



SANYO Semiconductors

DATA SHEET

CPH5808

MOSFET : N-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

DC / DC Converter Applications

Features

- Composite type with a N-Channel Silicon MOSFET (MCH3409) 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		2.0	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	8.0	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 _{RRM}		15	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		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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SANYO Electric Co.,Ltd. Semiconductor Company

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

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Electrical Characteristics at Ta=25°C

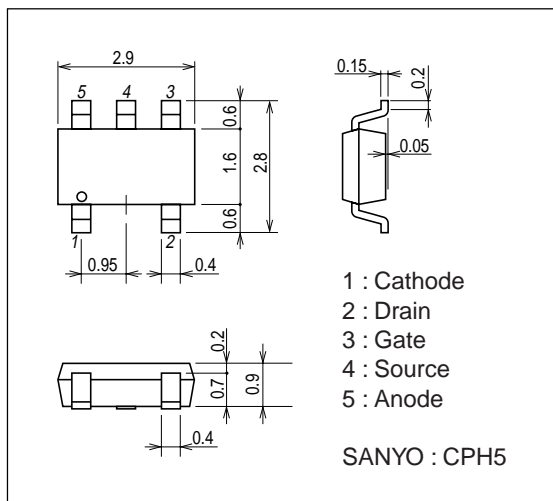
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0$	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=1A$	2.4	3.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1A, V_{GS}=4V$		100	130	$m\Omega$
	$R_{DS(on)2}$	$I_D=0.5A, V_{GS}=2.5V$		130	180	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		190		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		40		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		25		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		9		ns
Rise Time	t_r	See specified Test Circuit.		25		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		25		ns
Fall Time	t_f	See specified Test Circuit.		18		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4V, I_D=2A$		2.7		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=4V, I_D=2A$		0.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=4V, I_D=2A$		0.6		nC
Diode Forward Voltage	V_{SD}	$I_S=2A, V_{GS}=0$		0.87	1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R=1mA$	15			V
Forward Voltage	V_{F1}	$I_F=0.5A$		0.30	0.35	V
	V_{F2}	$I_F=1A$		0.35	0.40	V
Reverse Current	I_R	$V_R=6V$			500	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$ cycle		42		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit			15	ns
Thermal Resistance	$R_{th(j-a)}$	Mounted on a ceramic board (900mm ² X0.8mm)		110		$^{\circ}C/W$

