



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 _{DSS}		-12	V
Gate-to-Source Voltage	V _{GS}		±12	V
Drain Current (DC)	I _D		-1.3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-5.2	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	0.6	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		0.5	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	3	A
Junction Temperature	T _j		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Marking : QK

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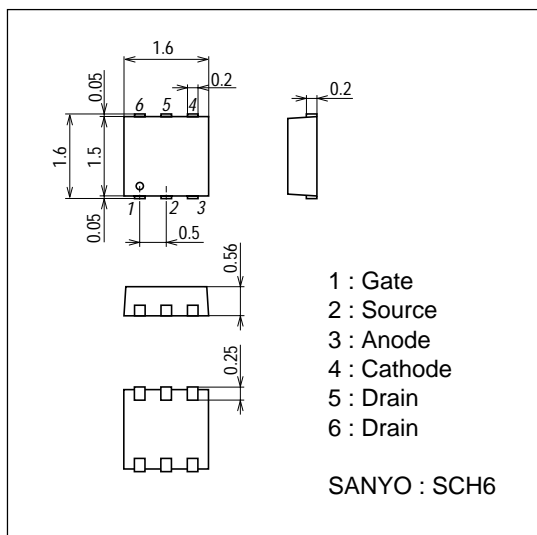
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-12V, V_{GS}=0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 9.6V, V_{DS}=0$			± 10	μA
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		μF
Output Capacitance	C_{oss}	$V_{DS}=-6V, f=1MHz$		45		μF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-6V, f=1MHz$		35		μF
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	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$		13		μF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit.			10	ns

