



# SCH2811

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>		-30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-1.0	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-4.0	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm <sup>2</sup> X0.8mm) 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>R</sub> RM		30	V
Nonrepetitive Peak Reverse Surge Voltage	V <sub>R</sub> SM		30	V
Average Output Current	I <sub>O</sub>		0.5	A
Surge Forward Current	I <sub>F</sub> SM	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 : QL

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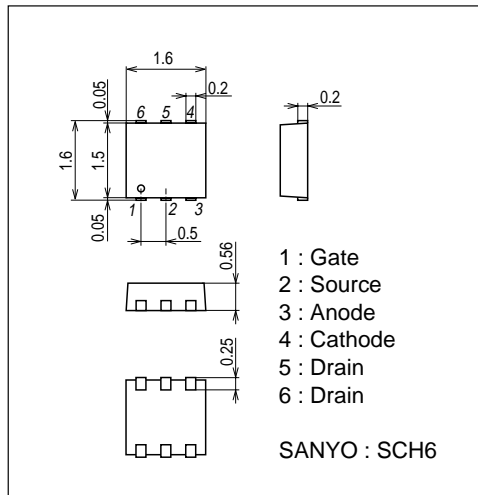
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V$			-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V, V_{DS}=0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-0.5A$	0.57	0.95		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-0.5A, V_{GS}=-10V$		320	420	$m\Omega$
	$R_{DS(on)2}$	$I_D=-0.3A, V_{GS}=-4V$		590	830	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, f=1MHz$		104		pF
Output Capacitance	$C_{oss}$	$V_{DS}=-10V, f=1MHz$		22		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-10V, f=1MHz$		17		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		12.5		ns
Rise Time	$t_r$	See specified Test Circuit.		24		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		12		ns
Fall Time	$t_f$	See specified Test Circuit.		12.2		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.0A$		3.3		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.0A$		0.48		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.0A$		0.45		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-1.0A, V_{GS}=0V$		-0.91	-1.5	V
[SBD]						
Reverse Voltage	$V_R$	$I_R=0.5mA$	30			V
Forward Voltage	$V_F$	$I_F=0.5A$		0.42	0.48	V
Reverse Current	$I_R$	$V_R=15V$			120	$\mu A$
Interterminal Capacitance	$C$	$V_R=10V, f=1MHz$		13		pF
Reverse Recovery Time	$t_{rr}$	$I_F=I_R=100mA$ , See specified Test Circuit.			10	ns