Marking : QJ

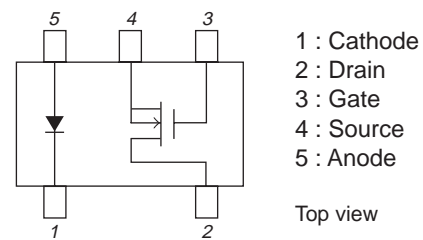
Package Dimensions

unit : mmm

2171

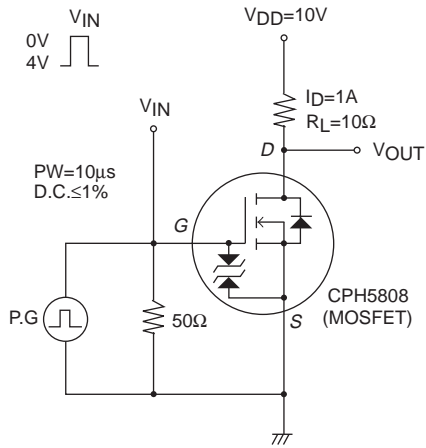


Electrical Connection



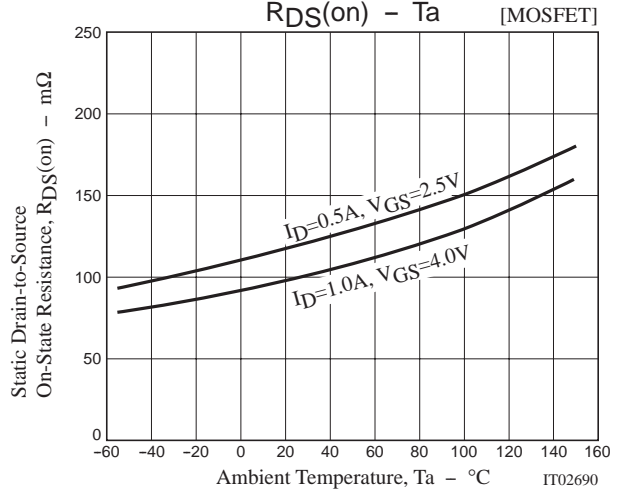
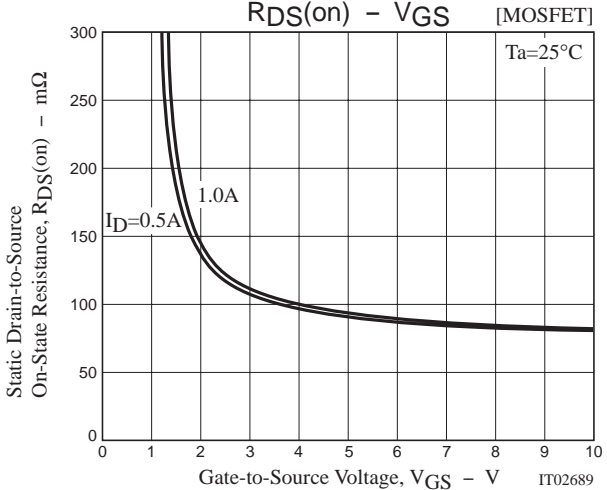
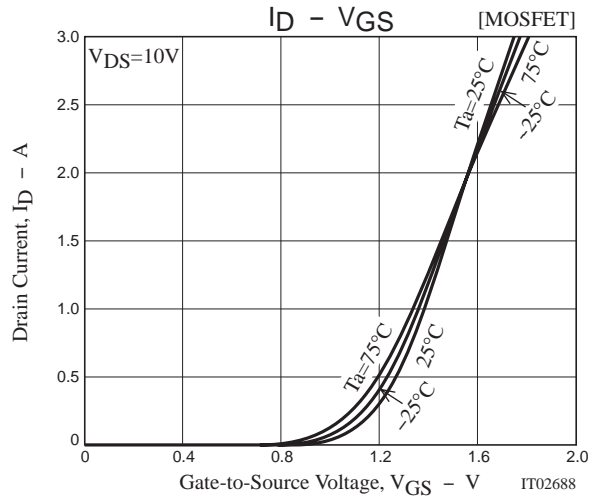
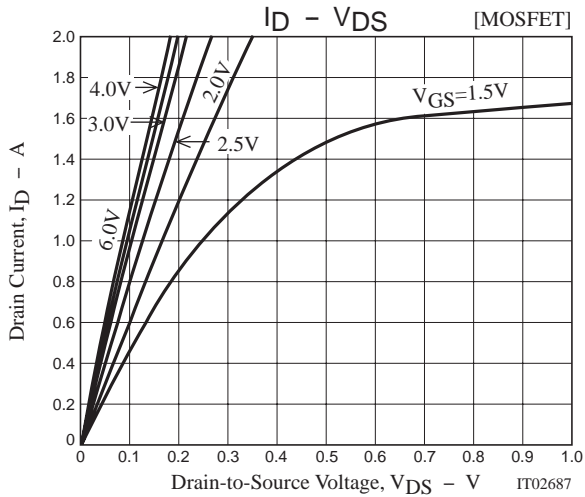
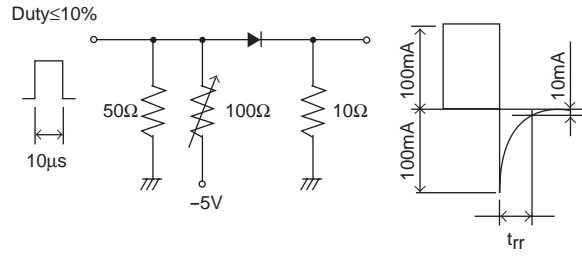
Switching Time Test Circuit

