

**CPH5802****DC / DC Converter Applications****Features**

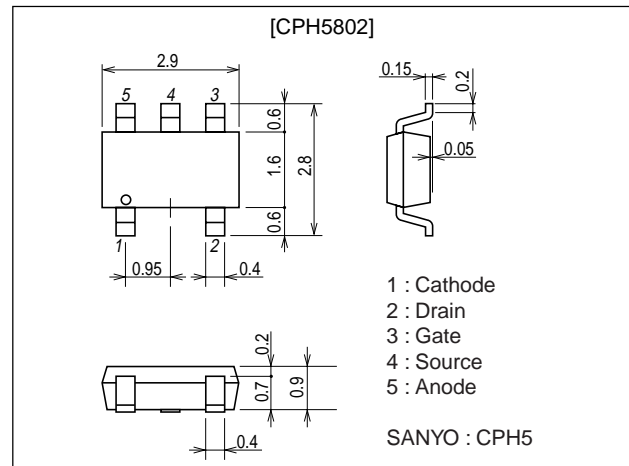
- Composite type with a P-Channel Silicon MOSFET (MCH3306) and a Schottky Barrier Diode (SBS004) contained in one package facilitating high-density mounting.

[MOSFET]

- Low ON-resistance.
- Ultrahigh-speed switching.
- Ultralow voltage drive (1.8V drive).

[SBD]

- Short reverse recovery time.
- Low forward voltage.

Package Dimensionsunit : mm
2171**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		-2	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-8	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 SM		15	V
Average Output Current	I _O		1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	10	A
Junction Temperature	T _J		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : QC

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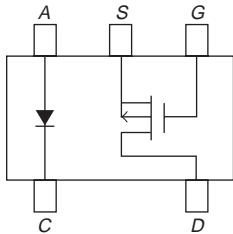
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CPH5802

Electrical Characteristics at Ta=25°C

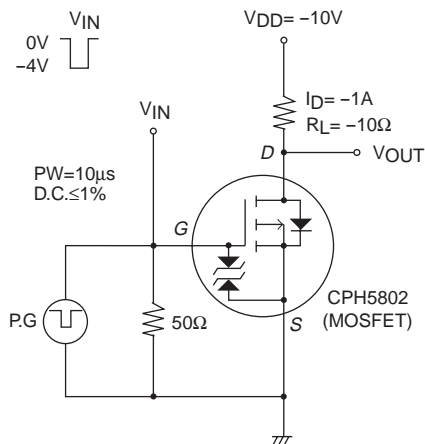
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0$	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-0.3		-1.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V, I_D = -1A$	2.1	3.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1A, V_{GS} = -4V$		110	145	m Ω
	$R_{DS(on)2}$	$I_D = -0.5A, V_{GS} = -2.5V$		140	200	m Ω
	$R_{DS(on)3}$	$I_D = -0.1A, V_{GS} = -1.8V$		180	260	m Ω
Input Capacitance	C_{iss}	$V_{DS} = -10V, f = 1MHz$		410		pF
Output Capacitance	C_{oss}	$V_{DS} = -10V, f = 1MHz$		60		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -10V, f = 1MHz$		40		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		9		ns
Rise Time	t_r	See specified Test Circuit		27		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		42		ns
Fall Time	t_f	See specified Test Circuit		38		ns
Total Gate Charge	Q_g	$V_{DS} = -10V, V_{GS} = -10V, I_D = -2A$		10		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -10V, V_{GS} = -10V, I_D = -2A$		0.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -10V, V_{GS} = -10V, I_D = -2A$		1.2		nC
Diode Forward Voltage	V_{SD}	$I_S = -2A, V_{GS} = 0$		-0.88	-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	$V_R = 10V, f = 1MHz, 1 \text{ cycle}$		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 (600mm ² X0.8mm)		110		$^{\circ}C / W$

Electrical Connection (Top view)



