

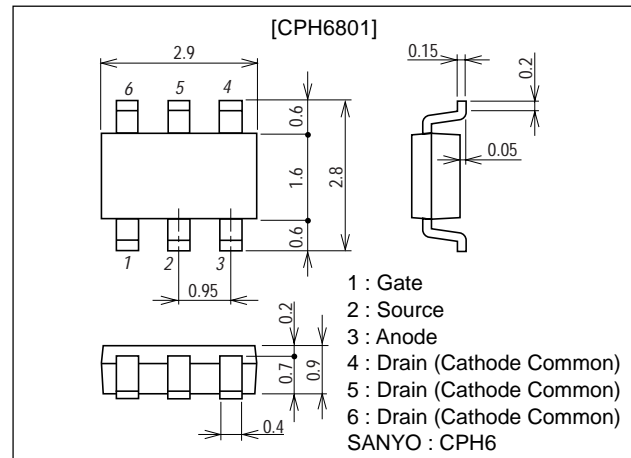
**CPH6801****DC/DC Converter Applications****Features**

- The CPH6801 consists of a P-channel MOSFET that features low ON resistance, ultrahigh-speed switching, and low-voltage drive, and a schottky barrier diode that features short reverse recovery time and low forward voltage, therefore enabling high-density mounting.
- Each device incorporated in the CPH6801 is equivalent with the 2SJ560 and the SBS004, respectively.

Package Dimensions

unit:mm

2172

**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_{GSS}		±10	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 (600mm ² ×0.8mm)	0.9	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		15	V
Non-repetitive Peak Reverse Surge Voltage	V_{RSM}		15	V
Average Output Current	I_O		1	A
Surge Current	I_{FSM}	50Hz sine wave, 1 cycle	10	A
Junction Temperature	Tj		-55 to +125	°C
Storage Temperature	Tstg		-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

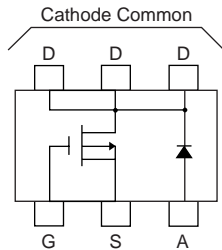
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Electrical Characteristics at Ta = 25°C

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}	$V_{DS} = -20V, V_{GS} = 0$			-10	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		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V, I_D = -500mA$	1.0	1.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -500mA, V_{GS} = -4V$		420	550	$m\Omega$
	$R_{DS(on)2}$	$I_D = -300mA, V_{GS} = -2.5V$		630	890	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -10V, f = 1MHz$		100		pF
Output Capacitance	C_{oss}	$V_{DS} = -10V, f = 1MHz$		60		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -10V, f = 1MHz$		25		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		25		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		27		ns
Fall Time	t_f	See specified Test Circuit		32		ns
Total Gate Charge	Q_g	$V_{DS} = -10V, V_{GS} = -10V, I_D = 1.0A$		5		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -10V, V_{GS} = -10V, I_D = 1.0A$		1		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -10V, V_{GS} = -10V, I_D = 1.0A$		1		nC
Diode Forward Voltage	V_{SD}	$I_S = -1.0A, V_{GS} = 0$		-0.9	-1.5	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_{thj-a}	Mounted on a ceramic board (600mm ² ×0.8mm)		110		°C/W

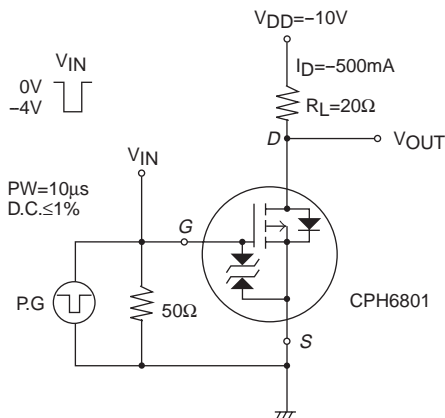
Marking : QB

Electrical Connection (Top view)