[MOSFET]

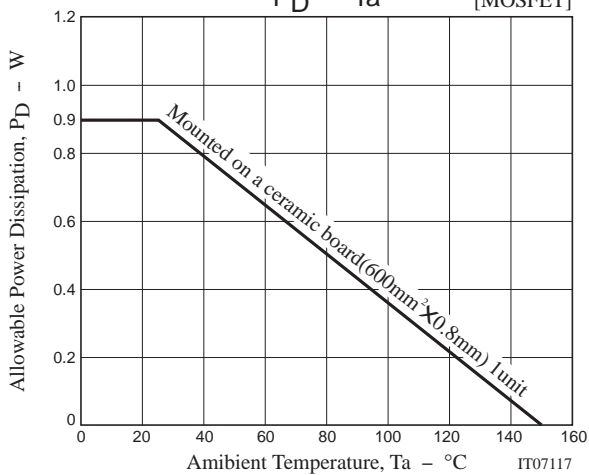
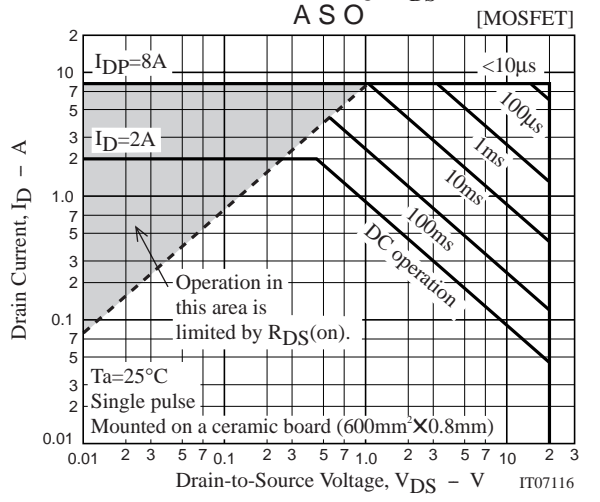
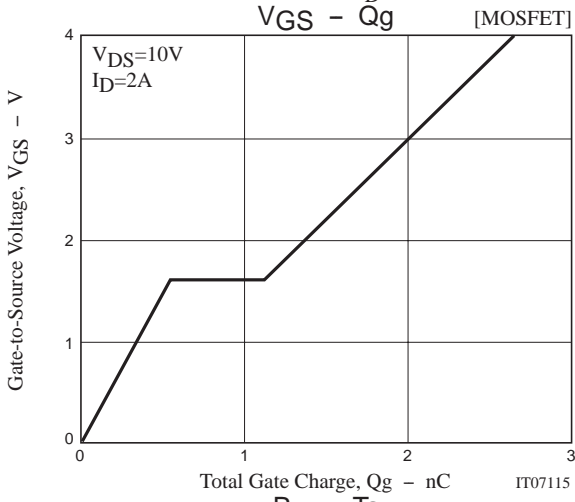
