

**MCH5802****DC / DC Converter Applications****Features**

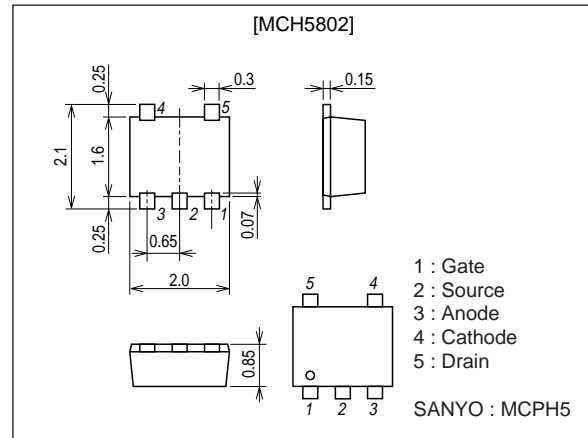
- Composite type with a P-Channel Silicon MOSFET (MCH3308) and a Schottky Barrier Diode (SBS006M) contained in one package facilitating high-density mounting.

[MOSFET]

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

[SBD]

- Short reverse recovery time.
- Low forward voltage.

Package Dimensionsunit : mm
2195**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 (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 _R RM		30	V
Nonrepetitive Peak Reverse Surge Voltage	V _R S		30	V
Average Output Current	I _O		0.5	A
Surge Forward Current	I _F SM	50Hz sine wave, 1 cycle	10	A
Junction Temperature	T _j		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : QB

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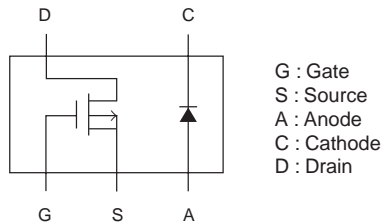
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Electrical Characteristics at Ta=25°C

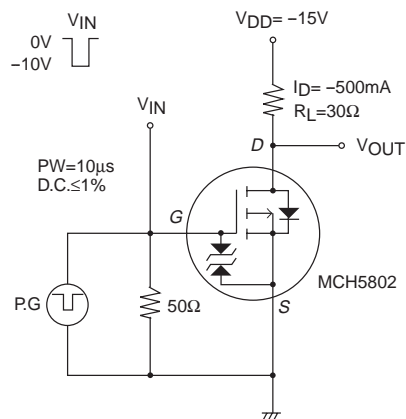
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16V, V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V, I_D = -500mA$	570	820		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -500mA, V_{GS} = -10V$		430	560	$m\Omega$
	$R_{DS(on)2}$	$I_D = -300mA, V_{GS} = -4V$		780	1090	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -10V, f = 1MHz$		80		pF
Output Capacitance	C_{oss}	$V_{DS} = -10V, f = 1MHz$		15		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -10V, f = 1MHz$		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	Q_g	$V_{DS} = -10V, V_{GS} = -10V, I_D = -1A$		2.6		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -10V, V_{GS} = -10V, I_D = -1A$		0.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -10V, V_{GS} = -10V, I_D = -1A$		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)



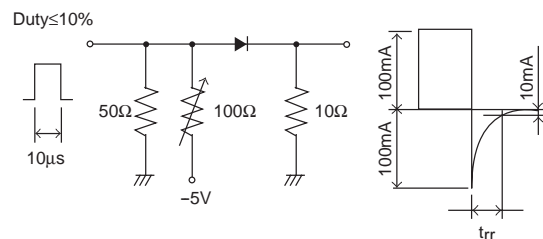
Switching Time Test Circuit

[MOSFET]

