



SANYO Semiconductors

DATA SHEET

CPH5807

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

DC / DC Converter Applications

Features

- Composite type with a P-Channel Silicon MOSFET (MCH3309) and a Schottky Barrier Diode (SBS004) contained in one package facilitating high-density mounting.
- [MOS]
 - Low ON-resistance
 - Ultrahigh-speed switching
 - Low Voltage drive
- [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}		-20	V
Gate-to-Source Voltage	V _{GS}		±10	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 (600mm ² X0.8mm) 1unit	0.9	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _R RM		15	V
Nonrepetitive Peak Reverse Surge Voltage	V _R S		15	V
Average Output Current	I _O		1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1cycle	10	A
Junction Temperature	T _J		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

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Electrical Characteristics at Ta=25°C

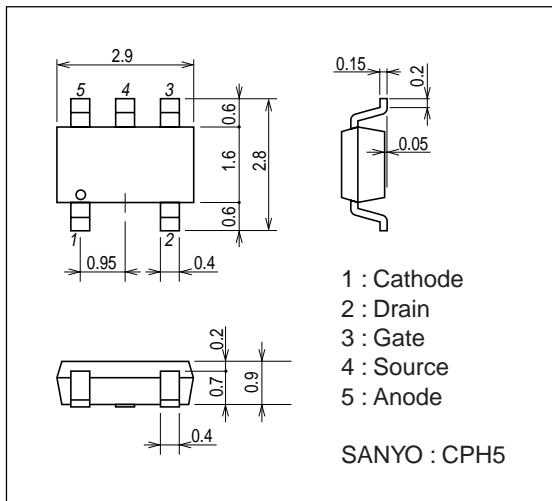
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0$	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20\text{V}, V_{GS} = 0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8\text{V}, V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}, I_D = -1\text{mA}$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}, I_D = -0.8\text{A}$	1.6	2.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -0.8\text{A}, V_{GS} = -4\text{V}$		180	235	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -0.4\text{A}, V_{GS} = -2.5\text{V}$		240	340	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		290		pF
Output Capacitance	C_{oss}	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		40		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		25		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		32		ns
Fall Time	t_f	See specified Test Circuit.		27		ns
Total Gate Charge	Q_g	$V_{DS} = -10\text{V}, V_{GS} = -4\text{V}, I_D = -1.5\text{A}$		3.2		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -10\text{V}, V_{GS} = -4\text{V}, I_D = -1.5\text{A}$		0.8		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -10\text{V}, V_{GS} = -4\text{V}, I_D = -1.5\text{A}$		0.6		nC
Diode Forward Voltage	V_{SD}	$I_S = -1.5\text{A}, V_{GS} = 0$		-0.87	-1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R = 1\text{mA}$	15			V
Forward Voltage	V_{F1}	$I_F = 0.5\text{A}$		0.30	0.35	V
	V_{F2}	$I_F = 1\text{A}$		0.35	0.40	V
Reverse Current	I_R	$V_R = 6\text{V}$			500	μA
Interterminal Capacitance	C	$V_R = 10\text{V}, f = 1\text{MHz cycle}$		42		pF
Reverse Recovery Time	t_{rr}	$I_F = I_R = 100\text{mA}$, See specified Test Circuit			15	ns
Thermal Resistance	$R_{th(j-a)}$	Mounted on a ceramic board (600mm ² X0.8mm)		110		$^{\circ}\text{C} / \text{W}$

