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ON Semiconductor DATA SHEET

SCH2809 — MOSFET : P-Channel Silicon MOSFET SBD : Schottky Barrier Diode General-Purpose Switching Device Applications

Features

- Composite type with a P-channel silicon MOSFET (SCH1305) and a Schottky barrier diode (SBS018) contained in one package facilitating high-density mounting.
- [MOSFET]
 - Low ON-resistance.
 - Ultrahigh-speed switching.
 - 1.8V 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 _{GSS}		±10	V
Drain Current (DC)	I _D		-1.2	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-4.8	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm²×0.8mm) 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 : QJ

SCH2809

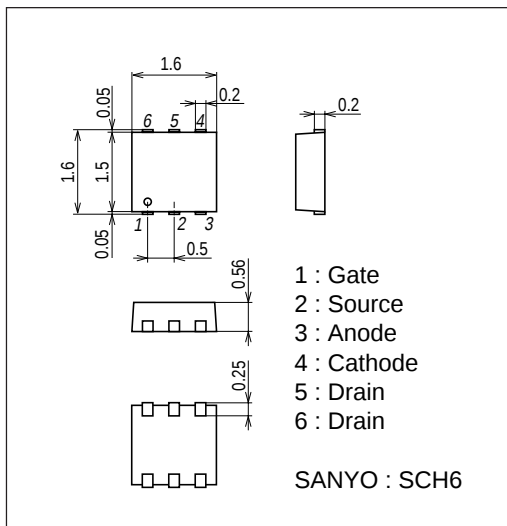
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	I _D =-1mA, V _{GS} =0V	-12			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =-12V, V _{GS} =0V			-10	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =-6V, I _D =-1mA	-0.3		-1.0	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-6V, I _D =-0.8A	1.08	1.8		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-0.6A, V _{GS} =-4.5V		235	310	mΩ
	R _{DS(on)2}	I _D =-0.3A, V _{GS} =-2.5V		335	470	mΩ
	R _{DS(on)3}	I _D =-0.1A, V _{GS} =-1.8V		445	670	mΩ
Input Capacitance	C _{iss}	V _{DS} =-6V, f=1MHz		160		pF
Output Capacitance	C _{oss}	V _{DS} =-6V, f=1MHz		45		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =-6V, f=1MHz		35		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		11		ns
Rise Time	t _r	See specified Test Circuit.		45		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		29		ns
Fall Time	t _f	See specified Test Circuit.		30		ns
Total Gate Charge	Q _g	V _{DS} =-6V, V _{GS} =-4.5V, I _D =-1.2A		2.6		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =-6V, V _{GS} =-4.5V, I _D =-1.2A		0.25		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =-6V, V _{GS} =-4.5V, I _D =-1.2A		0.65		nC
Diode Forward Voltage	V _{SD}	I _S =-1.2A, V _{GS} =0V		-0.92	-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		pF
Reverse Recovery Time	t _{rr}	I _F =I _R =100mA, See specified Test Circuit.			10	ns

