


SANYO Semiconductors

DATA SHEET

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

SCH2830 — 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.
 - 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}		-20	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		-1	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-4	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}		30	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		30	V
Average Output Current	I _O	Mounted on a ceramic board (900mm²×0.8mm)	0.7	A
		Mounted in Cu-foiled area of 0.72mm²×0.03mm on glass epoxy board	0.5	A

Marking : XF

Continued on next page.

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Parameter	Symbol	Conditions	Ratings	Unit
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

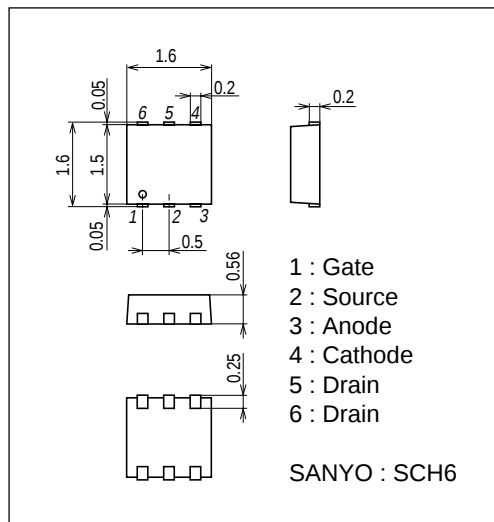
Electrical Characteristics at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-20			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-20V, VGS=0V			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-0.4		-1.4	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-0.5A	0.72	1.2		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-0.5A, VGS=-4V		380	500	mΩ
	RDS(on)2	ID=-0.3A, VGS=-2.5V		540	760	mΩ
	RDS(on)3	ID=-0.1A, VGS=-1.8V		670	1000	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=0V		-0.89	-1.2	V
[SBD]						
Reverse Voltage	VR	IR=0.5mA	30			V
Forward Voltage	VF	IF=0.5A		0.42	0.48	V
Reverse Current	IR	VR=15V			120	μA
Interterminal Capacitance	C	VR=10V, f=1MHz		13		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			10	ns

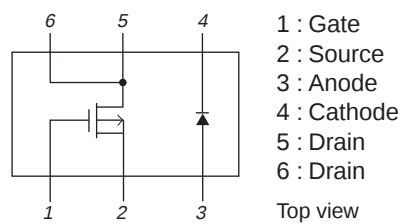
Package Dimensions

unit : mm (typ)