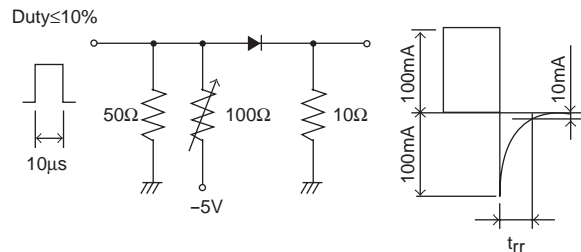
Switching Time Test Circuit

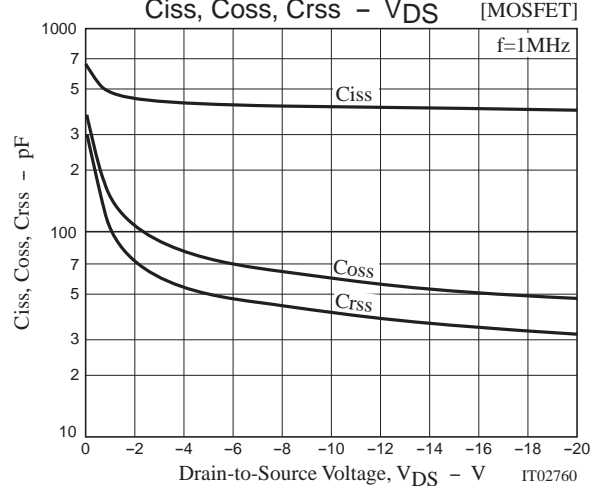
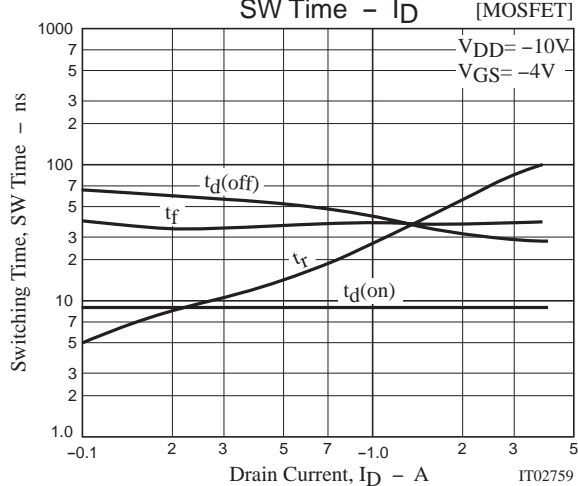
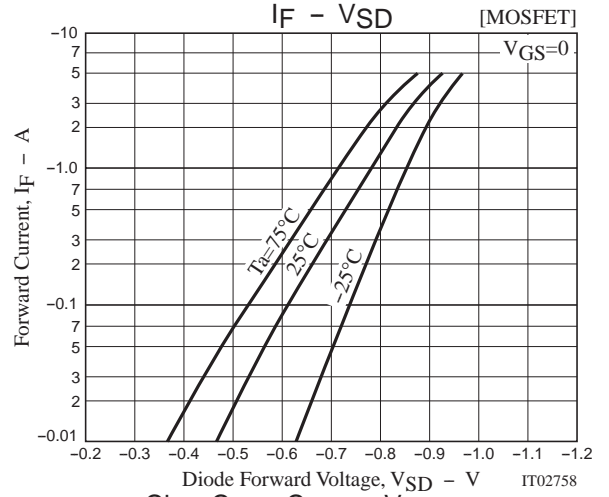