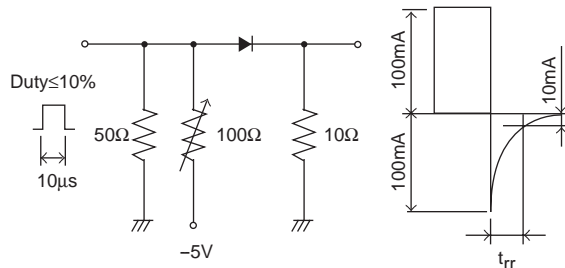
Switching Time Test Circuit

[MOSFET]

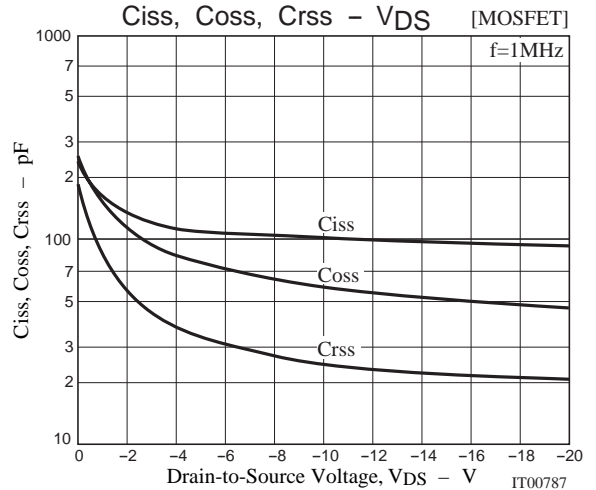
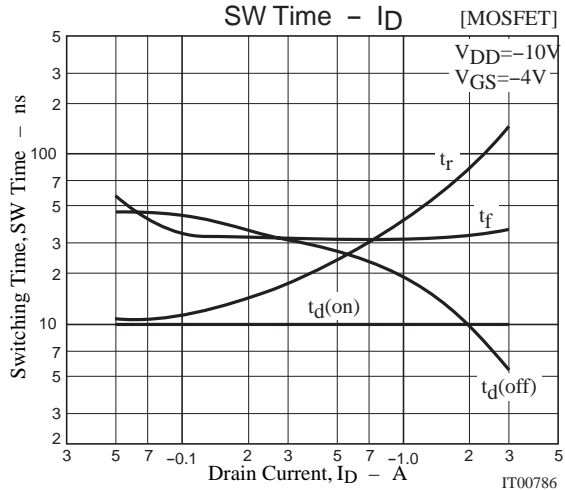
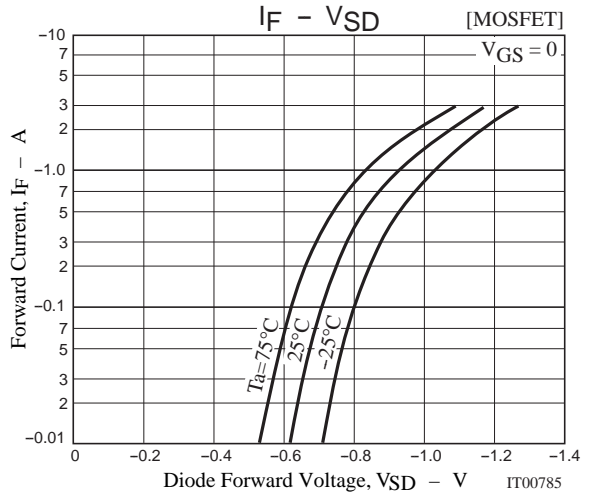