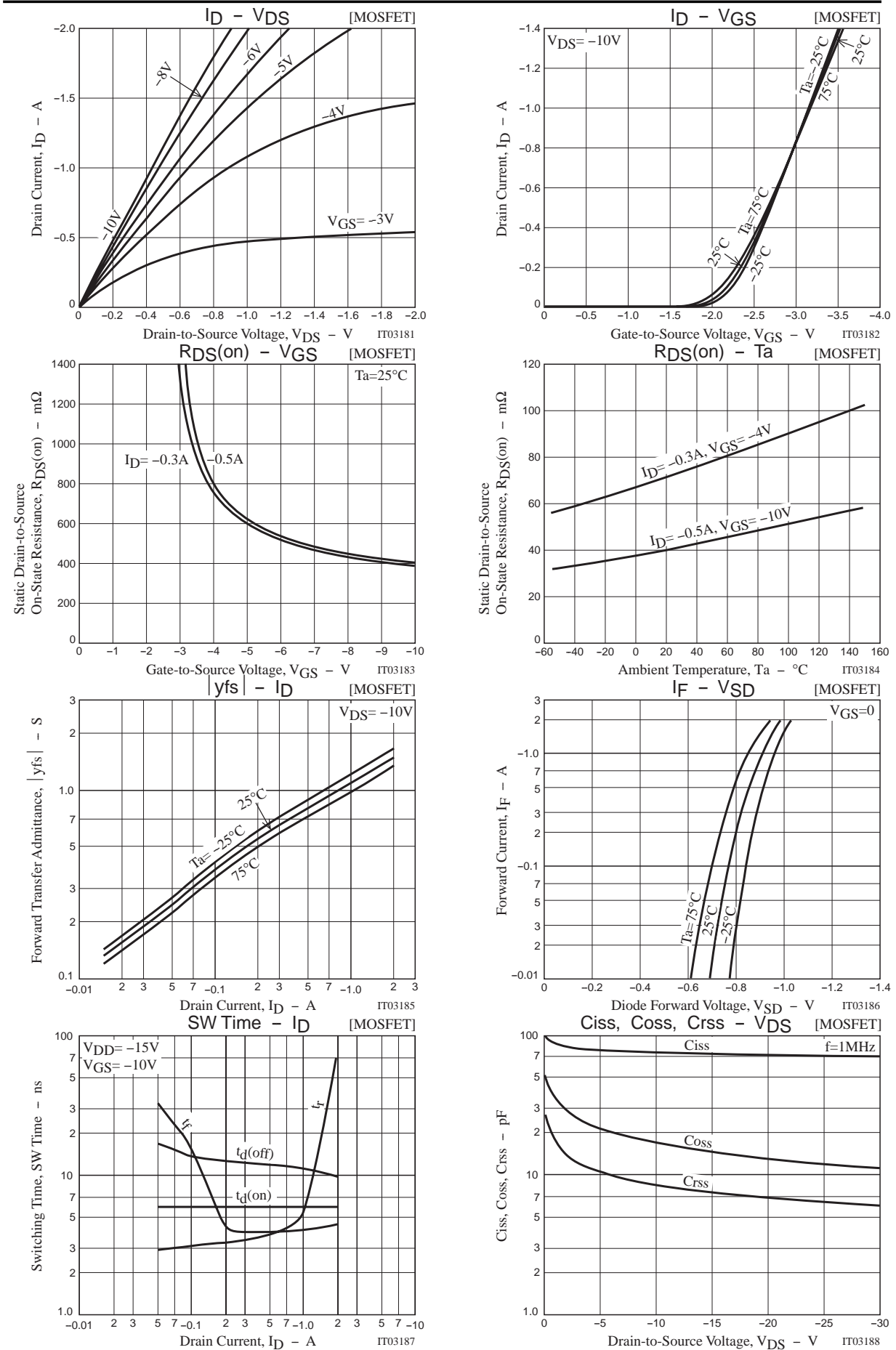


t_{rr} Test Circuit

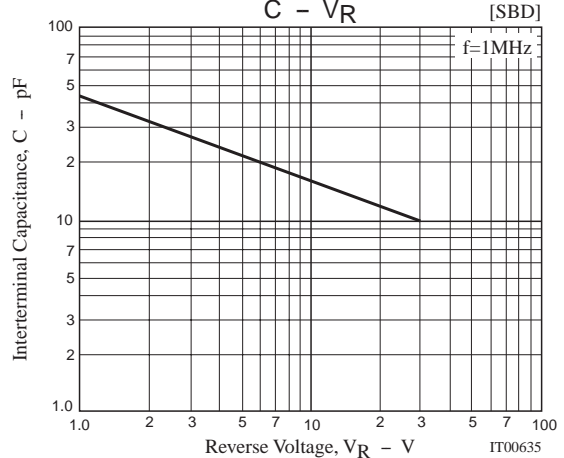
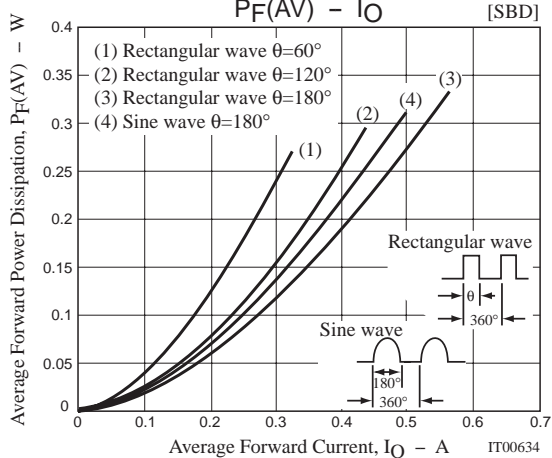
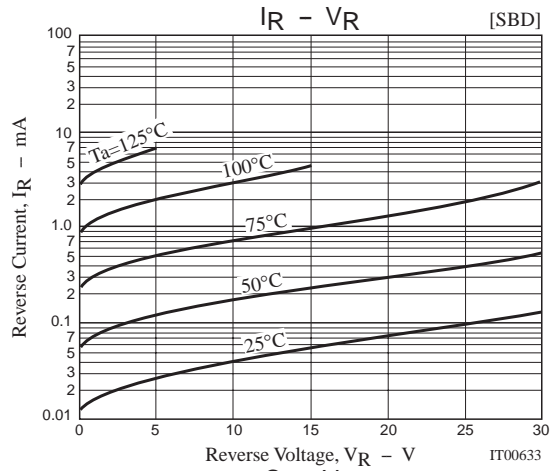
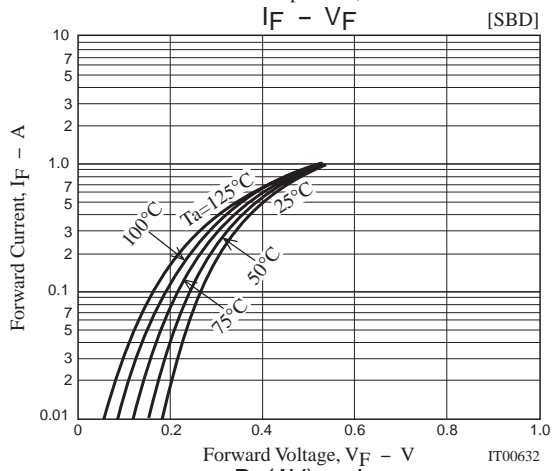
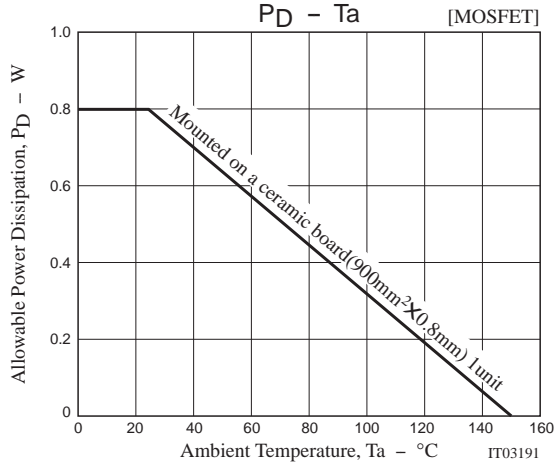