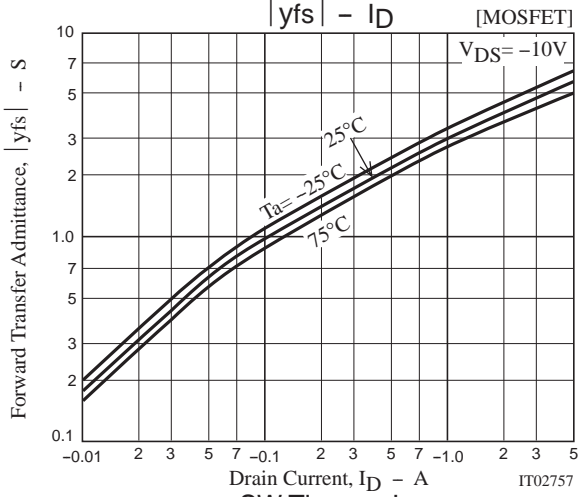
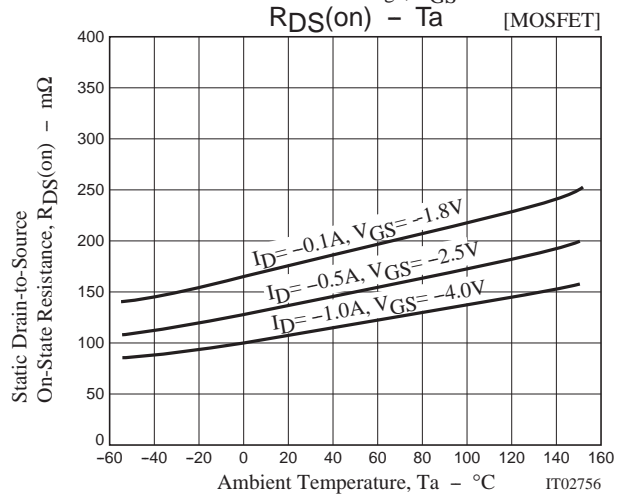
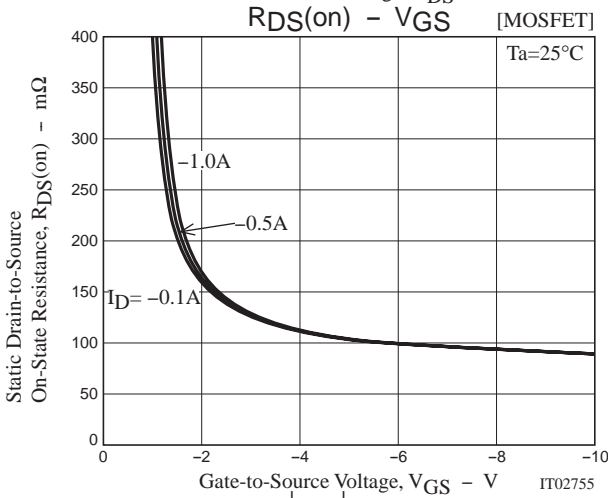
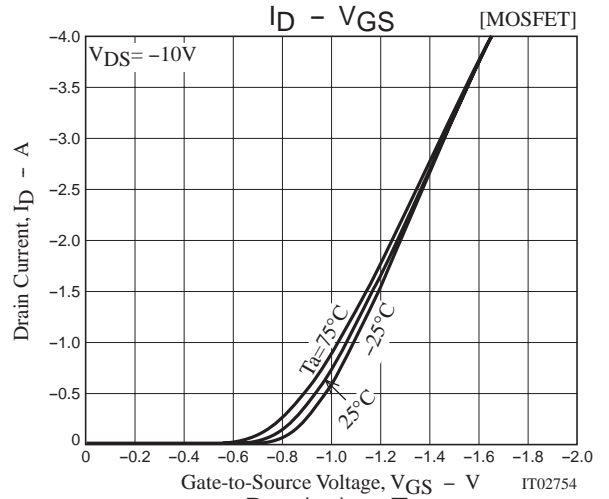
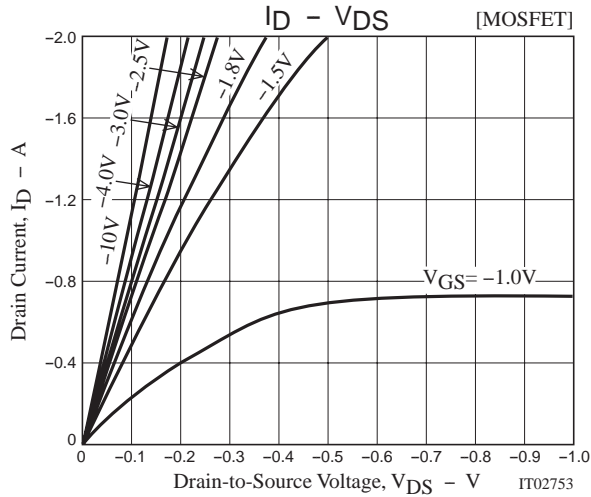
[MOSFET]

