



SANYO Semiconductors

## DATA SHEET

CPH5838

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

General-Purpose Switching Device  
Applications

## Features

- DC / DC converters.
- Composite type with a P-Channel Silicon MOSFET (MCH3307) and a Schottky Barrier Diode (SBS004) contained in one package facilitating high-density mounting.

## [MOSFET]

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V 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 <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-1	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-4	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm) 1unit	0.9	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>		15	V
Nonrepetitive Peak Reverse Surge Voltage	V <sub>RSM</sub>		15	V
Average Output Current	I <sub>O</sub>		1	A
Surge Forward Current	I <sub>FSM</sub>	50Hz sine wave, 1 cycle	10	A
Junction Temperature	T <sub>j</sub>		-55 to +125	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

Marking : XQ

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# CPH5838

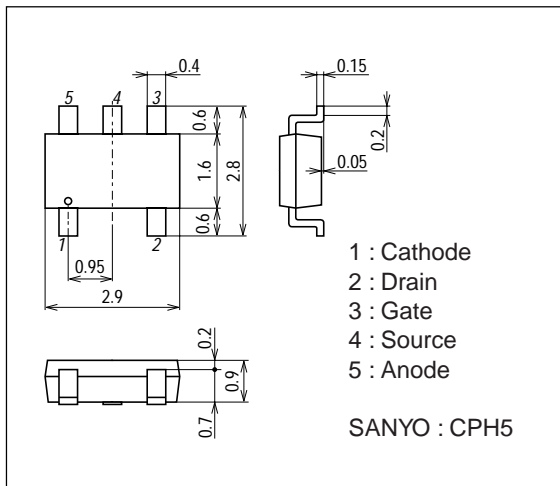
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0	-20			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-20V, VGS=0			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-0.4		-1.4	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-500mA	0.72	1.2		S
Static Drain-to-Source On-State Resistance	RDs(on)1	ID=-500mA, VGS=-4V		380	500	mΩ
	RDs(on)2	ID=-300mA, VGS=-2.5V		540	760	mΩ
Input Capacitance	Ciss	VDS=-10V, f=1MHz		115		pF
Output Capacitance	Coss	VDS=-10V, f=1MHz		23		pF
Reverse Transfer Capacitance	Crss	VDS=-10V, f=1MHz		15		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		8		ns
Rise Time	tr	See specified Test Circuit.		6		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		15		ns
Fall Time	tf	See specified Test Circuit.		7		ns
Total Gate Charge	Qg	VDS=-10V, VGS=-4V, ID=-1A		1.5		nC
Gate-to-Source Charge	Qgs	VDS=-10V, VGS=-4V, ID=-1A		0.4		nC
Gate-to-Drain “Miller” Charge	Qgd	VDS=-10V, VGS=-4V, ID=-1A		0.3		nC
Diode Forward Voltage	VSD	IS=-1A, VGS=0		-0.89	-1.2	V
[SBD]						
Reverse Voltage	VR	IR=1mA	15			V
Forward Voltage	VF1	IF=0.5A		0.30	0.35	V
	VF2	IF=1A		0.35	0.40	V
Reverse Current	IR	VR=6V			500	μA
Interterminal Capacitance	C	VR=10V, f=1MHz, cycle		42		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			15	ns
Thermal Resistance	Rth(j-a)	Mounted on a ceramic board (900mm²X0.8mm)		110		°C / W