Marking : QH

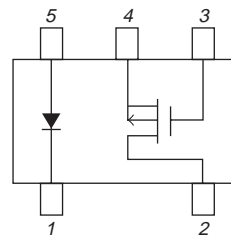
Package Dimensions

unit : mmm

2171



Electrical Connection

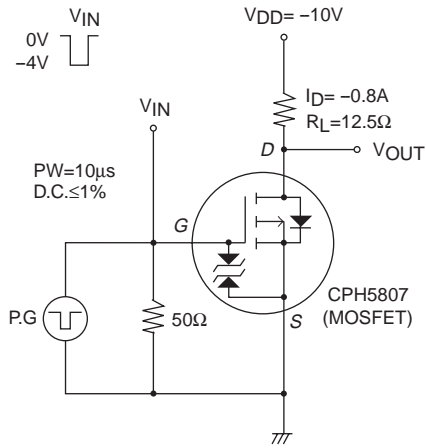


1 : Cathode
2 : Drain
3 : Gate
4 : Source
5 : Anode

Top view

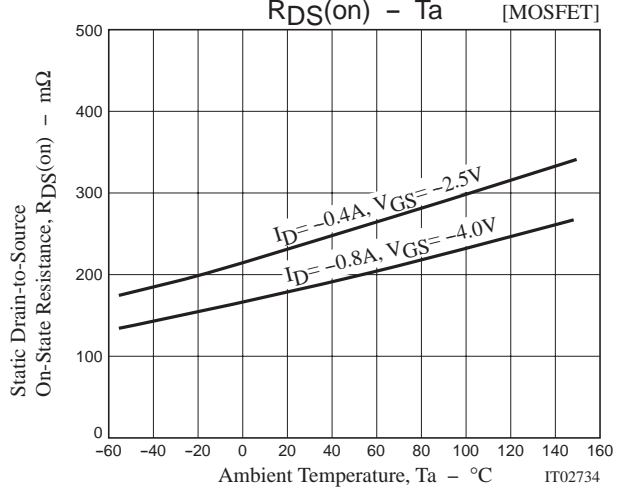
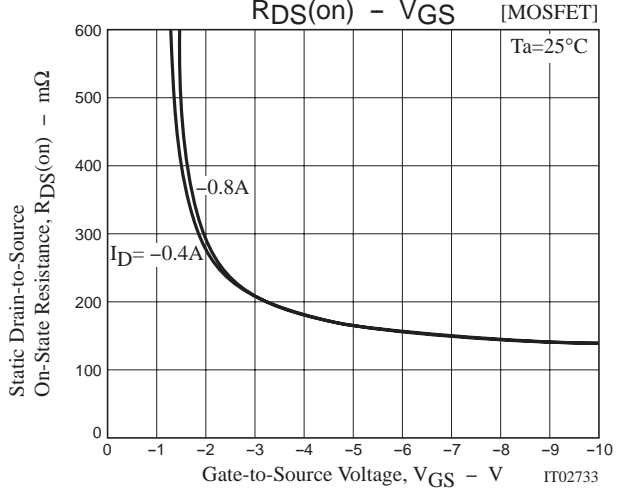
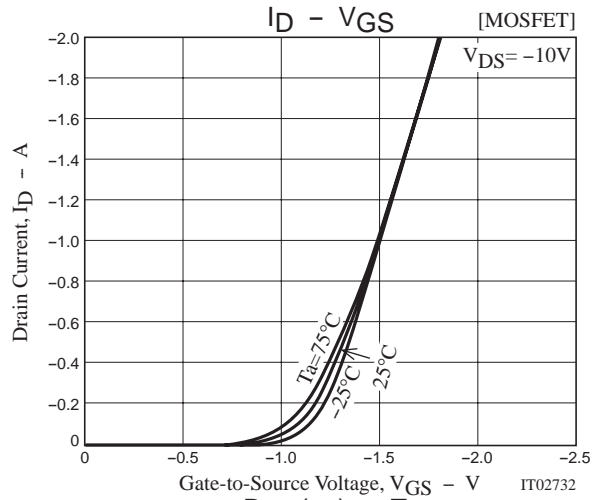
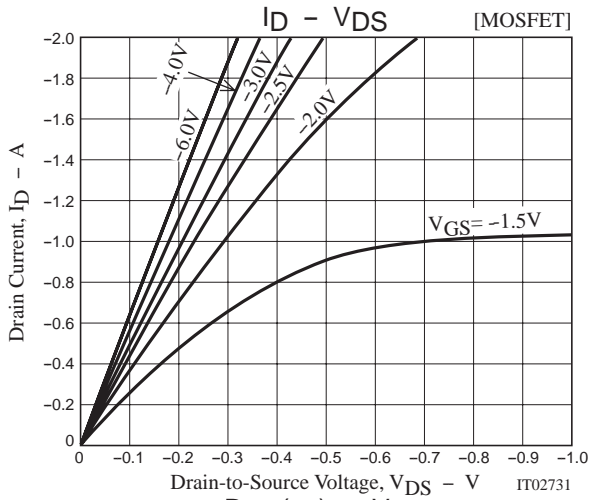
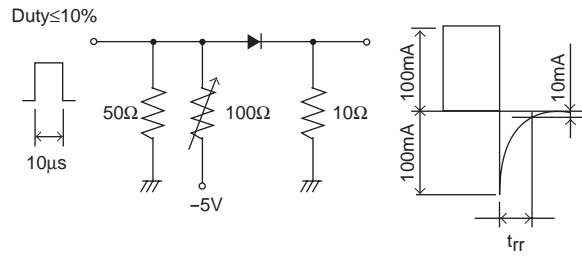
Switching Time Test Circuit

