



SANYO Semiconductors

## DATA SHEET

SCH2810

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

# General-Purpose Switching Device Applications

## Features

- Composite type with a P-channel silicon MOSFET and a Schottky barrier diode contained in one package facilitating high-density mounting.
- [MOSFET]
  - Low ON-resistance.
  - Ultrahigh-speed switching.
  - 4V 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>		-12	V
Gate-to-Source Voltage	V <sub>GS</sub>		±12	V
Drain Current (DC)	I <sub>D</sub>		-1.3	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-5.2	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm) 1unit	0.6	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>		0.5	A
Surge Forward Current	I <sub>FSM</sub>	50Hz sine wave, 1 cycle	3	A
Junction Temperature	T <sub>j</sub>		-55 to +125	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

Marking : QK

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SANYO Electric Co.,Ltd. Semiconductor Company

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# SCH2810

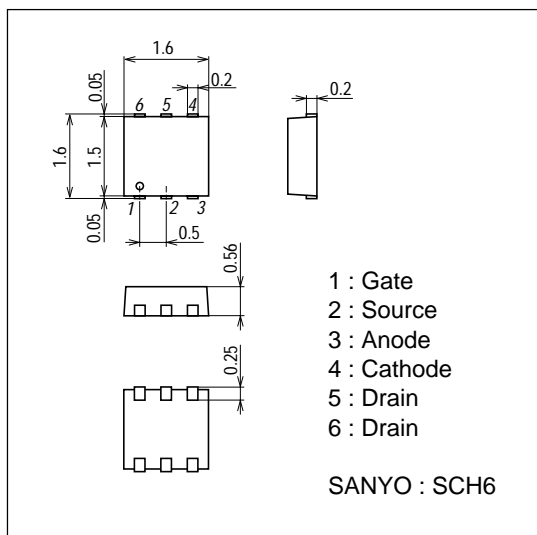
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-12			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-12V, V_{GS}=0$			-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 9.6V, V_{DS}=0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-6V, I_D=-1mA$	-1.0		-2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-6V, I_D=-0.7A$	0.72	1.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-0.7A, V_{GS}=-10V$		200	270	$m\Omega$
	$R_{DS(on)2}$	$I_D=-0.4A, V_{GS}=-4.5V$		340	490	$m\Omega$
	$R_{DS(on)3}$	$I_D=-0.1A, V_{GS}=-4V$		370	530	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-6V, f=1MHz$		145		$\mu F$
Output Capacitance	$C_{oss}$	$V_{DS}=-6V, f=1MHz$		45		$\mu F$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-6V, f=1MHz$		35		$\mu F$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.5		ns
Rise Time	$t_r$	See specified Test Circuit.		20		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		16		ns
Fall Time	$t_f$	See specified Test Circuit.		12		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.3A$		3.8		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.3A$		0.5		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.3A$		0.5		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-1.3A, V_{GS}=0$		-0.94	-1.5	V
[SBD]						
Reverse Voltage	$V_R$	$I_R=0.5mA$	15			V
Forward Voltage	$V_F$	$I_F=0.5A$		0.4	0.46	V
Reverse Current	$I_R$	$V_R=6V$			90	$\mu A$
Interterminal Capacitance	$C$	$V_R=10V, f=1MHz$		13		$\mu F$
Reverse Recovery Time	$t_{rr}$	$I_F=I_R=100mA$ , See specified Test Circuit.			10	ns