7028-003



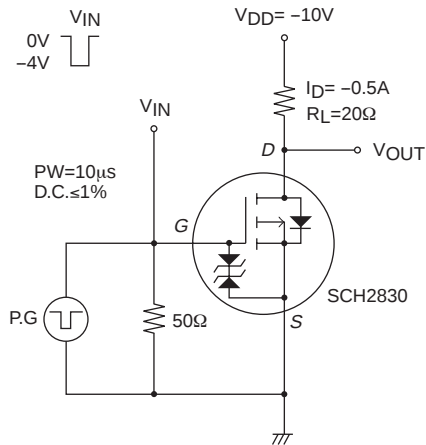
Electrical Connection



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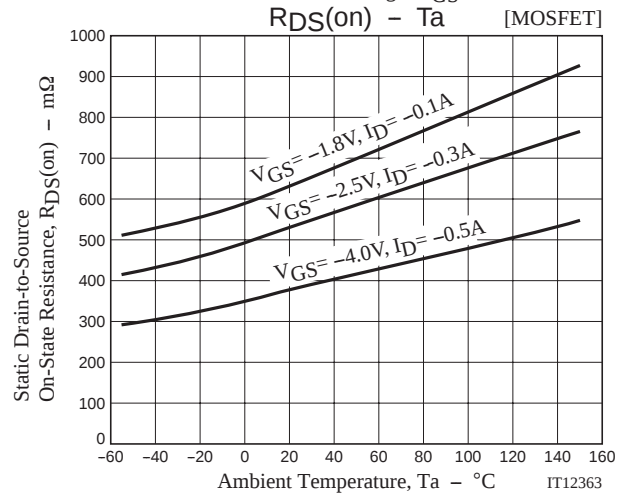
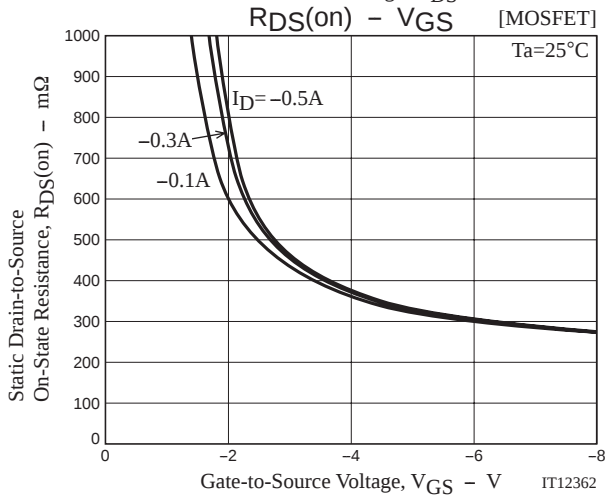
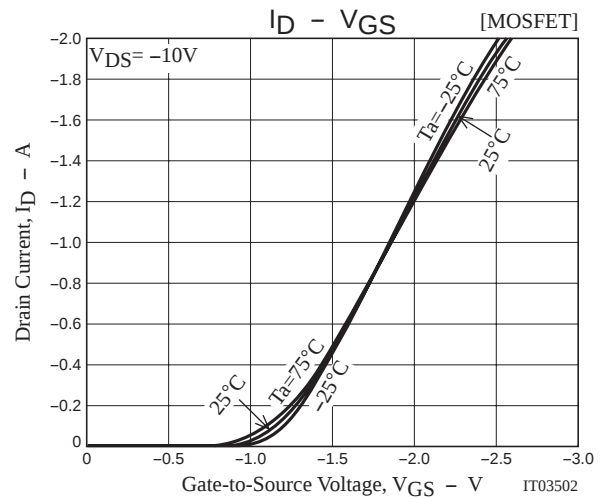
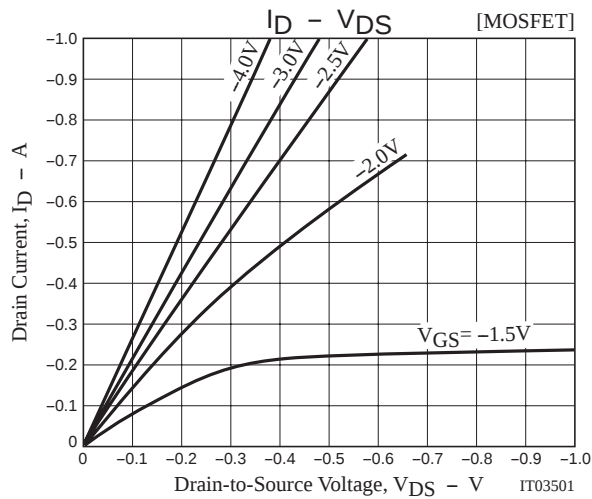
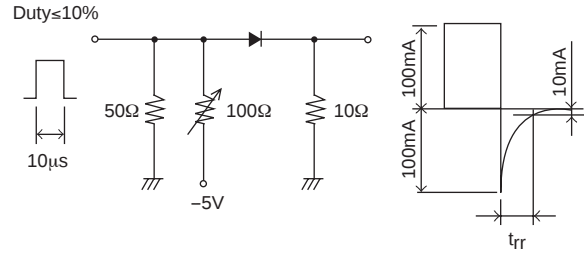
Switching Time Test Circuit