[MOSFET]

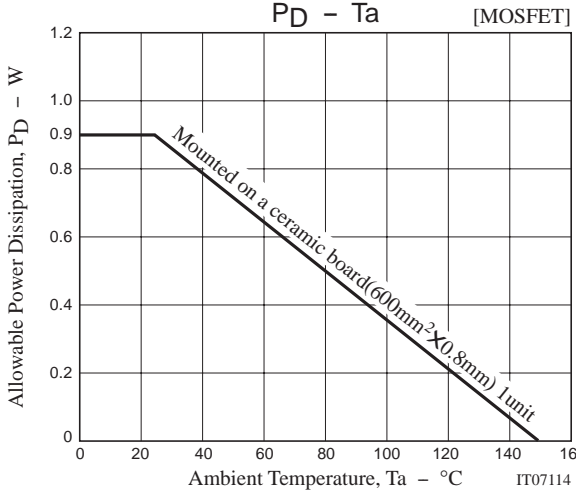
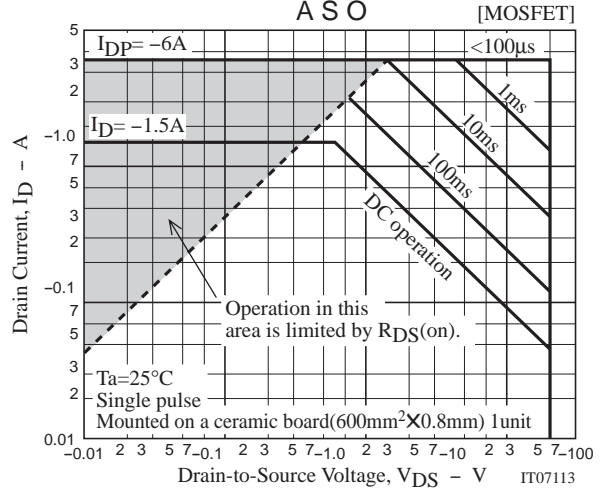
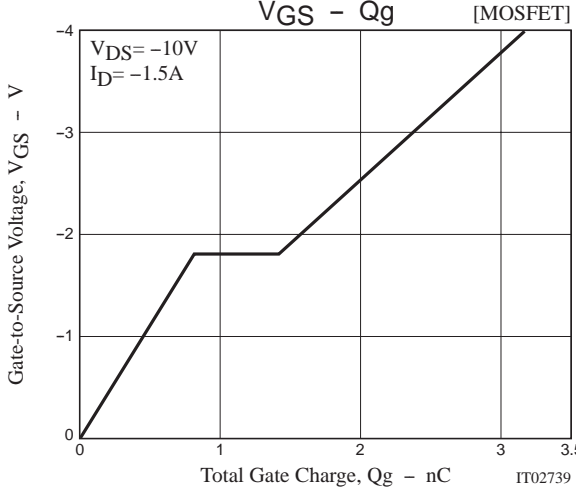