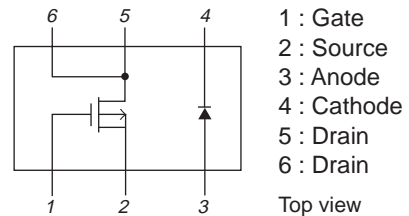
Package Dimensions

unit : mm

2230A



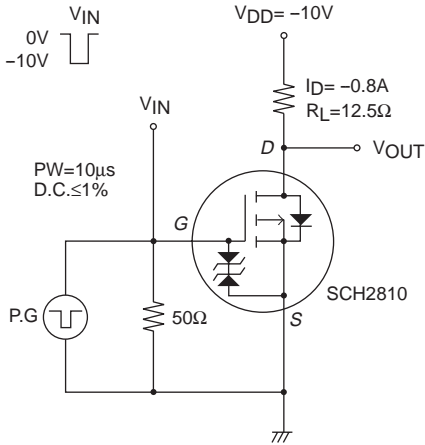
Electrical Connection



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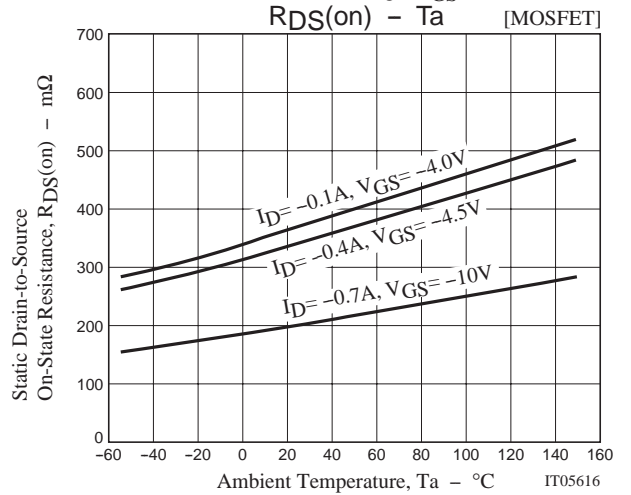
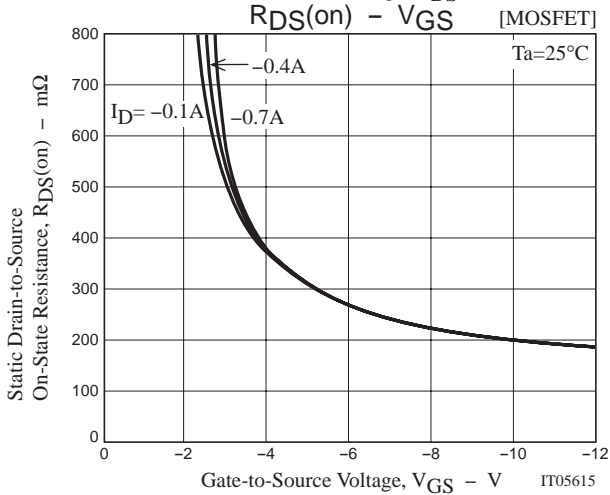
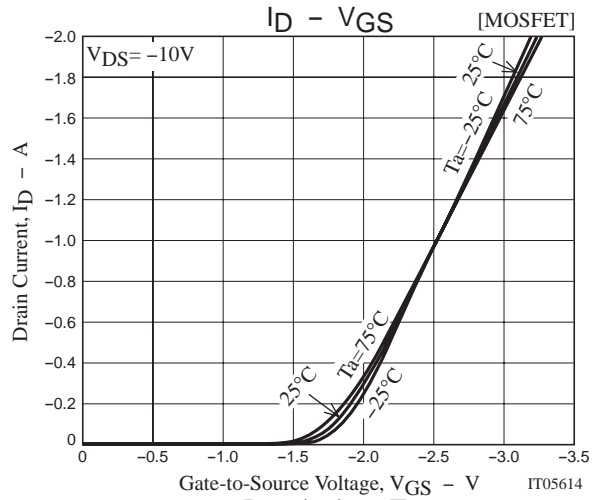
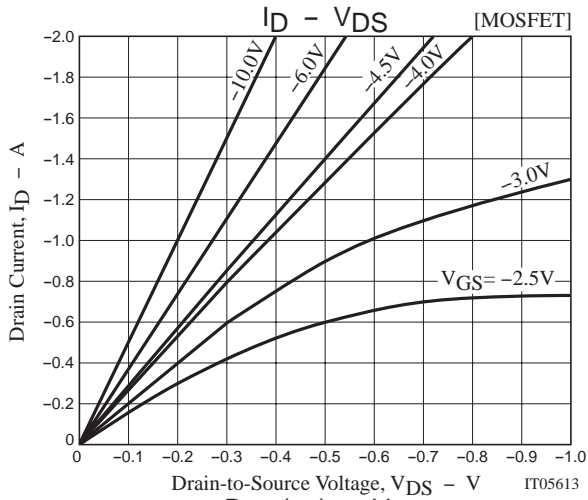
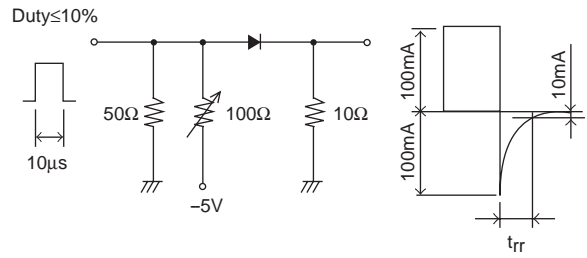
Switching Time Test Circuit

[MOSFET]