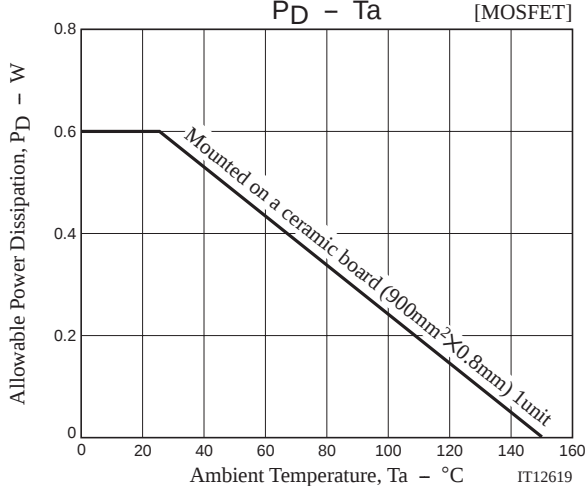
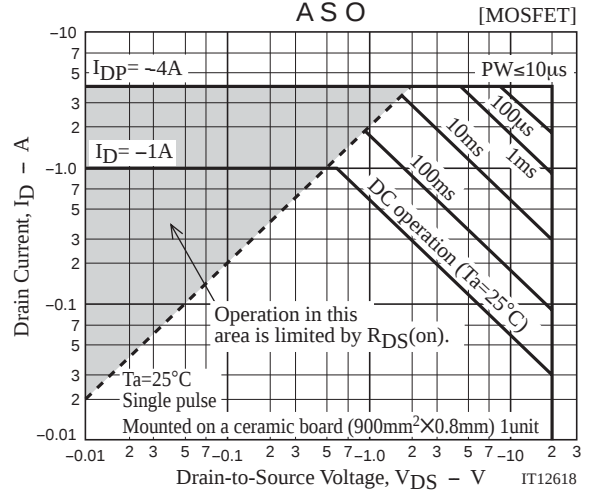
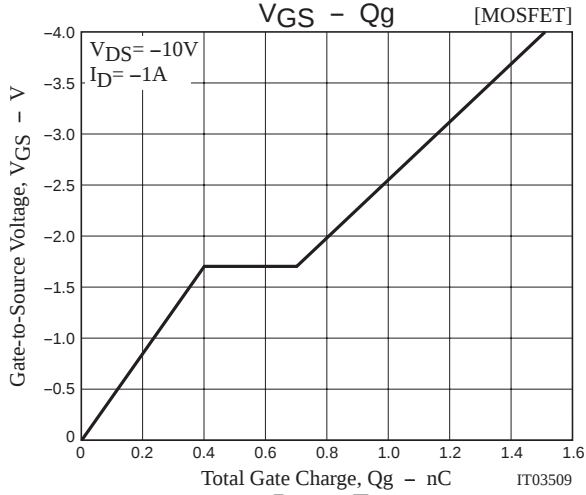
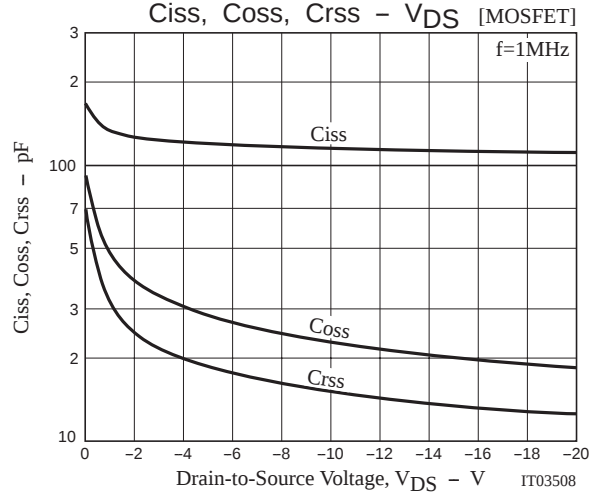