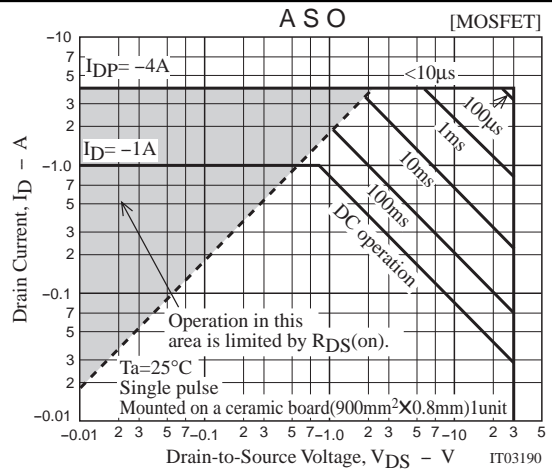
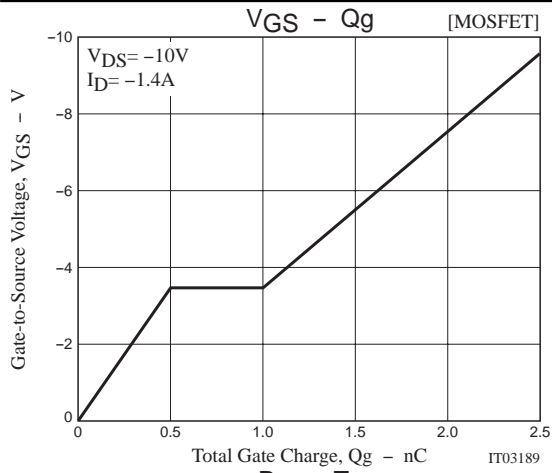
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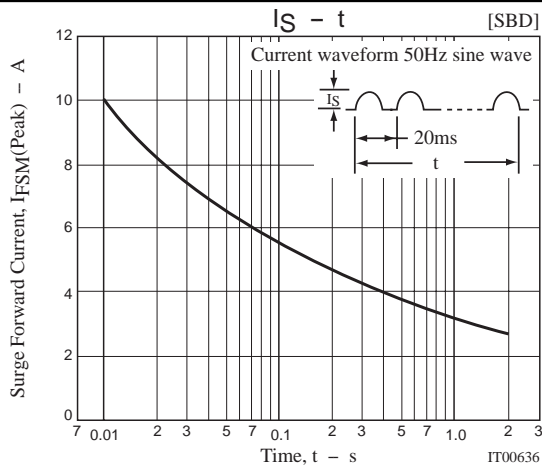
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