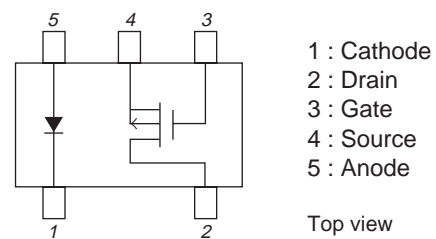
## Package Dimensions

unit : mm

2171A

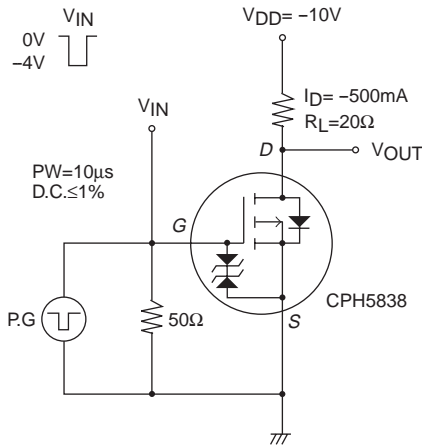


## Electrical Connection



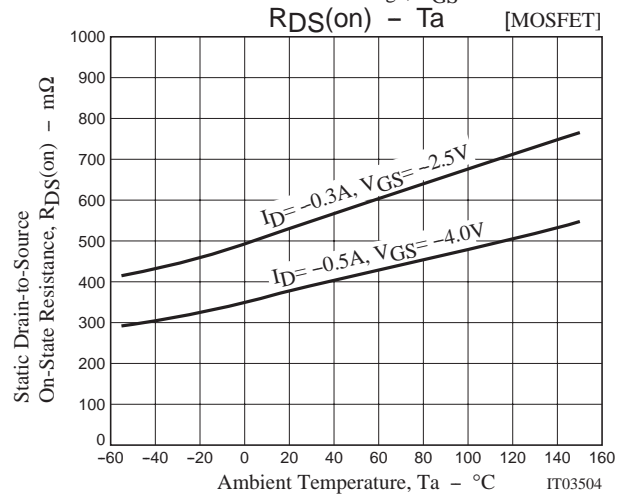
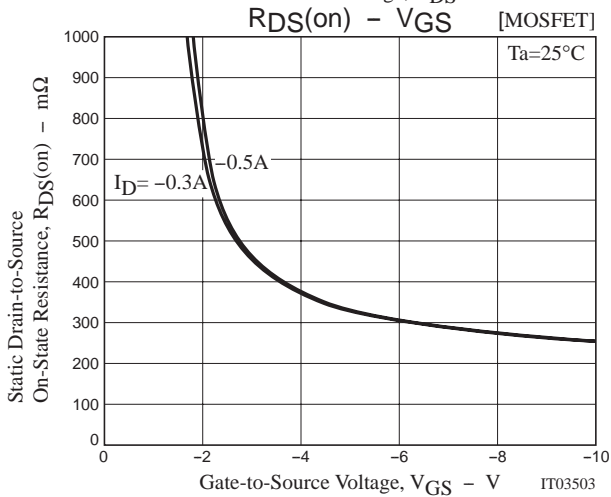
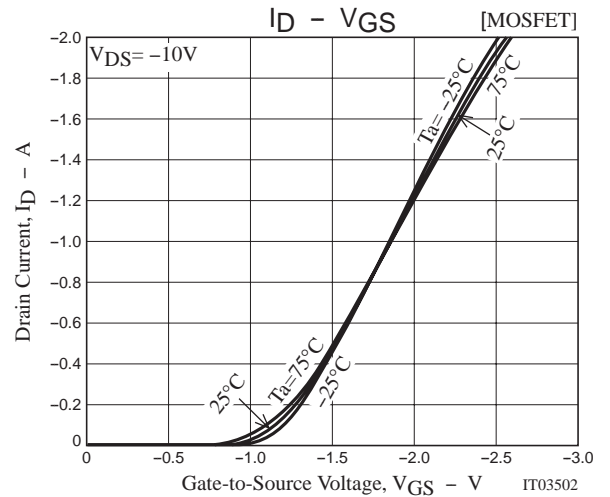
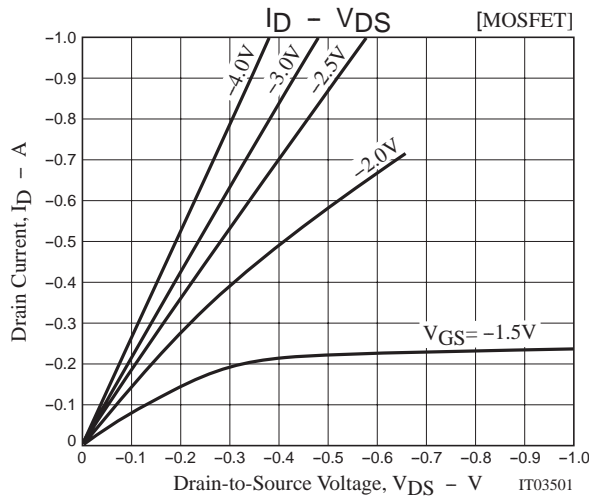
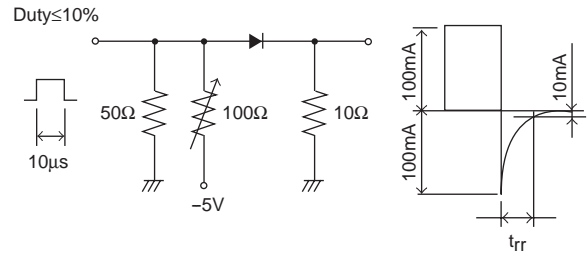
## Switching Time Test Circuit

