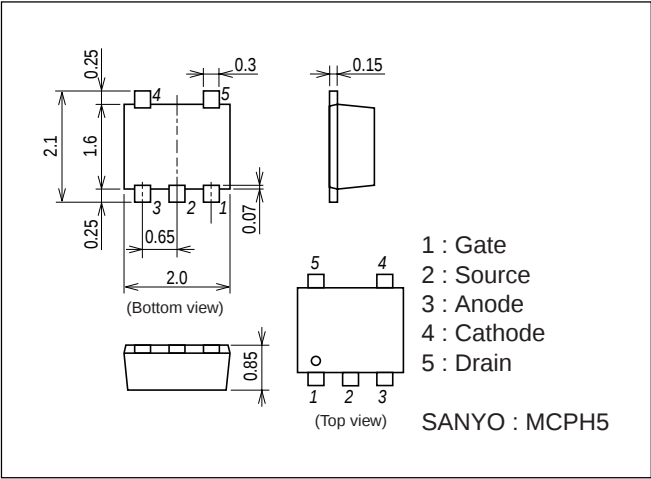
MCH5818

Electrical Characteristics at Ta=25°C

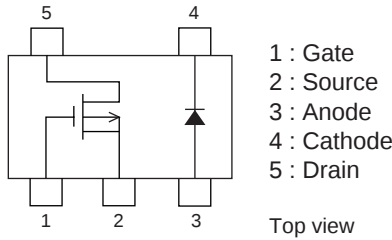
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0	-12			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-12V, VGS=0			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±9.6V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=-6V, ID=-1mA	-1.0		-2.4	V
Forward Transfer Admittance	yfs	VDS=-6V, ID=-0.8A	0.9	1.4		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-0.8A, VGS=-10V		200	270	mΩ
	RDS(on)2	ID=-0.4A, VGS=-4.5V		340	490	mΩ
	RDS(on)3	ID=-0.1A, VGS=-4V		370	530	mΩ
Input Capacitance	Ciss	VDS=-6V, f=1MHz		145		pF
Output Capacitance	Coss	VDS=-6V, f=1MHz		45		pF
Reverse Transfer Capacitance	Crss	VDS=-6V, f=1MHz		35		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit		7.5		ns
Rise Time	tr	See specified Test Circuit		20		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit		16		ns
Fall Time	tf	See specified Test Circuit		12		ns
Total Gate Charge	Qg	VDS=-10V, VGS=-10V, ID=-1.5A		3.8		nC
Gate-to-Source Charge	Qgs	VDS=-10V, VGS=-10V, ID=-1.5A		0.5		nC
Gate-to-Drain “Miller” Charge	Qgd	VDS=-10V, VGS=-10V, ID=-1.5A		0.5		nC
Diode Forward Voltage	VSD	IS=-1.5A, VGS=0		-0.94	-1.5	V
[SBD]						
Reverse Voltage	VR	IR=0.5mA	15			V
Forward Voltage	VF1	IF=0.3A		0.35	0.41	V
	VF2	IF=0.5A		0.4	0.46	V
Reverse Current	IR	VR=6V			200	μA
Interterminal Capacitance	C	VR=10V, f=1MHz, 1 cycle		20		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			10	ns