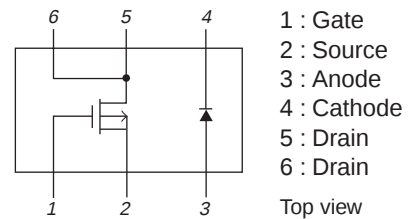
Package Dimensions

unit : mm

7028-003

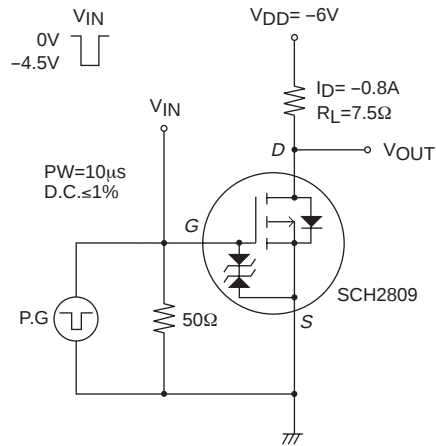


Electrical Connection



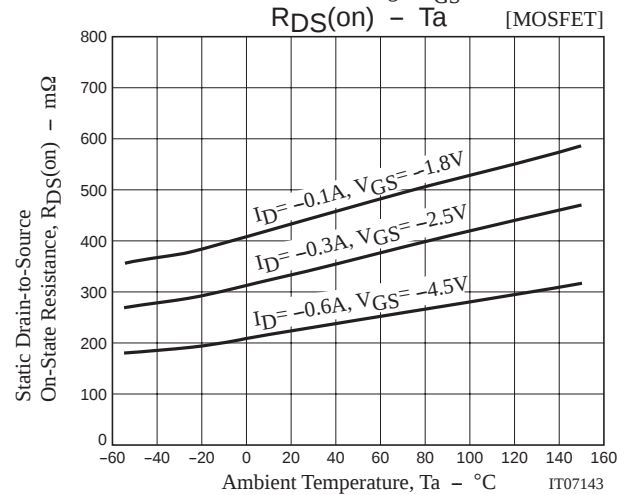
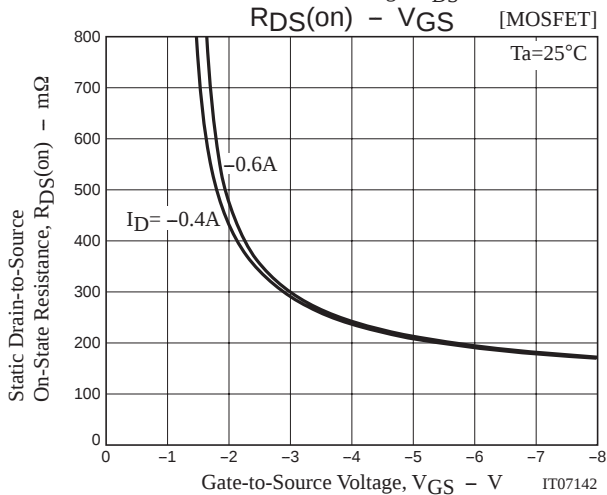
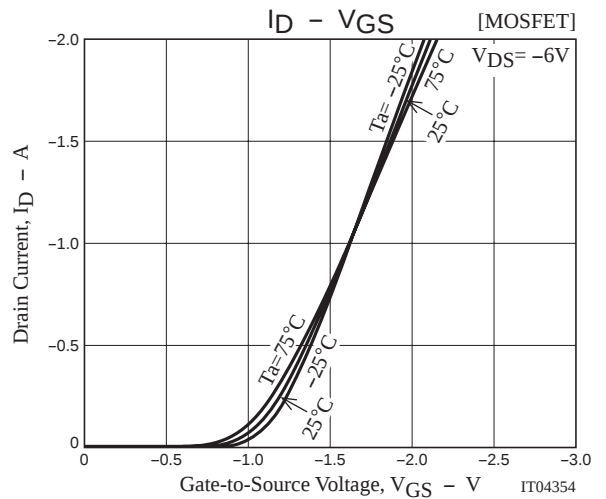
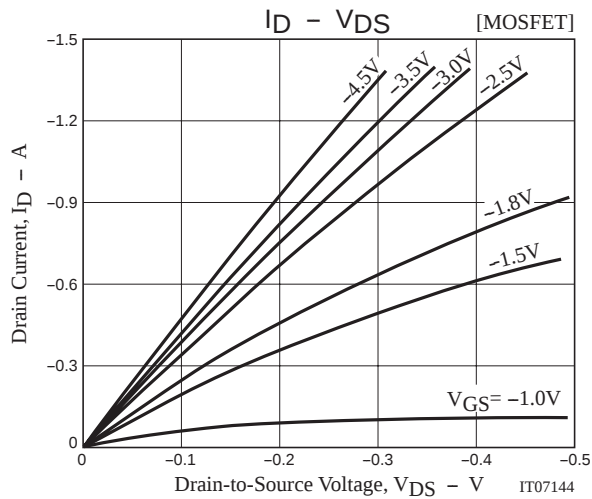
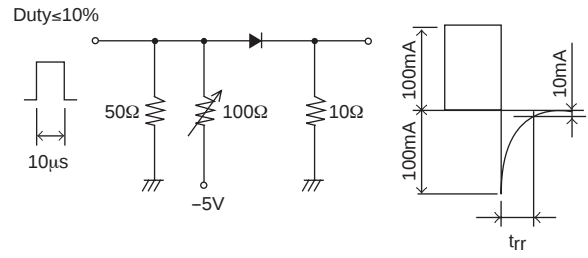
Switching Time Test Circuit