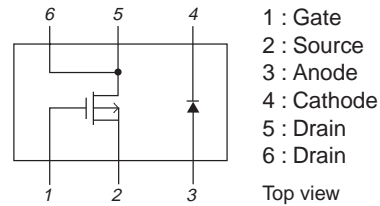
## Package Dimensions

unit : mm

7028-003



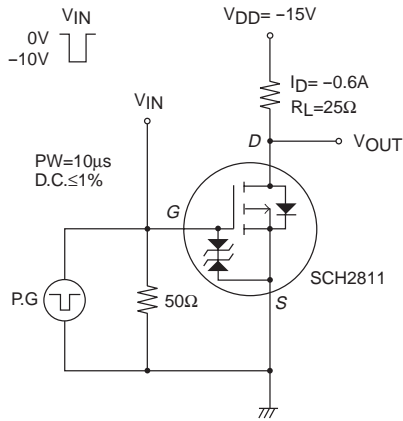
## Electrical Connection



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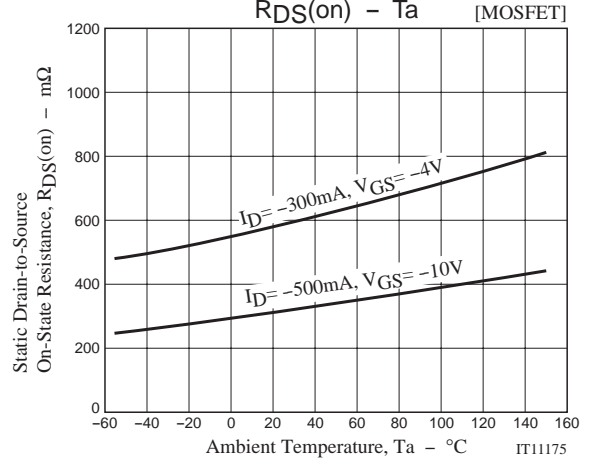
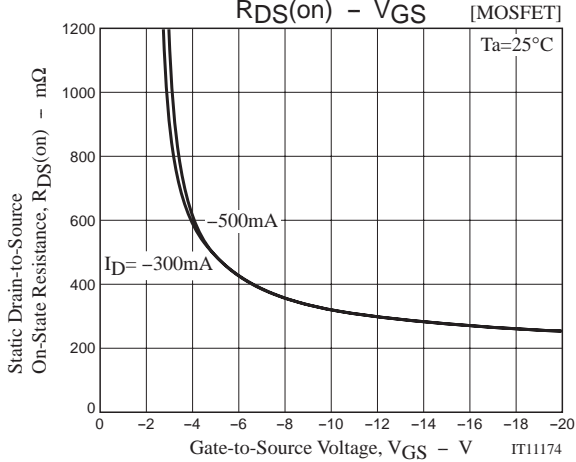
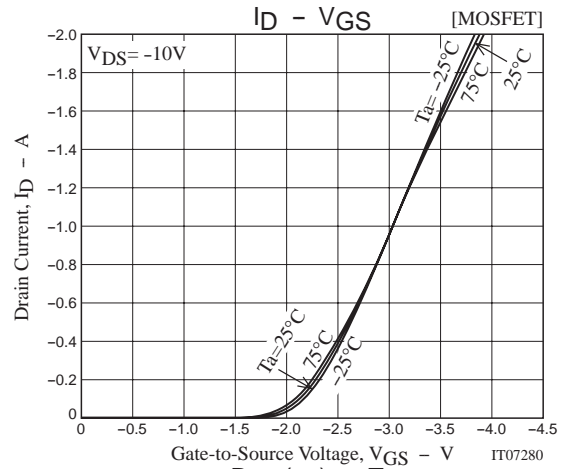
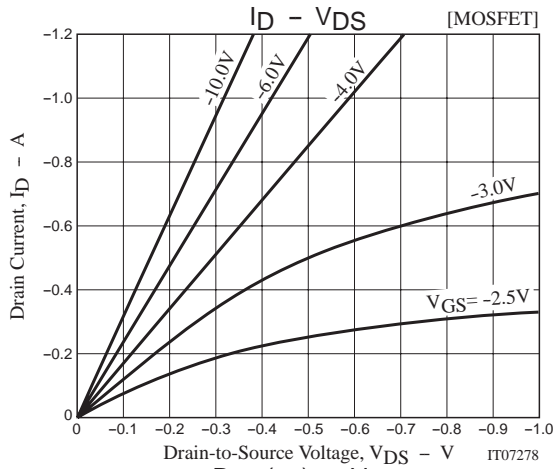
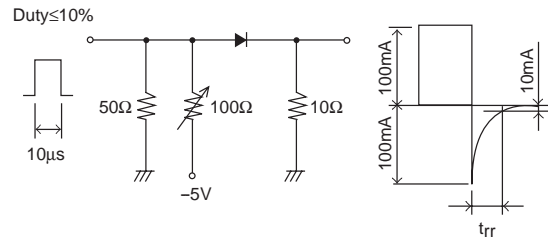
## Switching Time Test Circuit

[MOSFET]