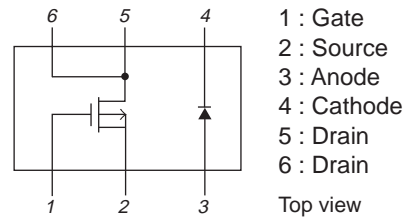
## Package Dimensions

unit : mm

2230A



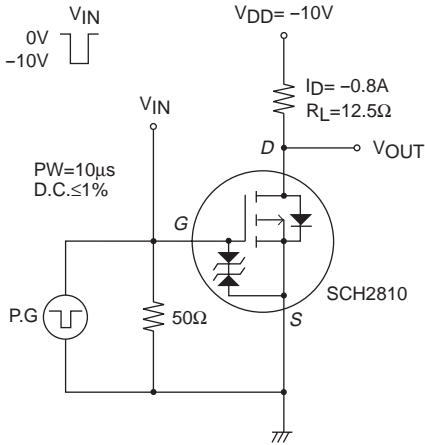
## Electrical Connection



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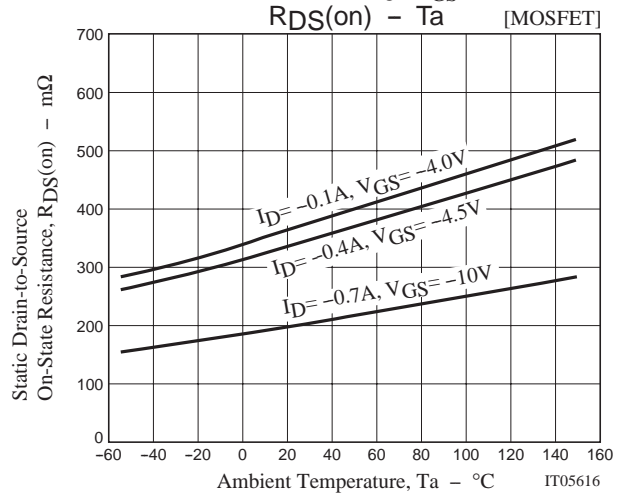
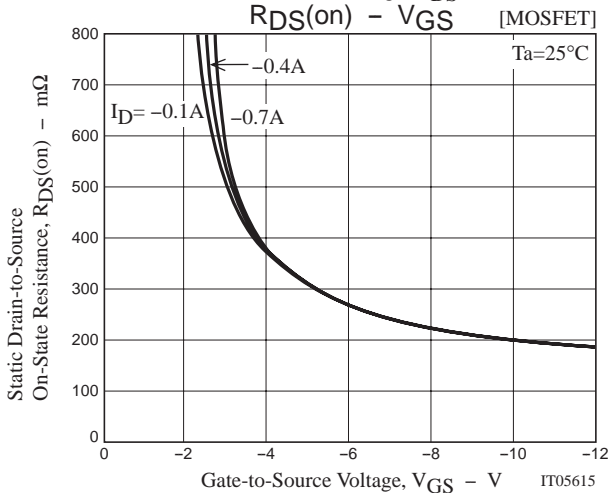
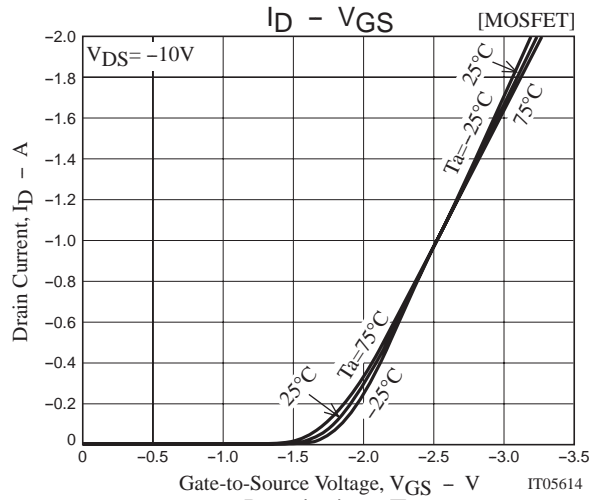
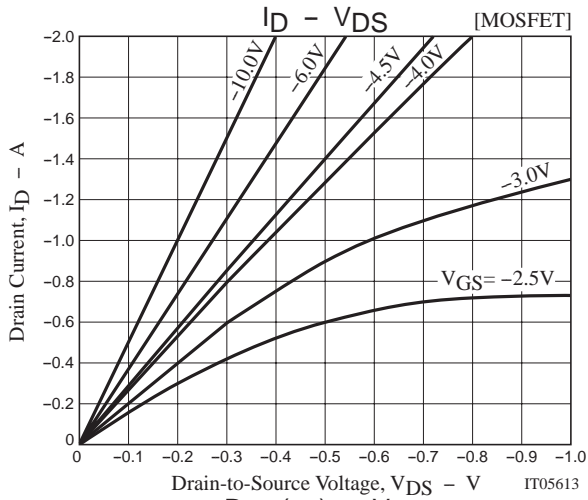
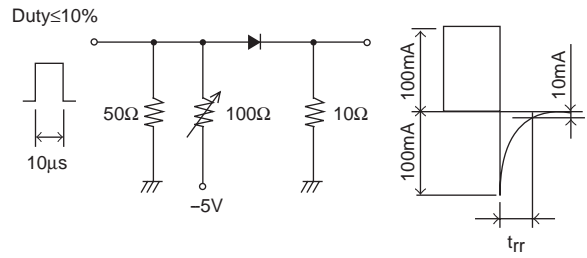
## Switching Time Test Circuit