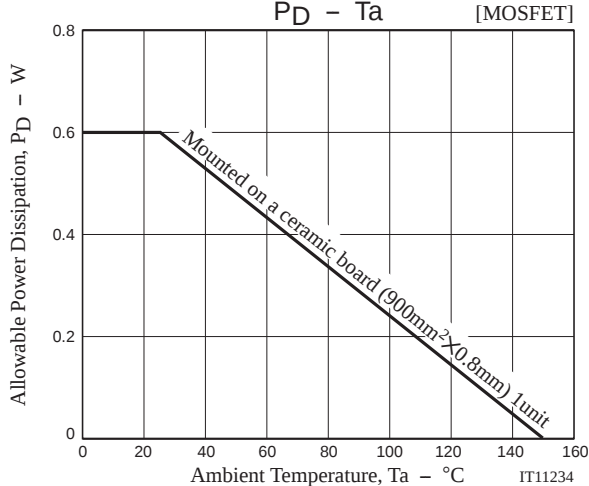
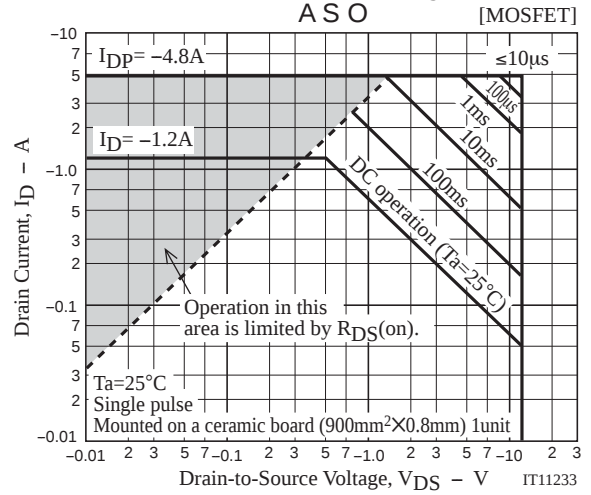
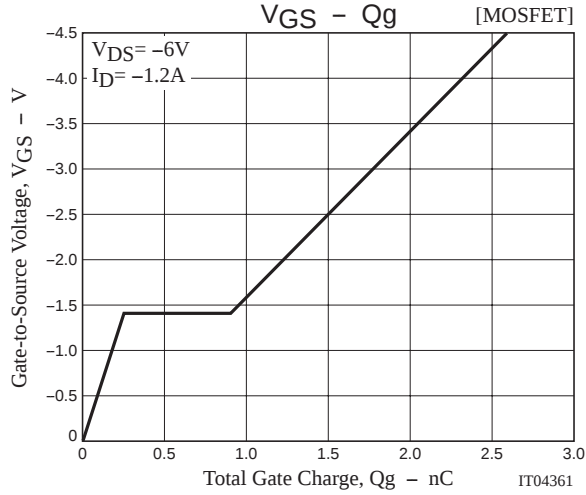
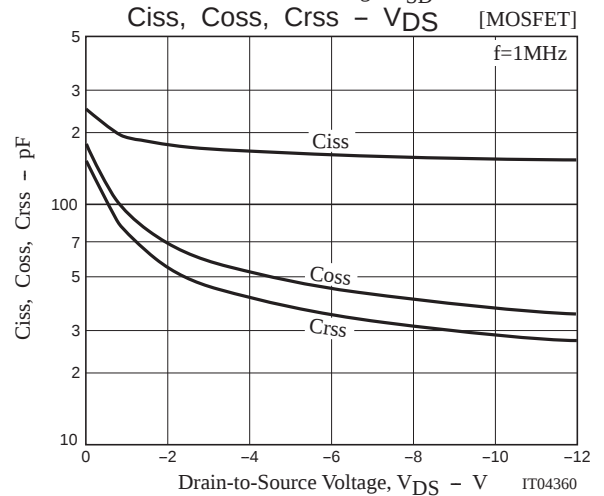