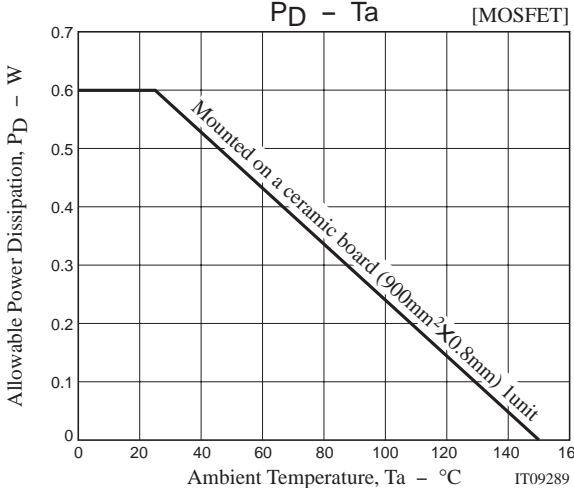
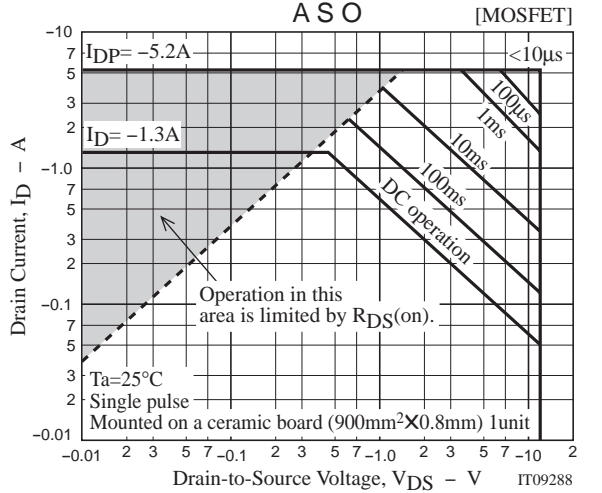
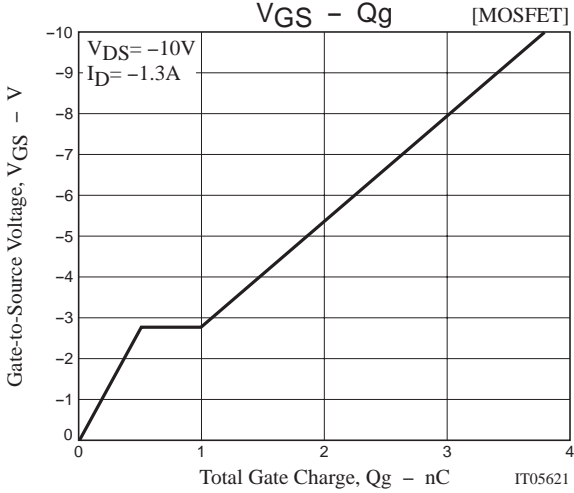
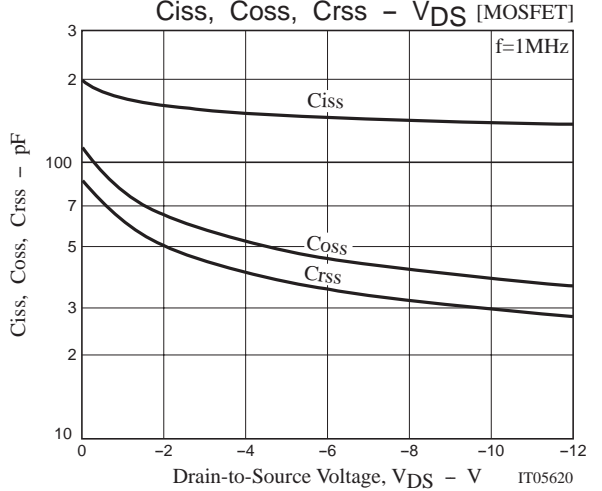
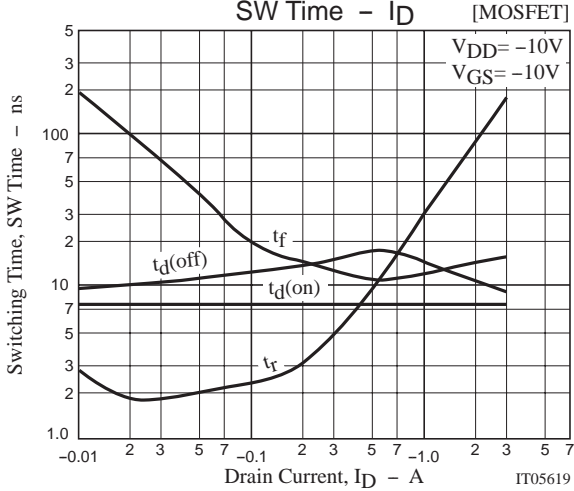
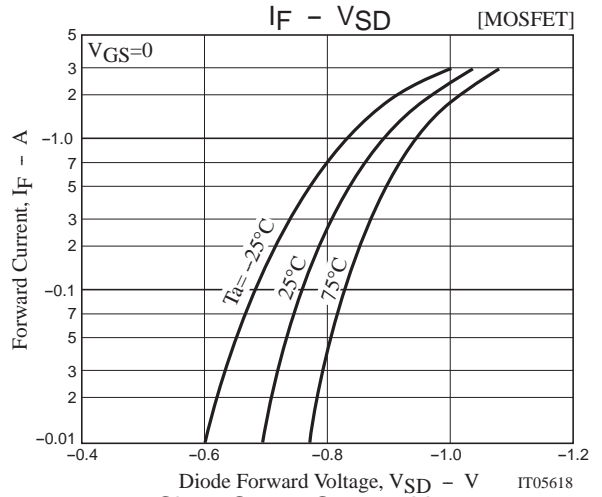
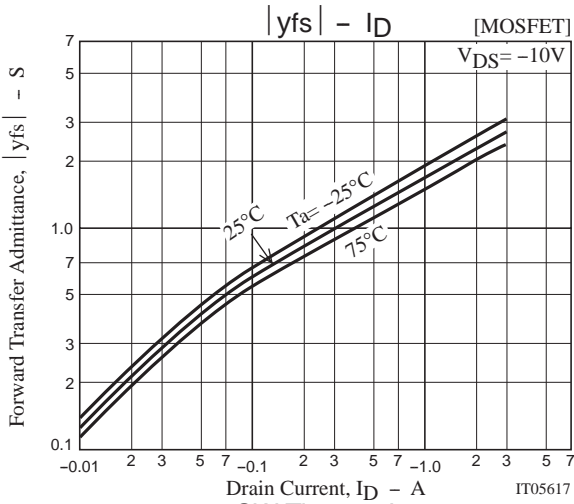