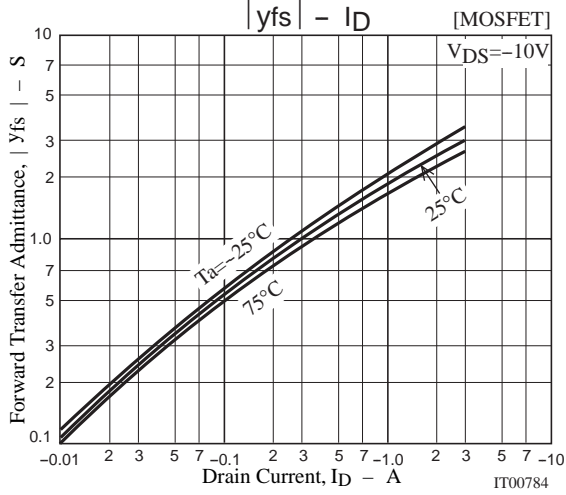
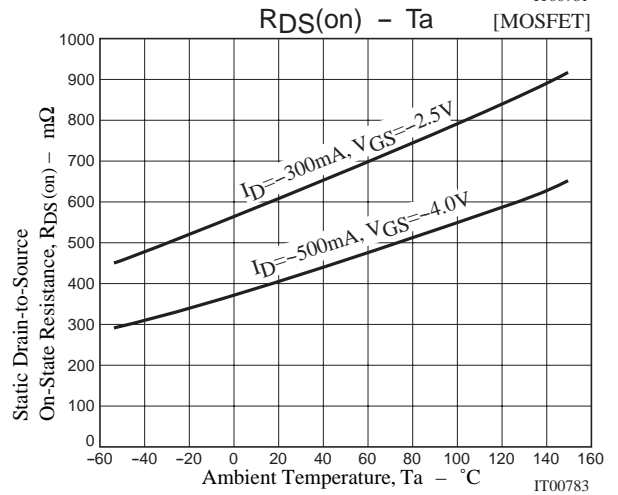
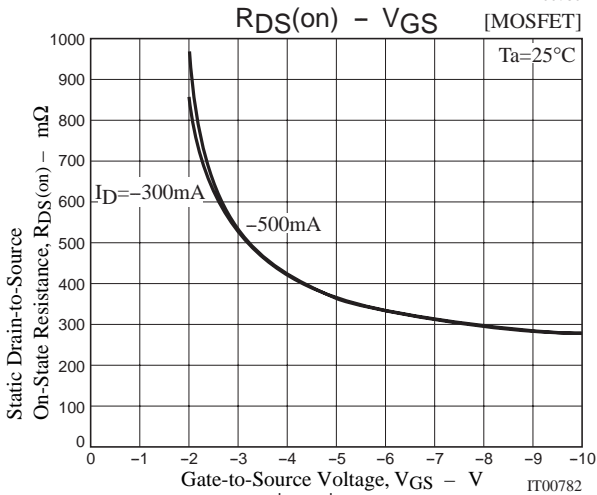
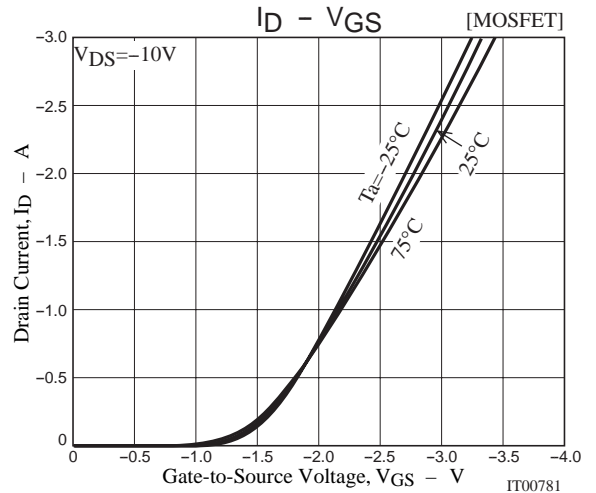
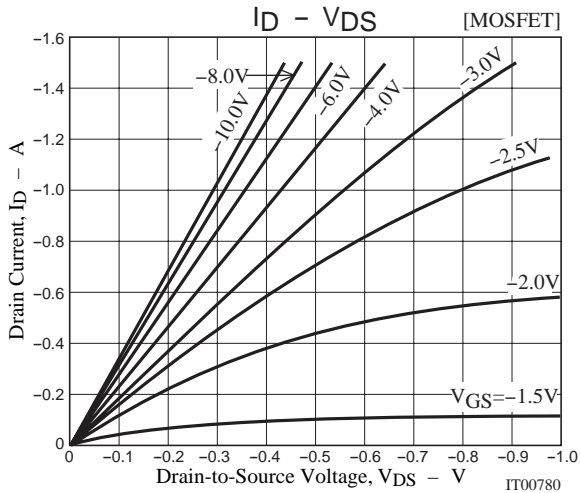