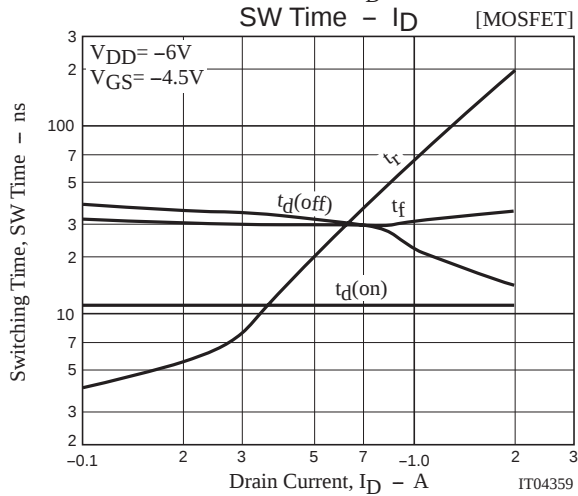
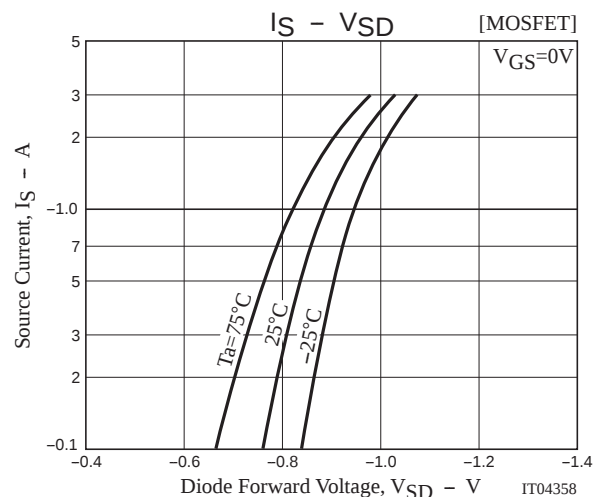
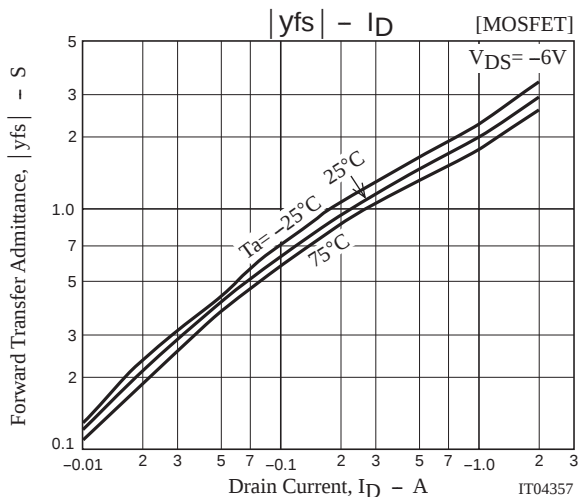
[MOSFET]