[MOSFET]

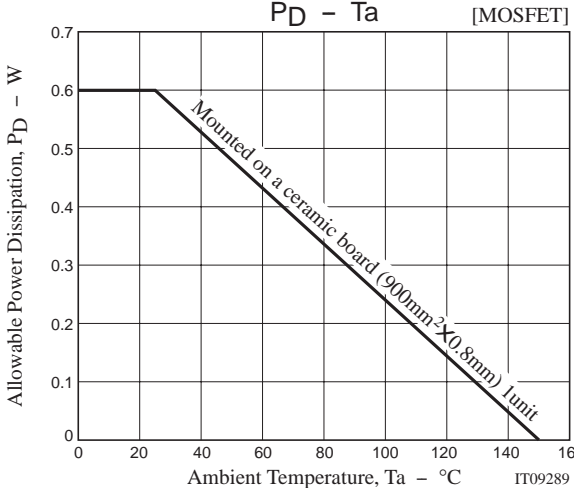
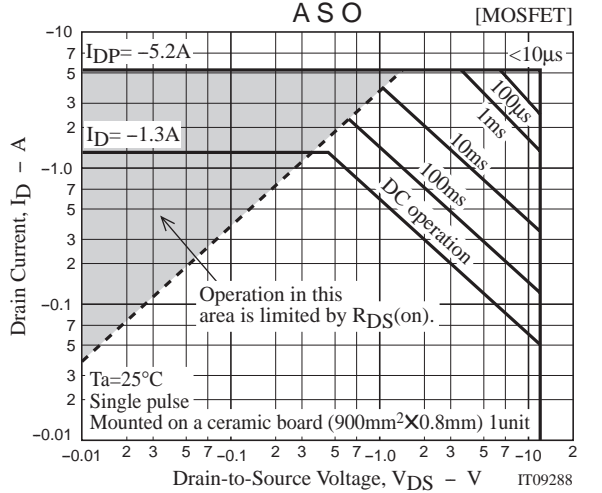
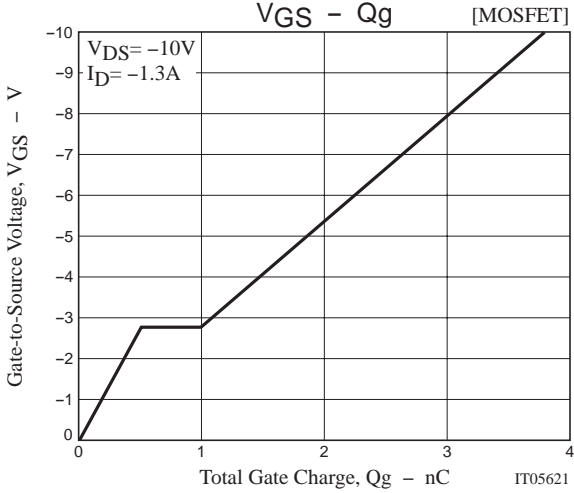