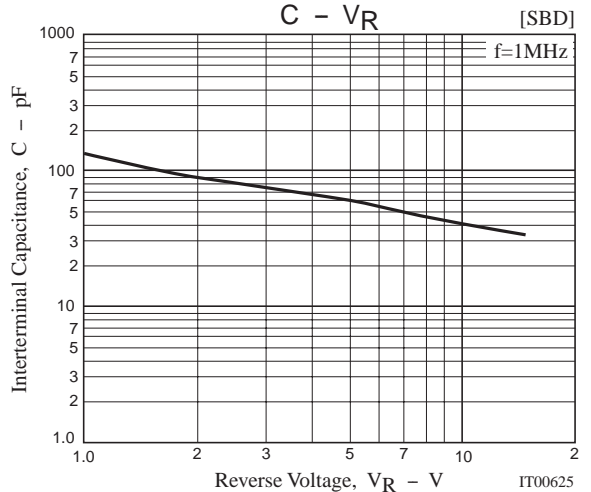
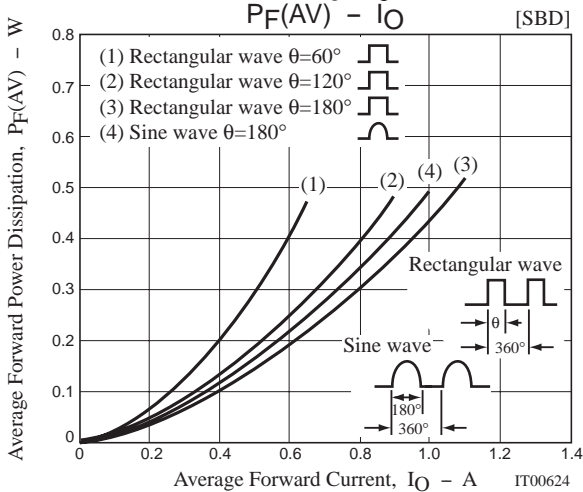
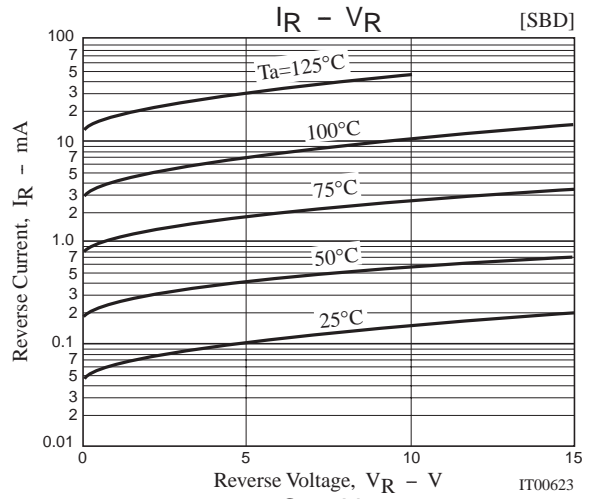
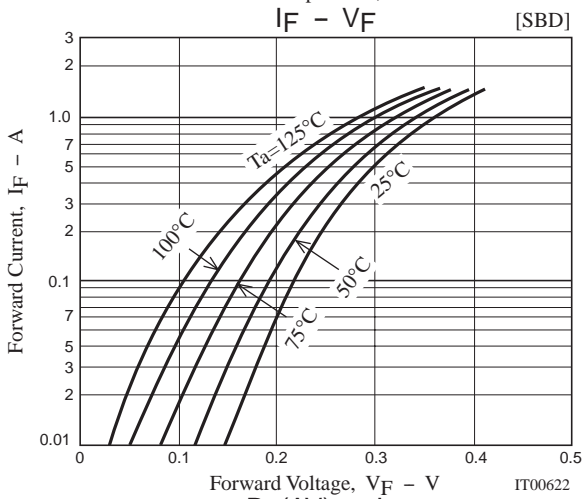
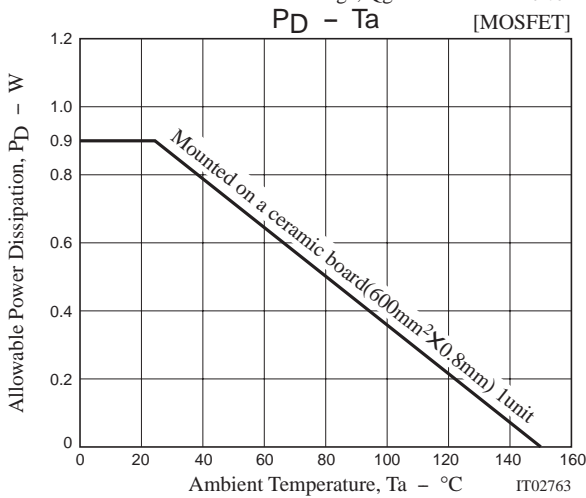