t_{rr} Test Circuit

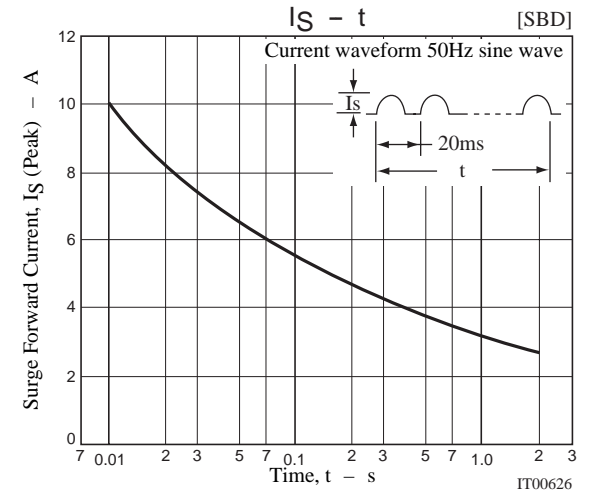
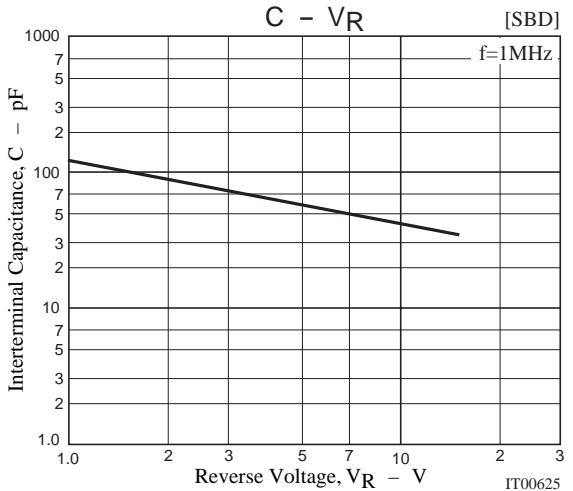
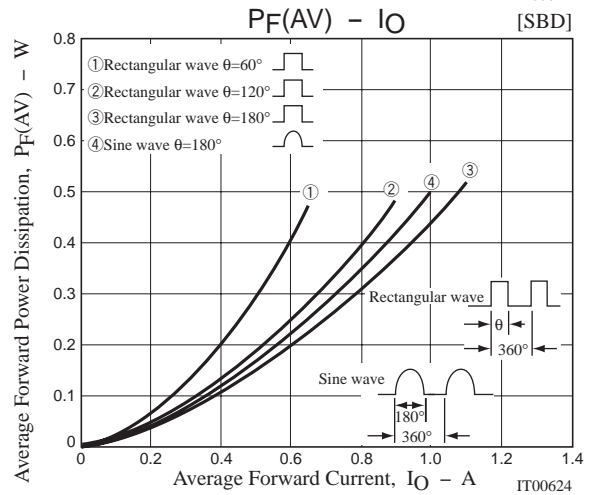
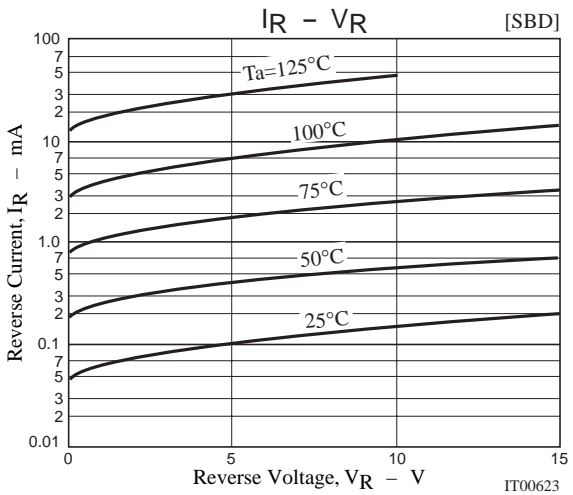