Package Dimensions

unit : mm
2195

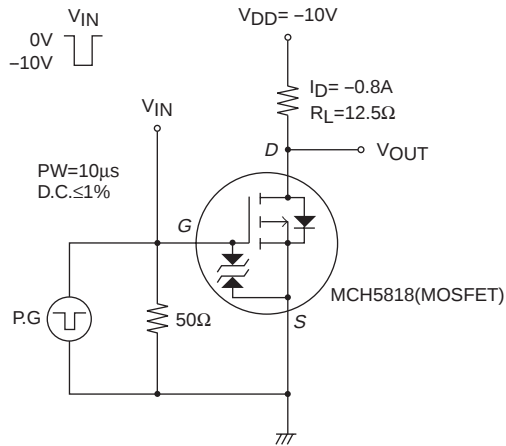


Electrical Connection



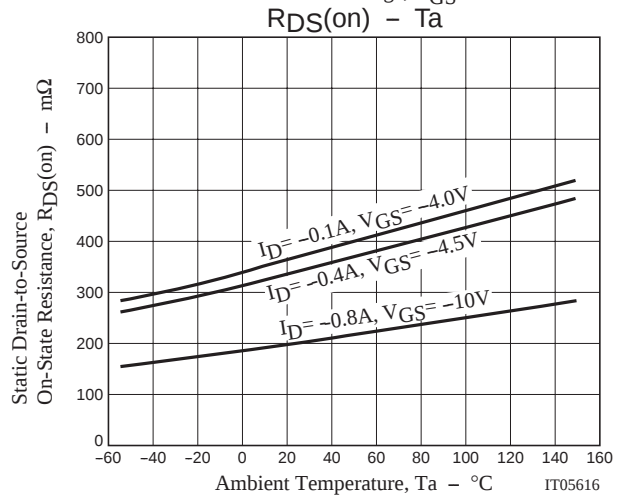
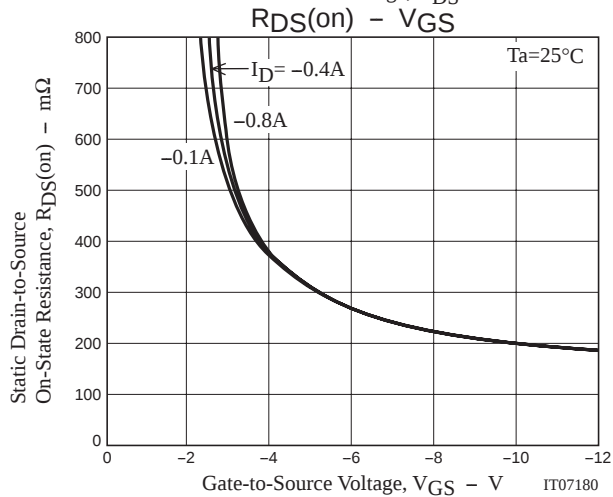
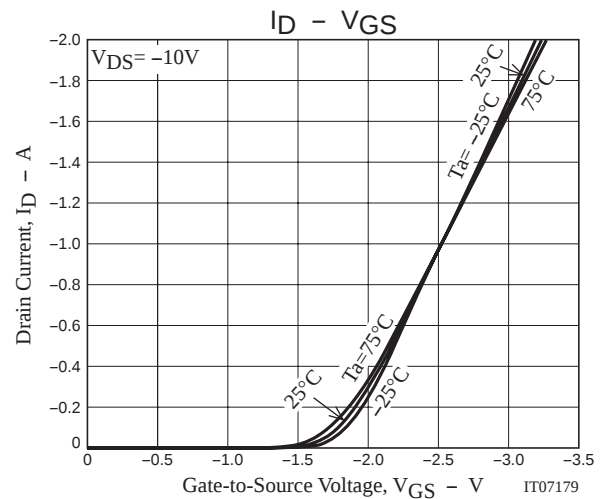
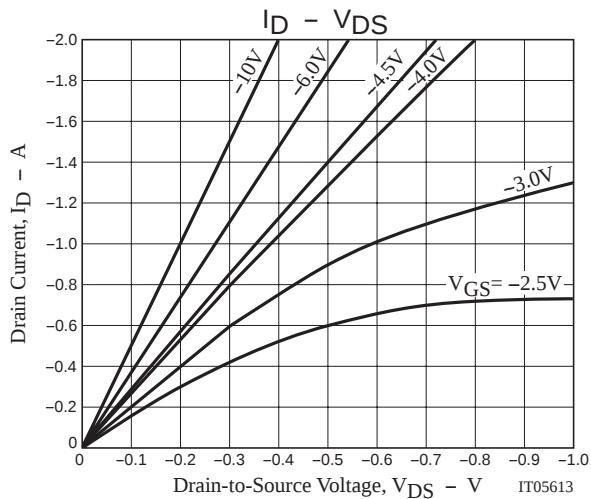
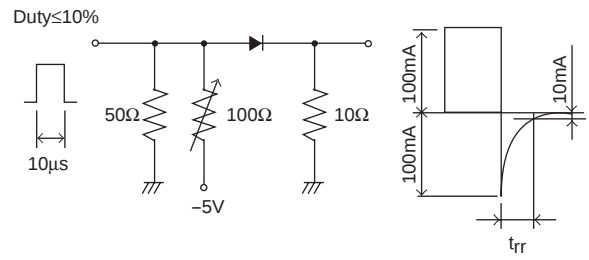
Switching Time Test Circuit