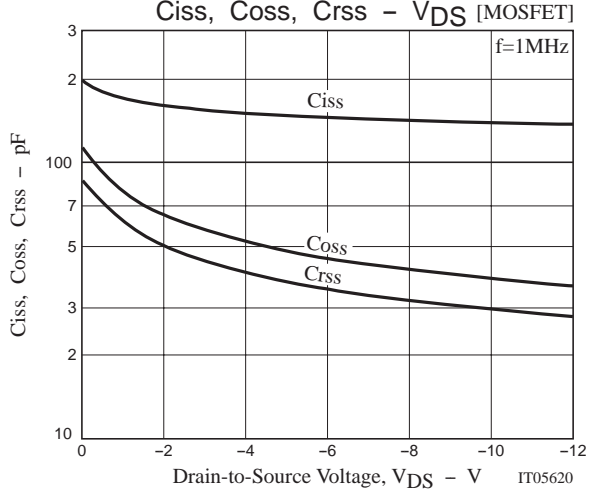
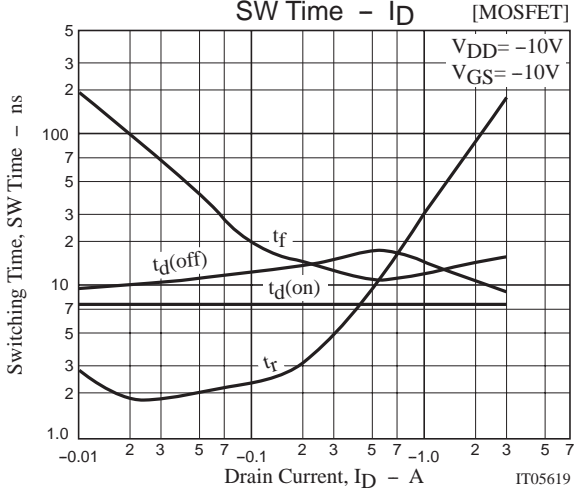
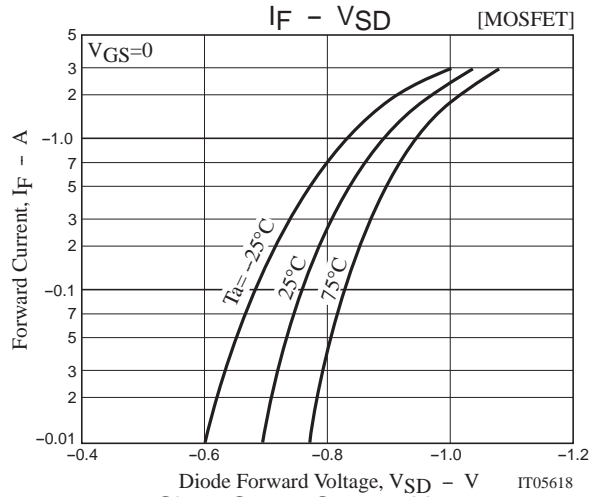
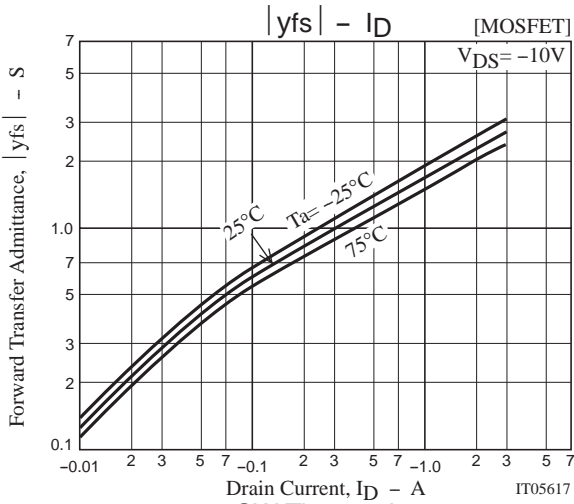