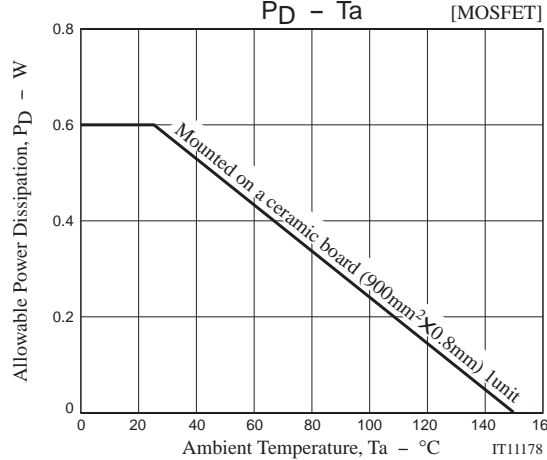
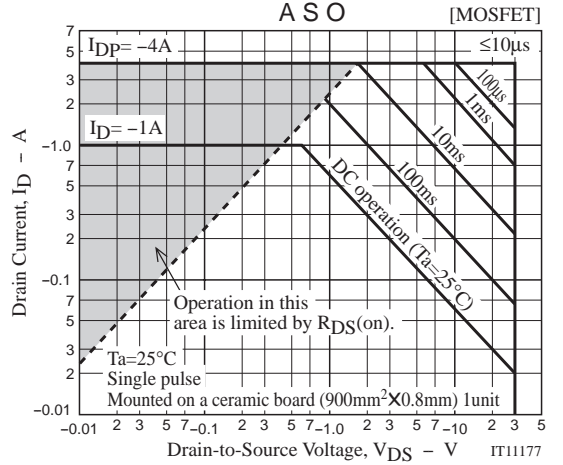
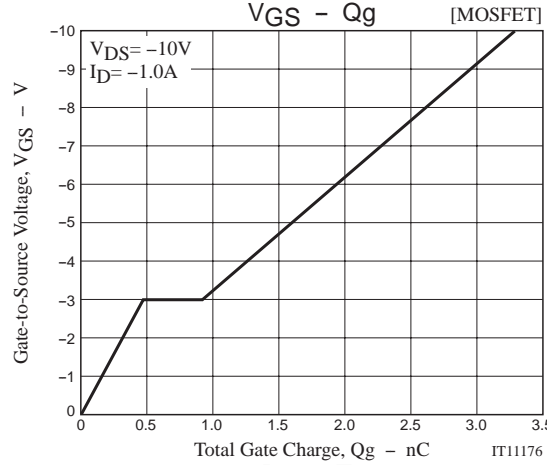
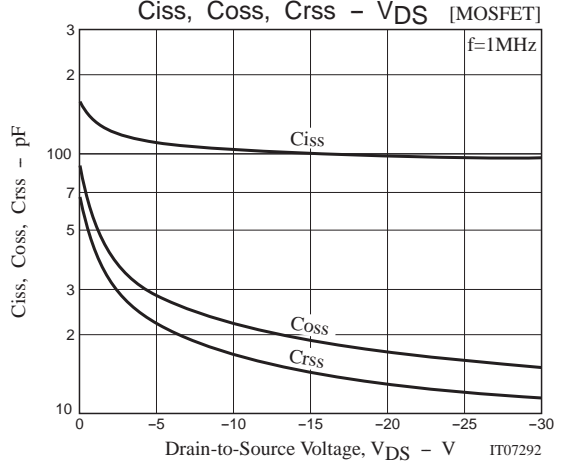
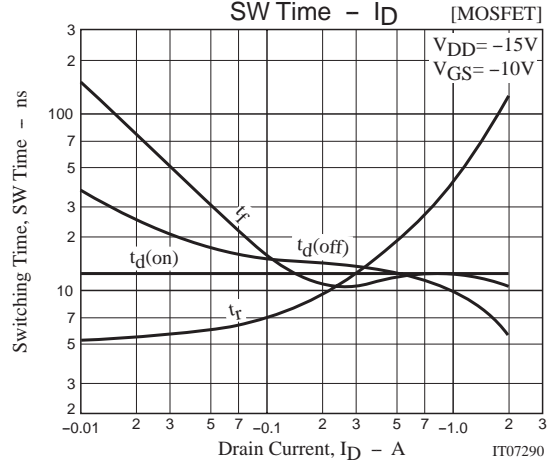
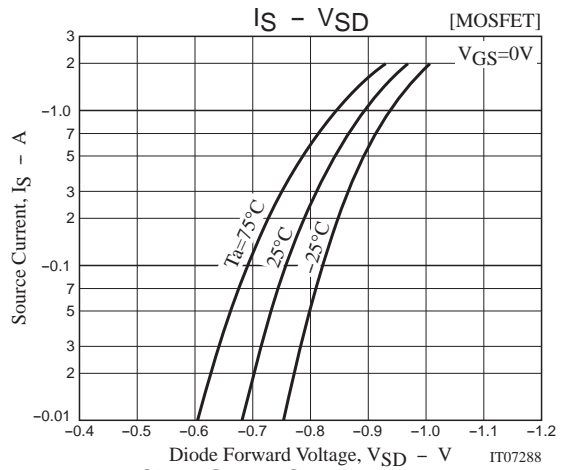
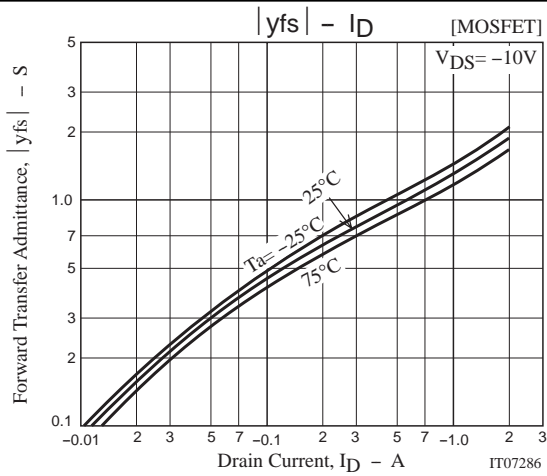