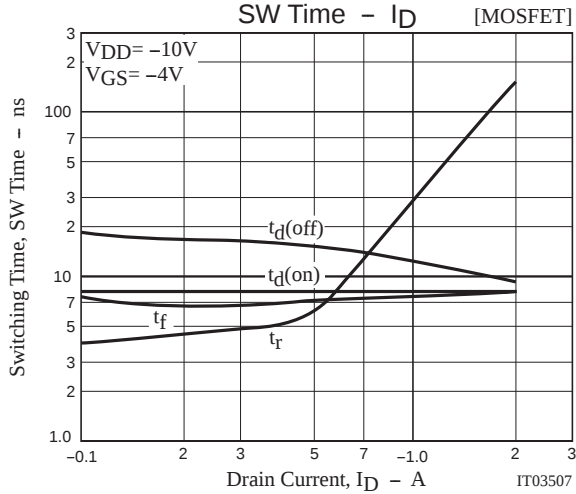
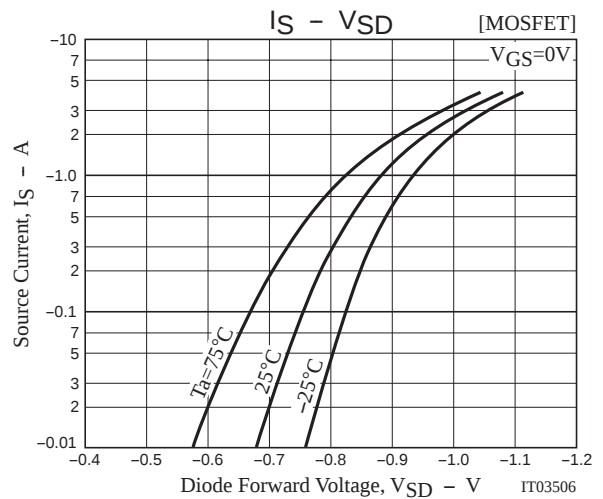
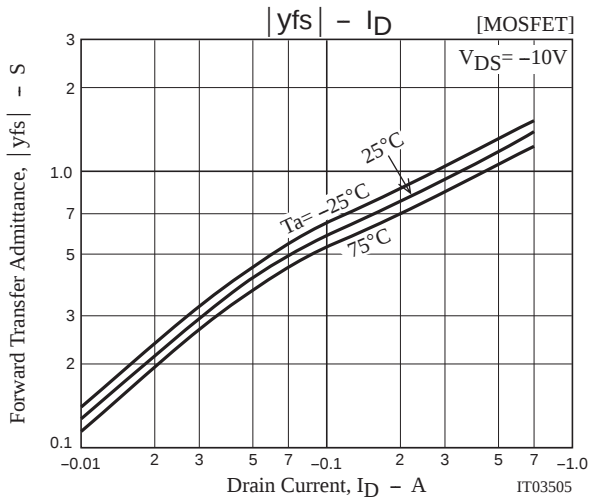
[MOSFET]