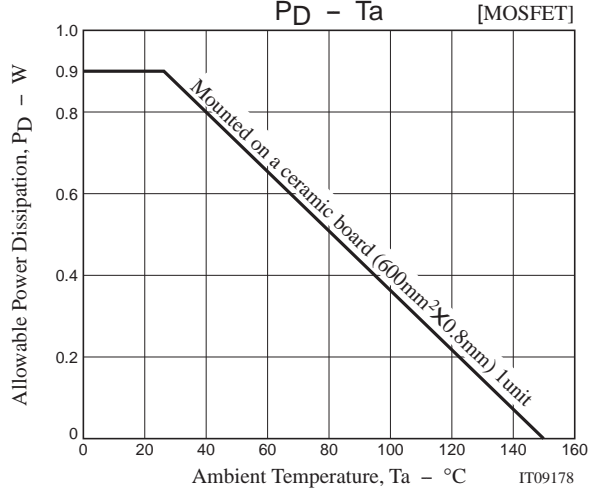
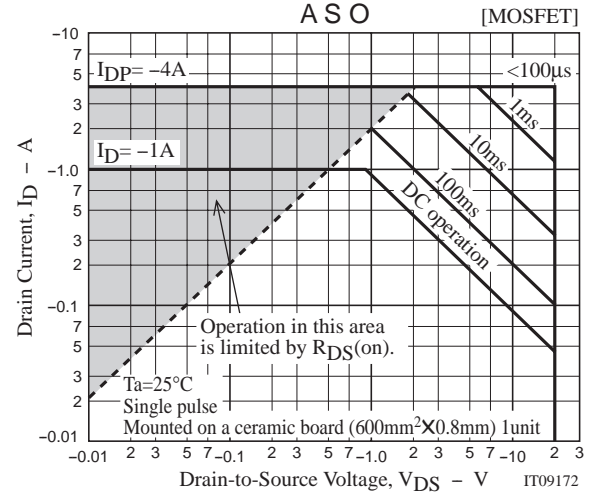
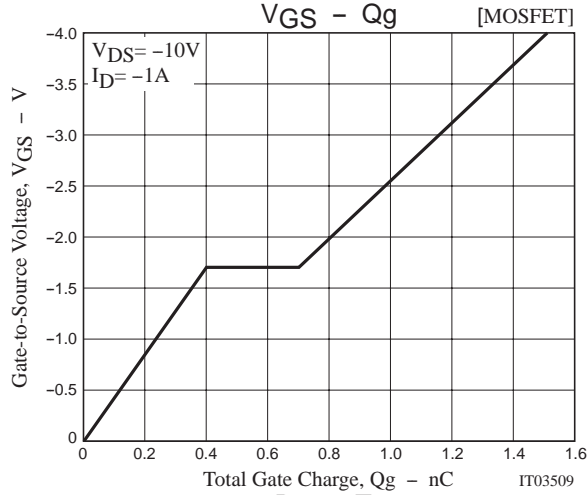
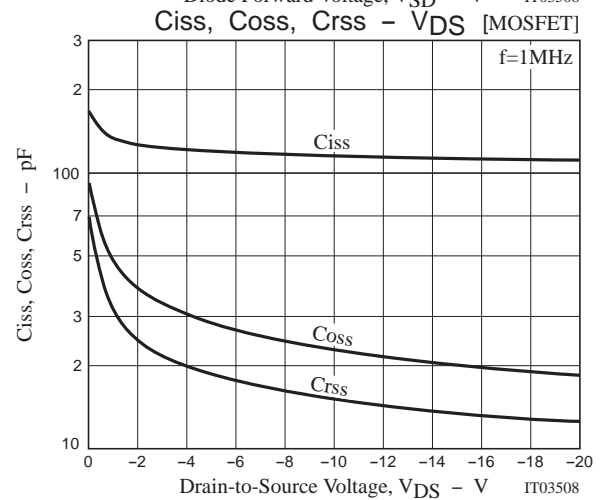