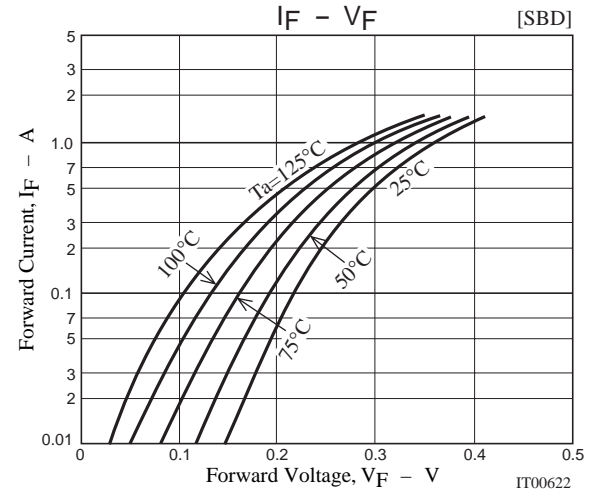
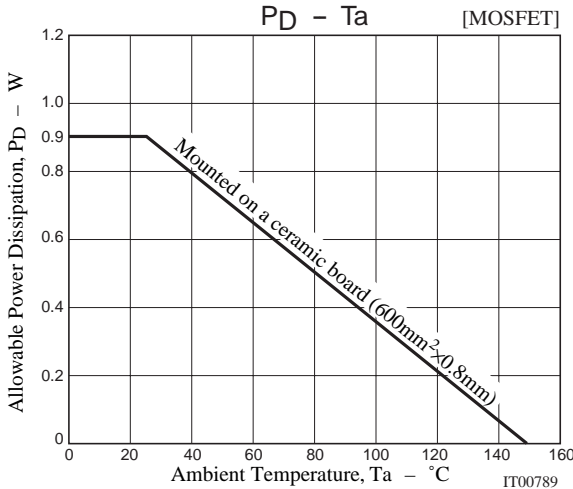
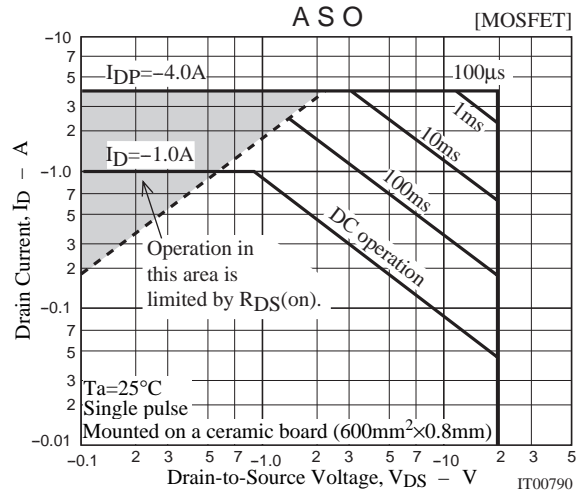
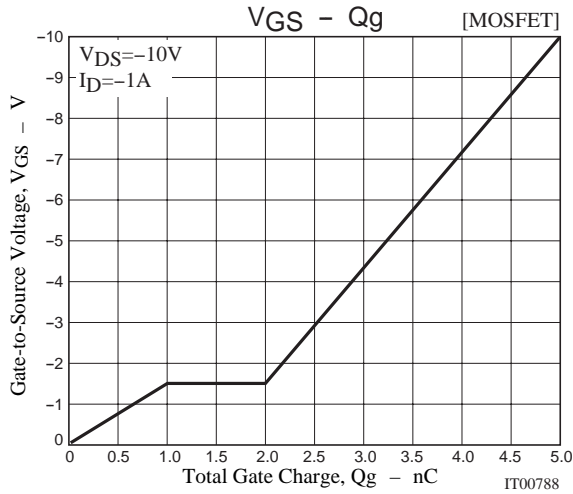
[SBD]



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