t_{rr} Test Circuit

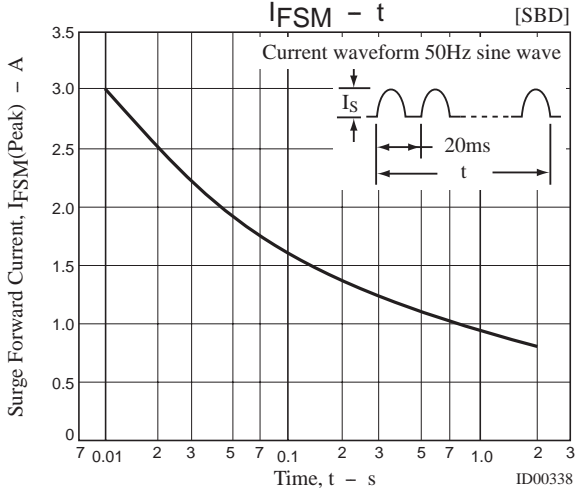
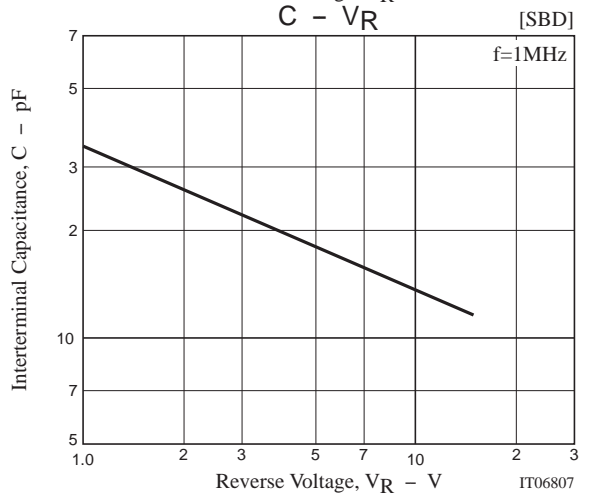
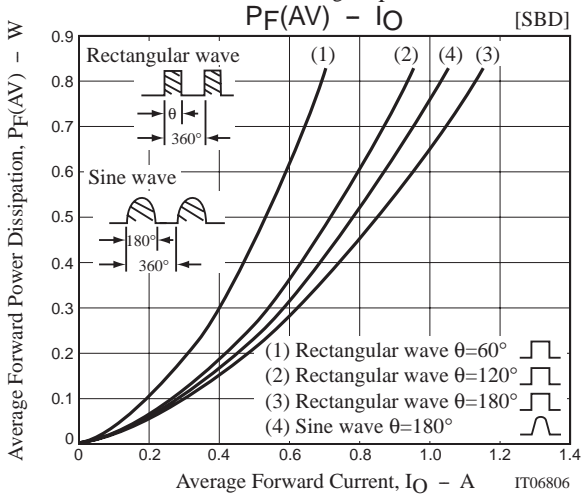
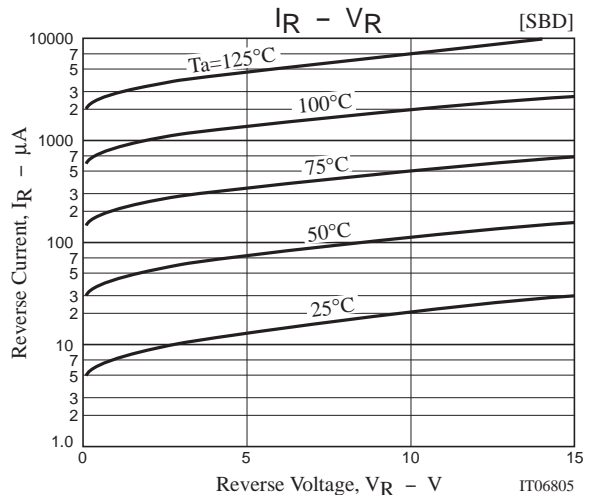
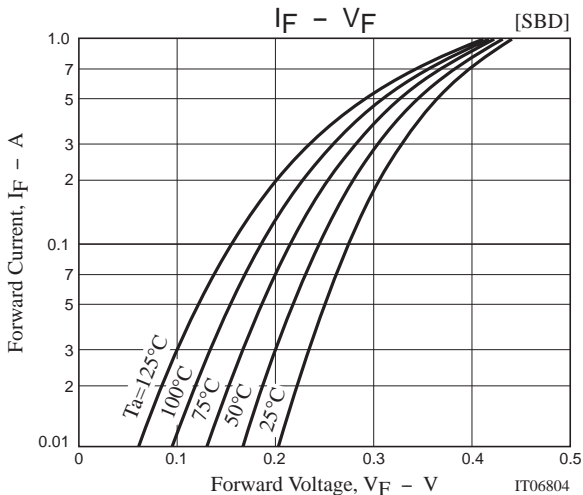
[SBD]



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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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