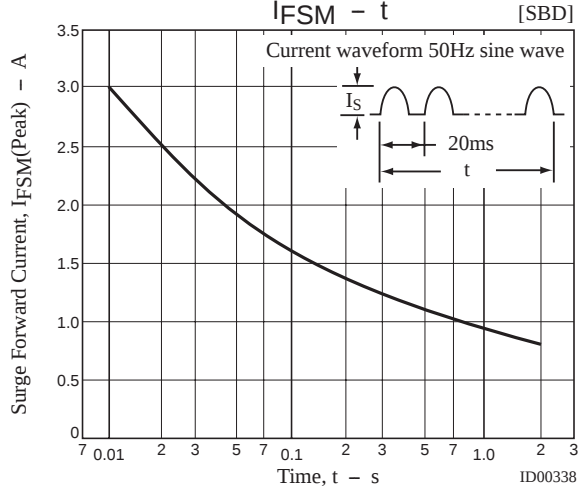
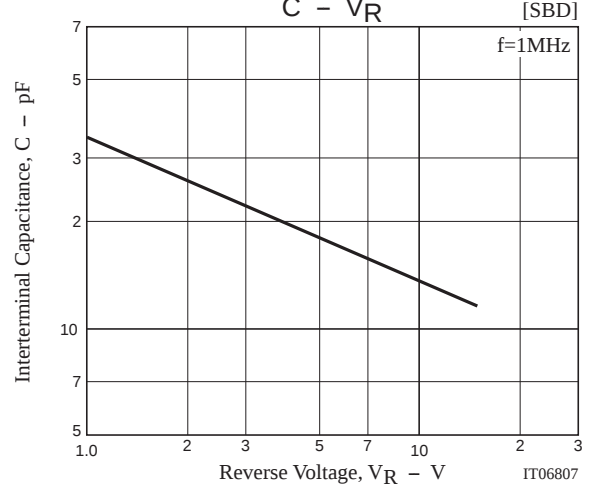
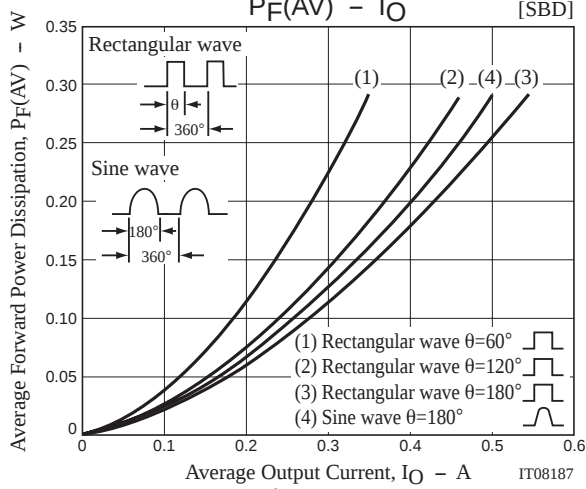
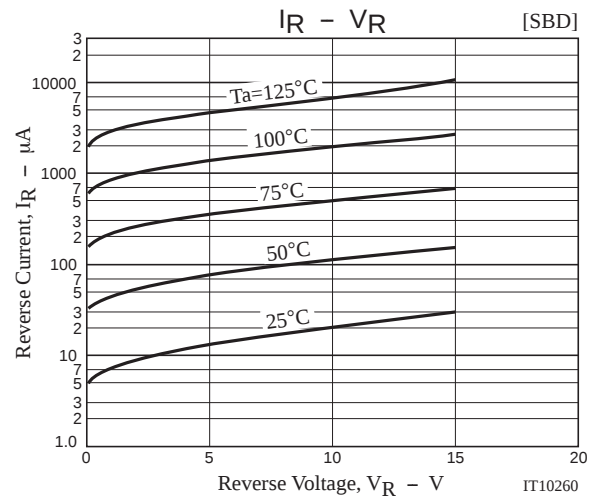
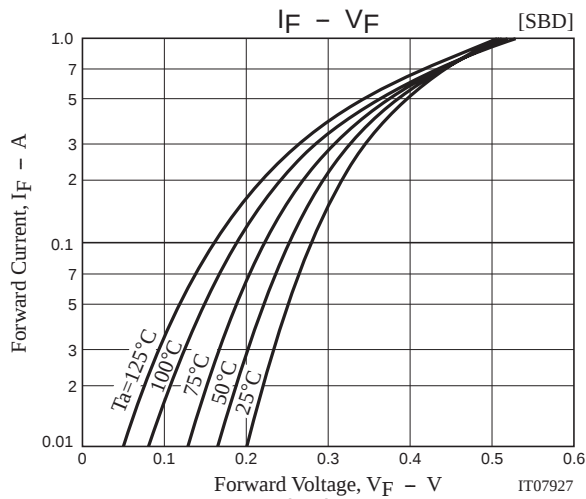


t_{rr} Test Circuit

[SBD]







Note on usage : Since the SCH2830 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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