## $t_{rr}$ Test Circuit

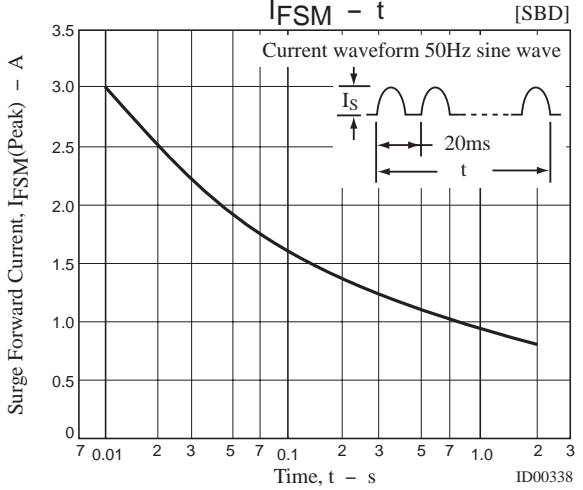
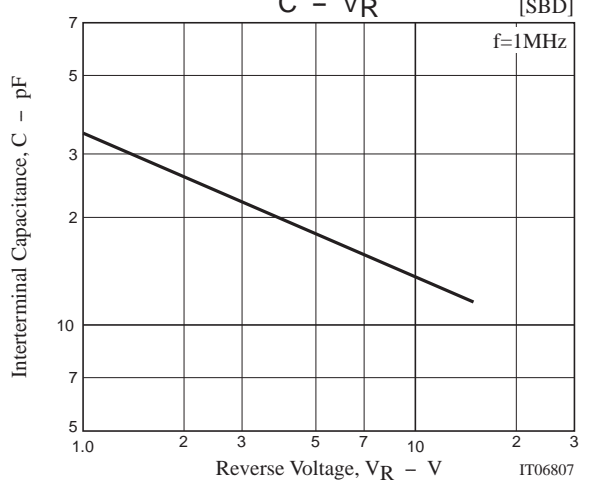
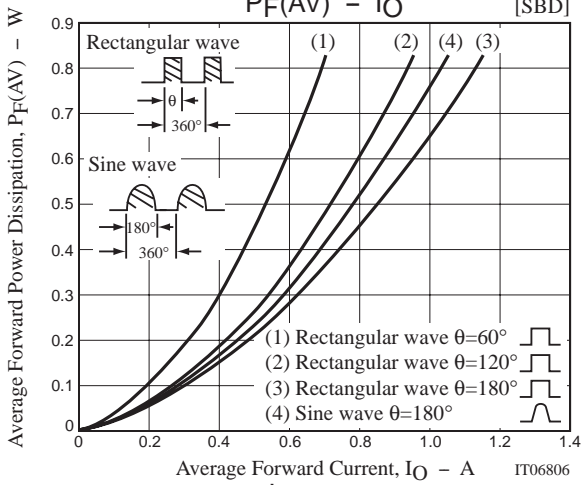
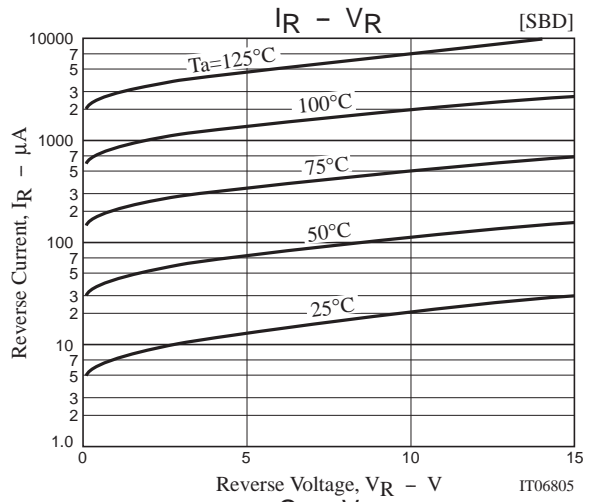
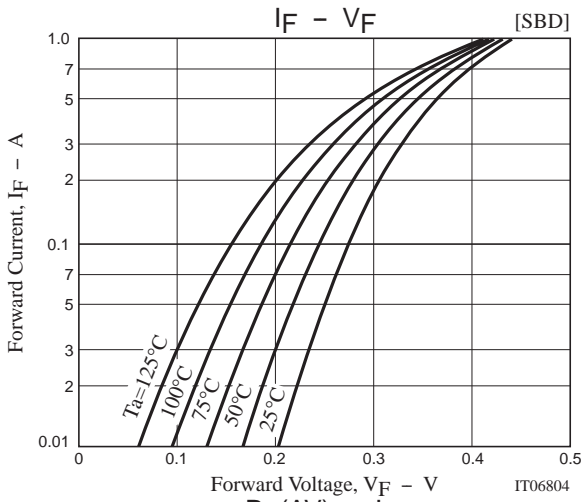
[SBD]



# SCH2810



# SCH2810



Note on usage : Since the SCH2810 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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