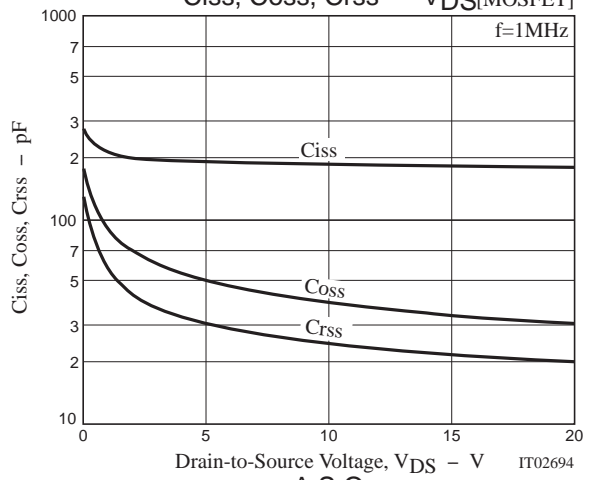
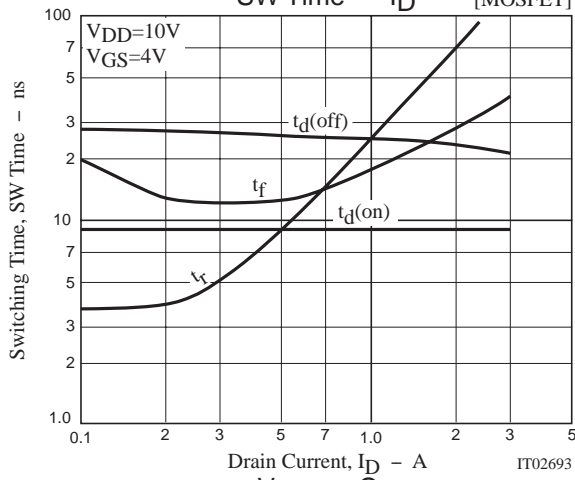
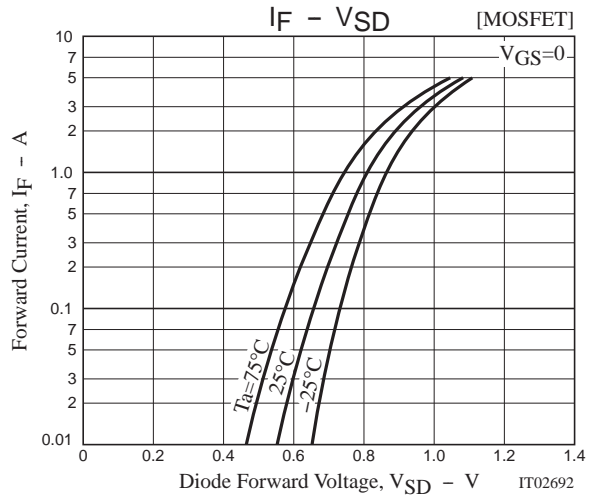
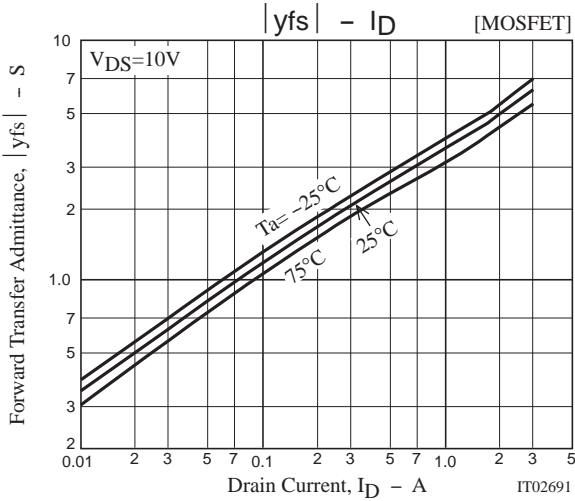