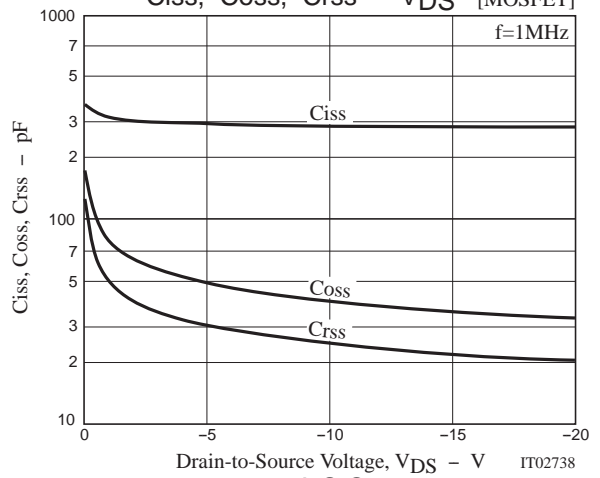
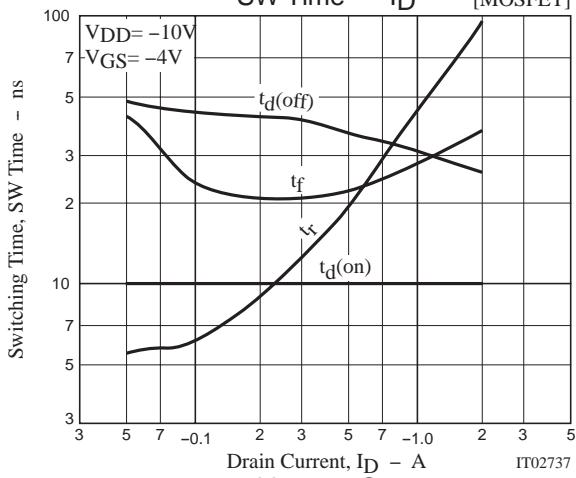
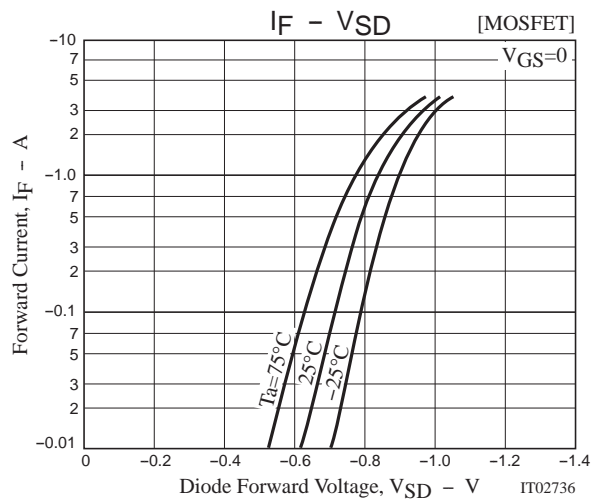
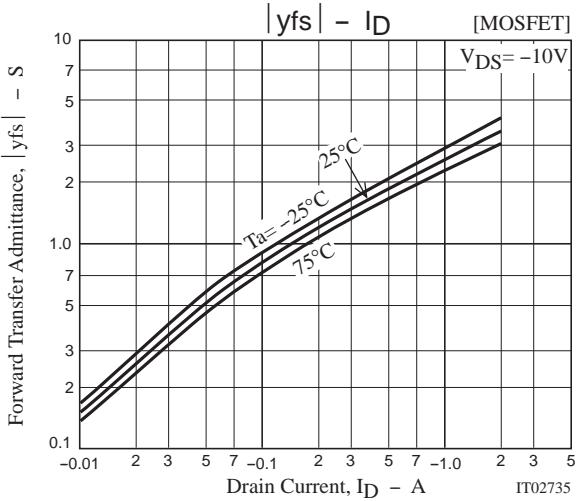