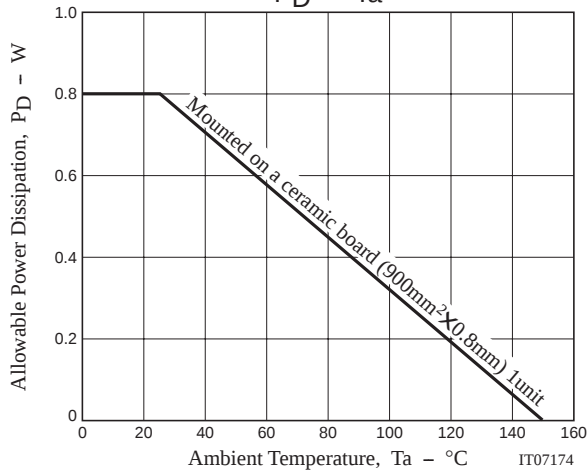
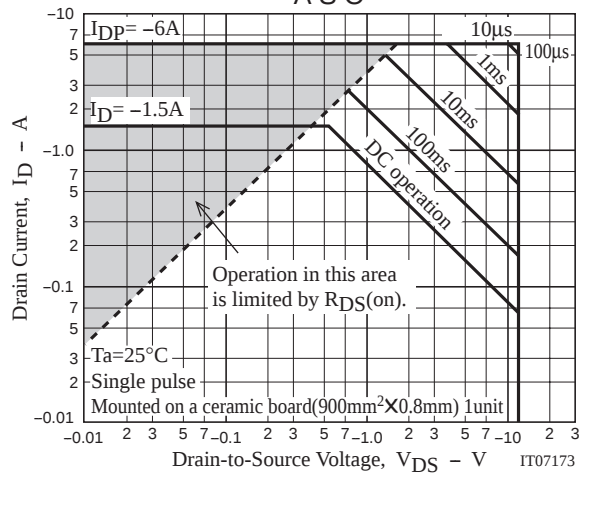
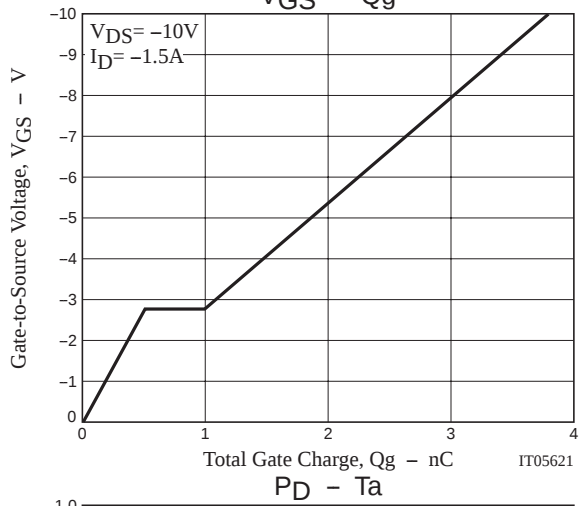
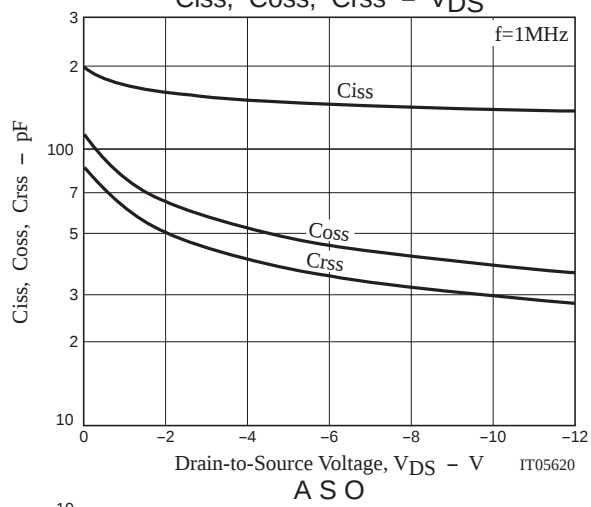
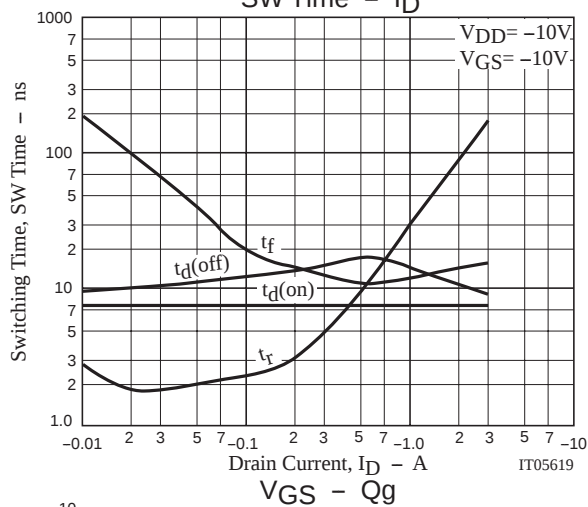