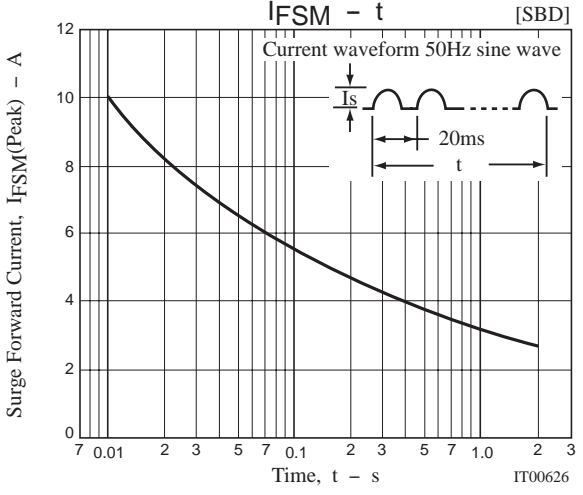
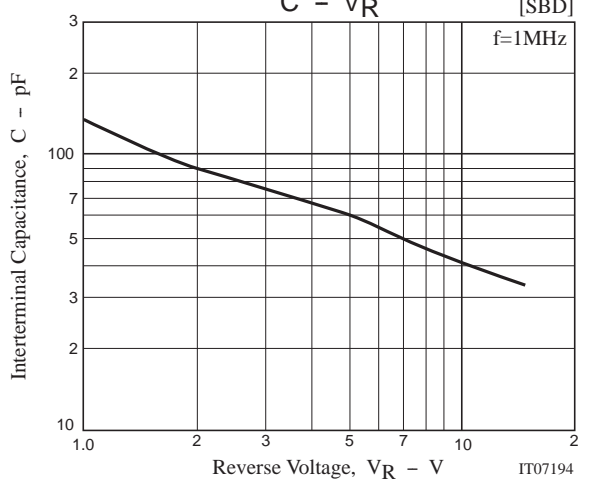
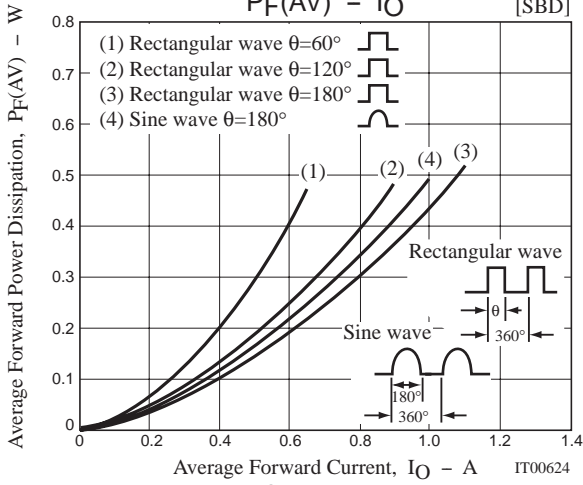
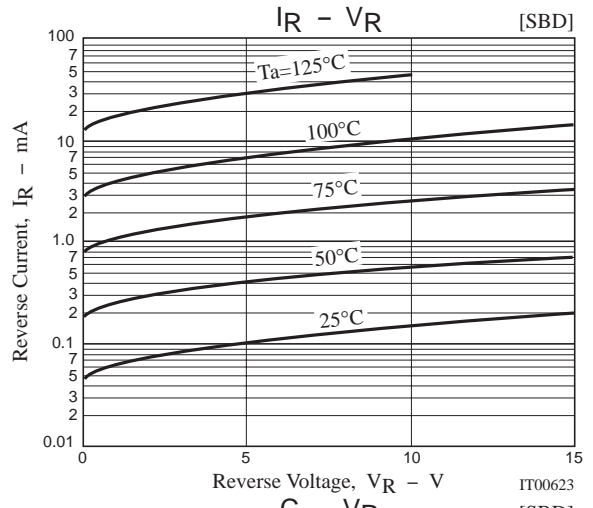
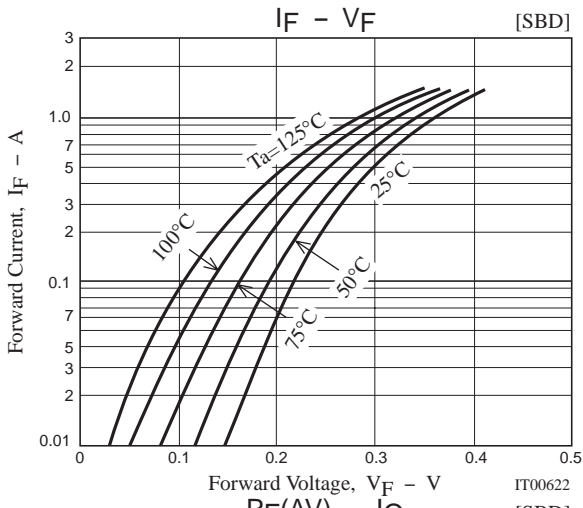
trr Test Circuit

[SBD]



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