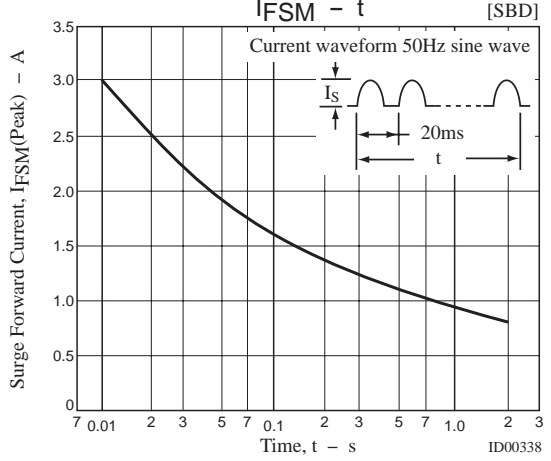
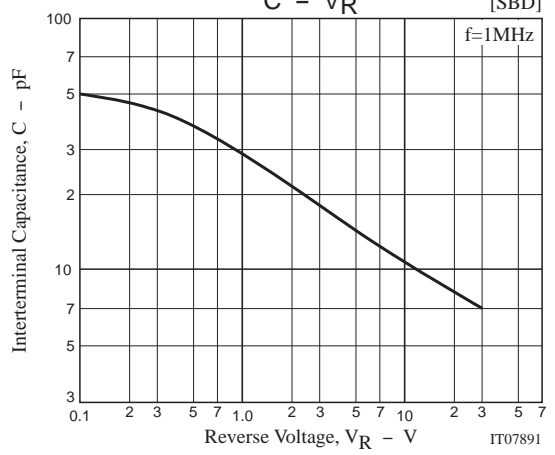
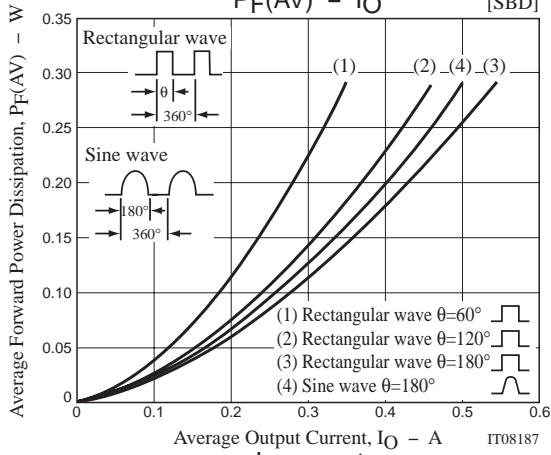
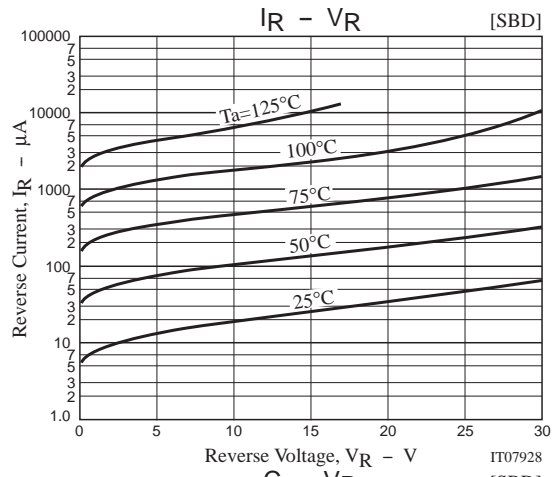
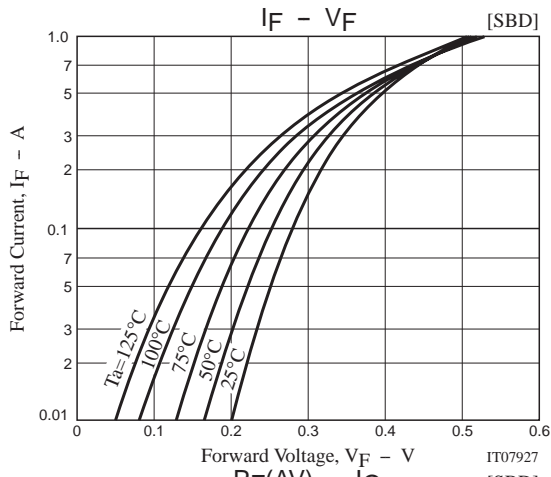
## $t_{rr}$ Test Circuit

[SBD]



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Note on usage : Since the SCH2811 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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