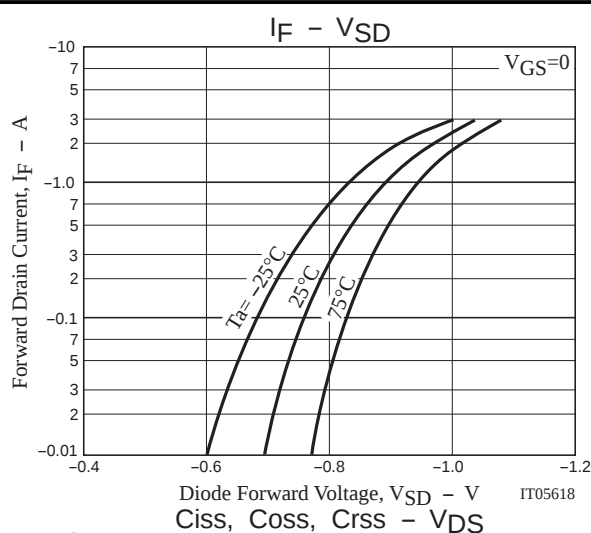
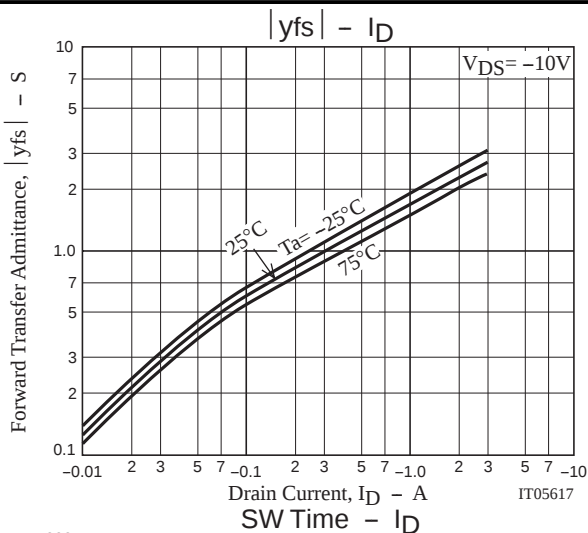
[MOSFET]



t_{rr} Test Circuit

[SBD]





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