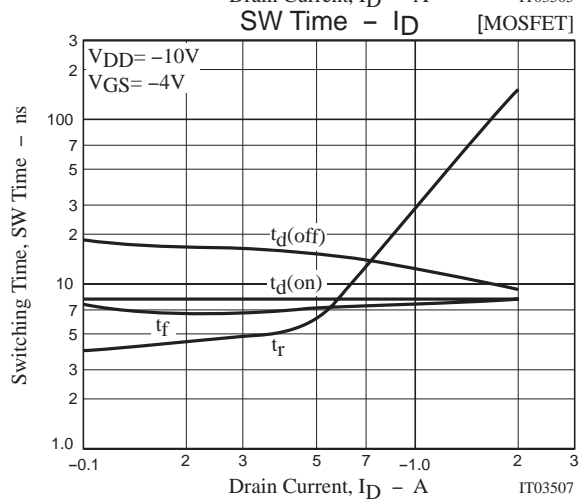
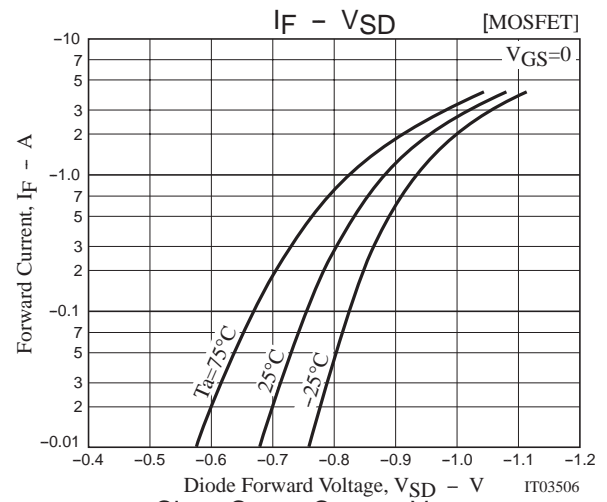
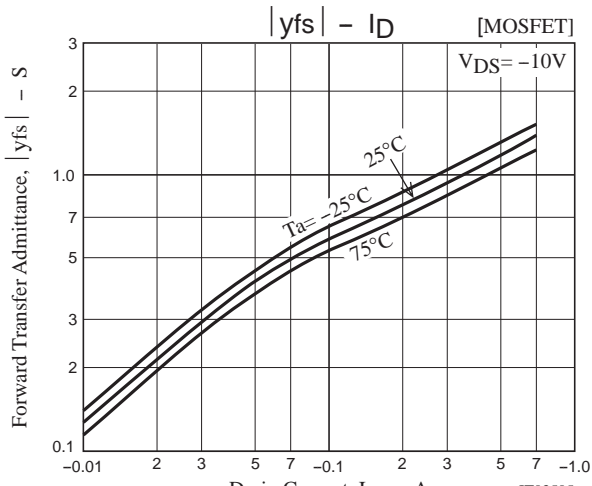
[MOSFET]