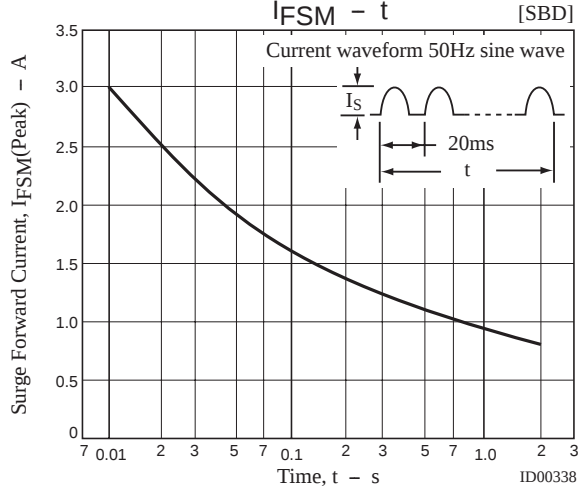
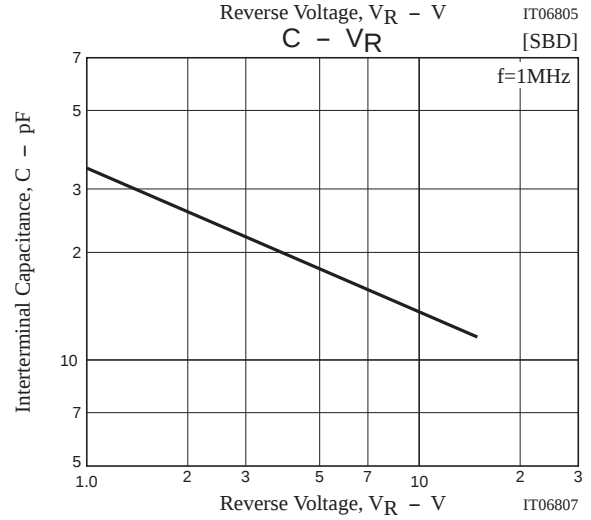
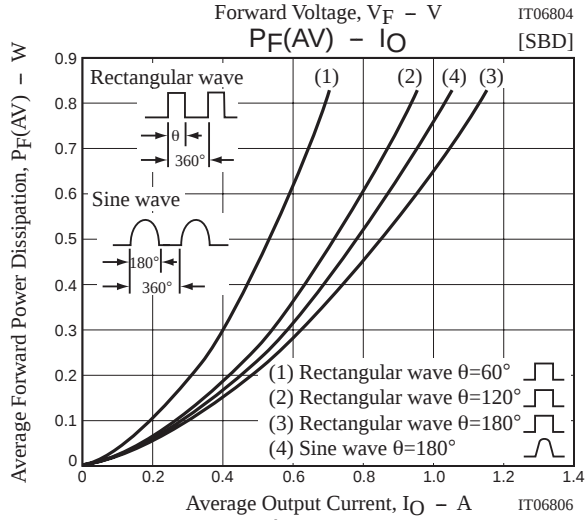
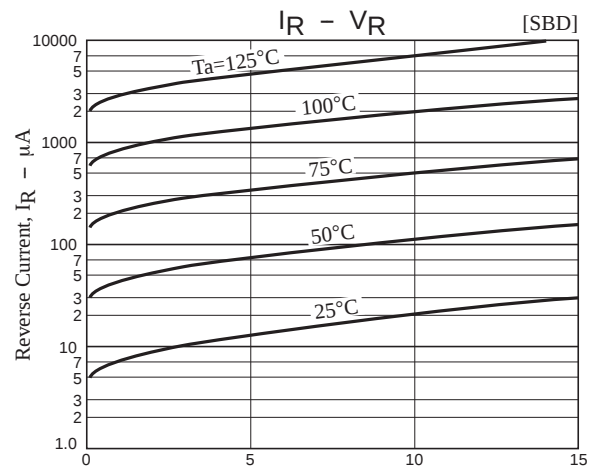
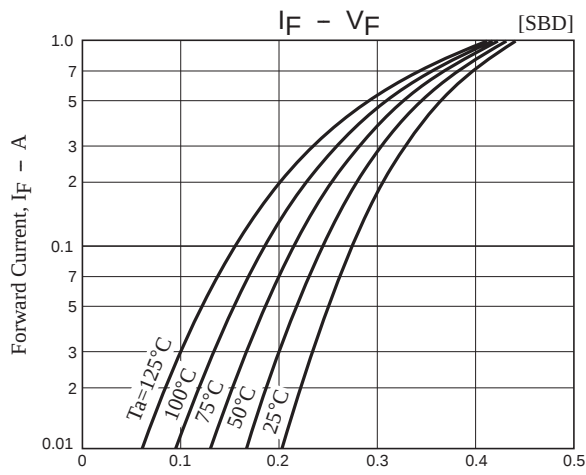


t_{rr} Test Circuit

[SBD]







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