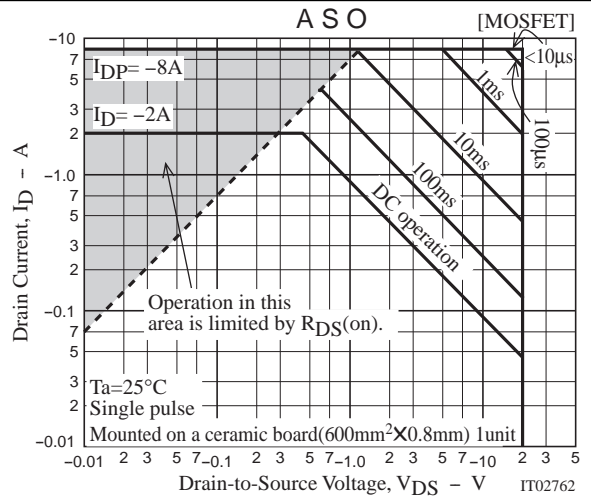
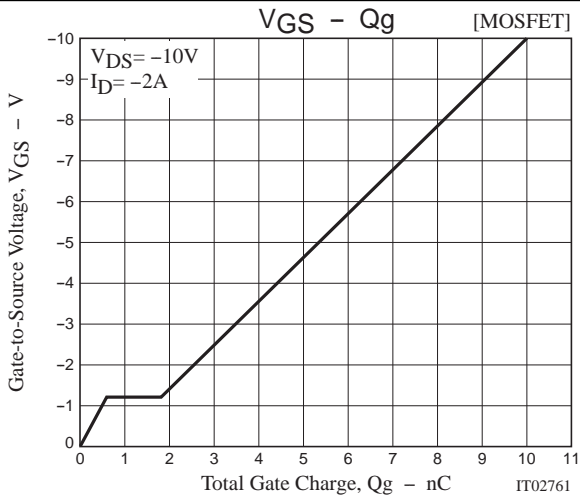


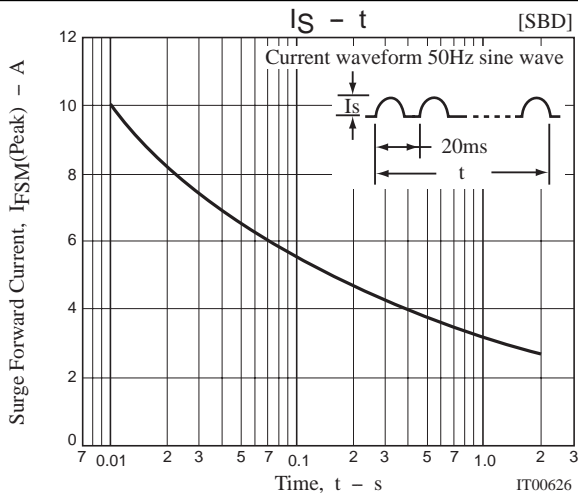
t_{rr} Test Circuit

[SBD]









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