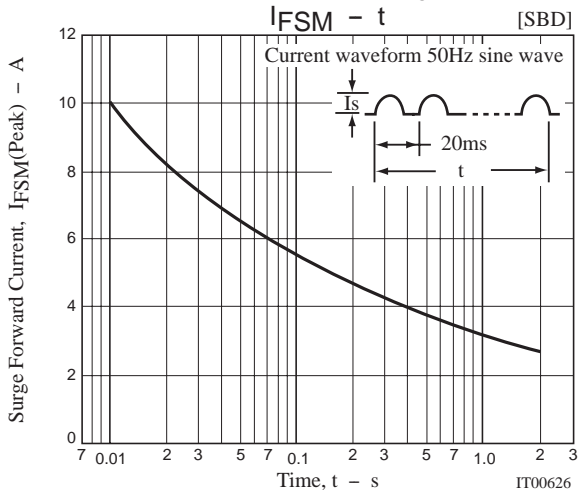
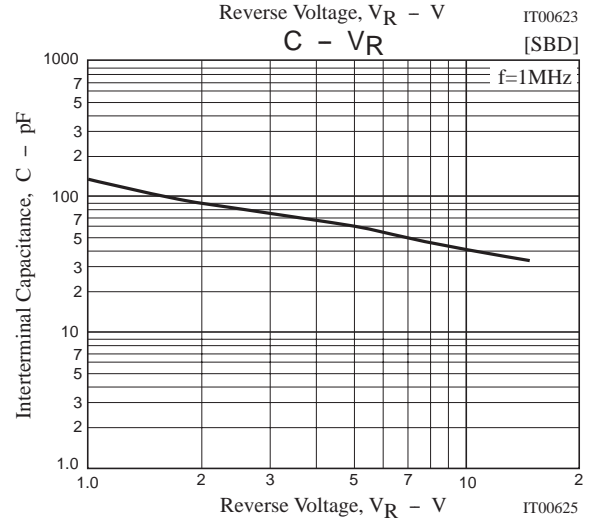
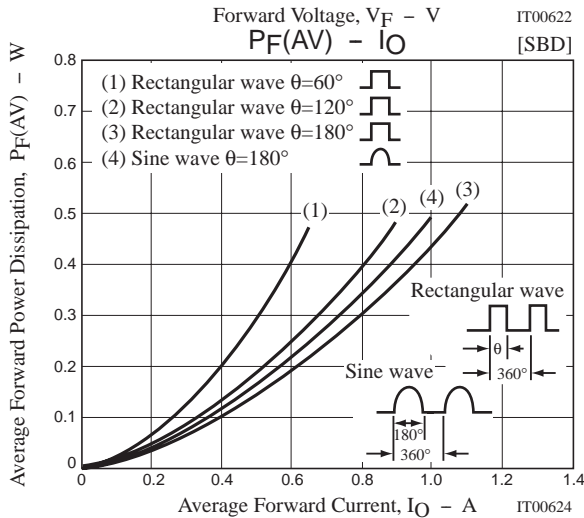
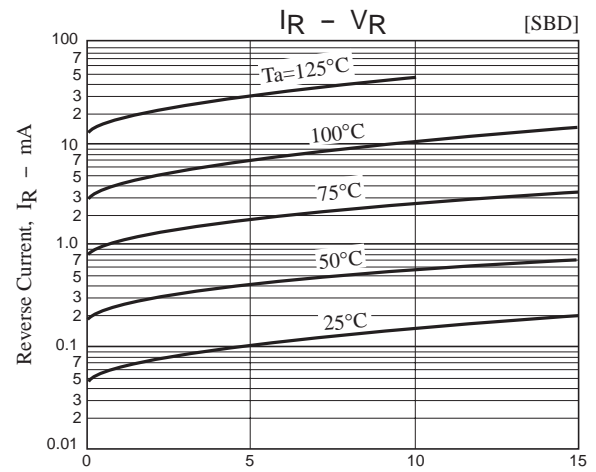
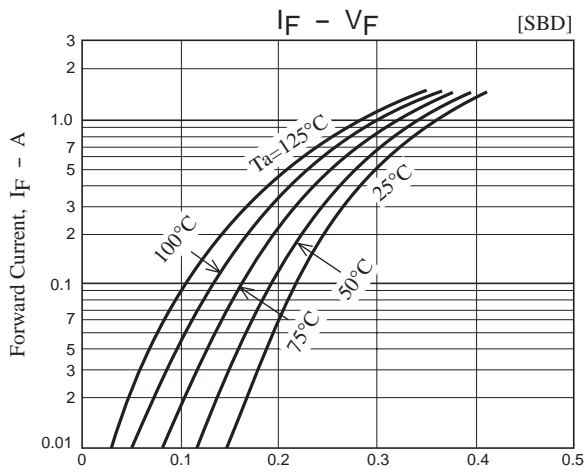


## $t_{rr}$ Test Circuit

[SBD]







Note on usage : Since the CPH5838 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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