trr Test Circuit

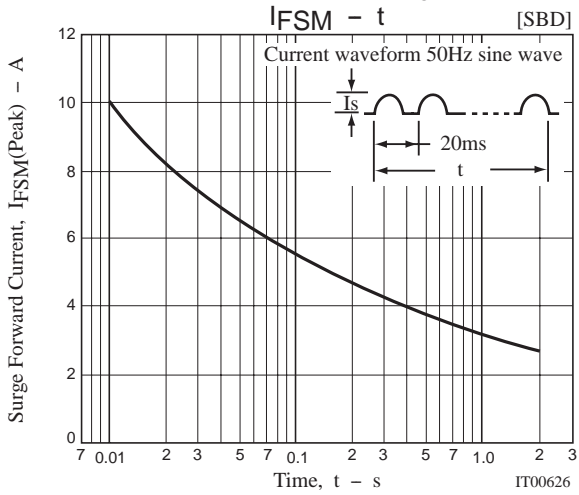
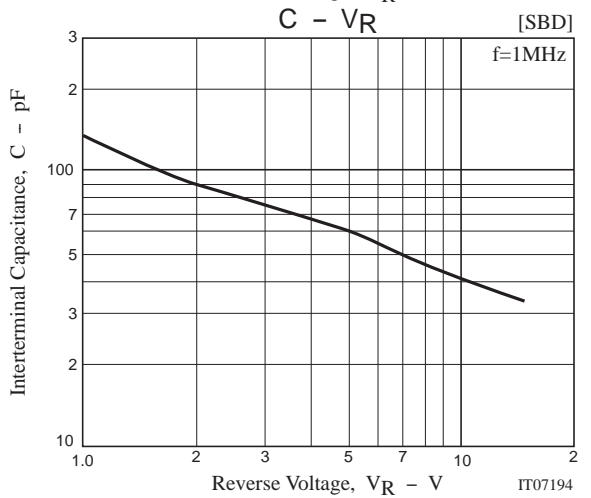
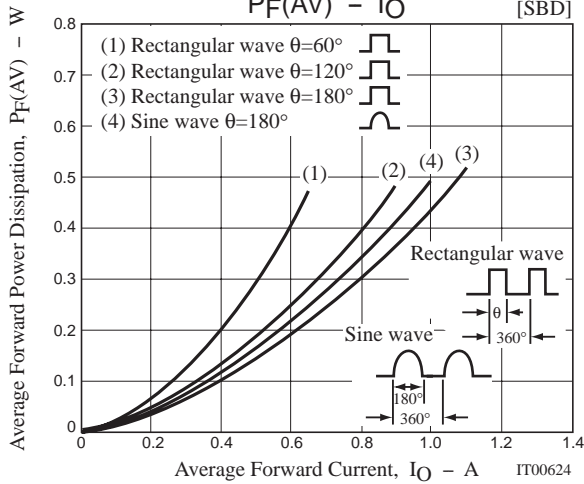
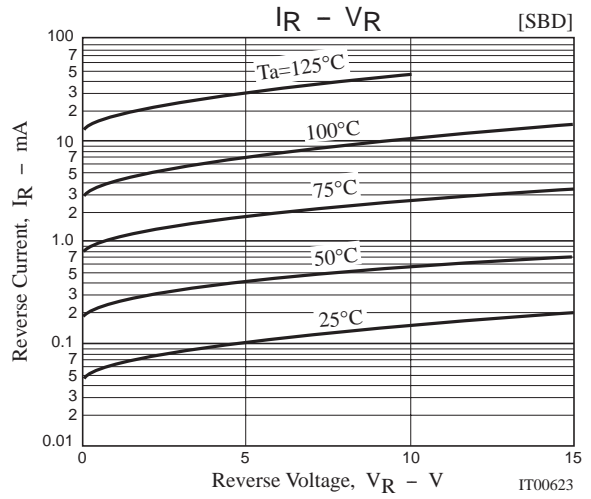
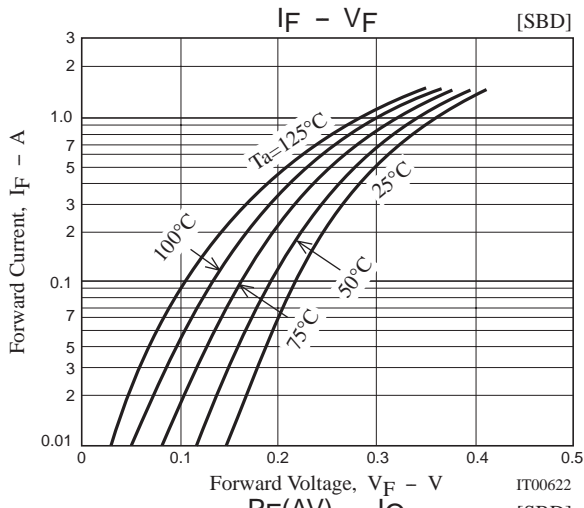
[SBD]



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