Ordering number : ENA0861

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	Tch		150	°C
Storage Temperature	Tstg		−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

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Parameter	Symbol	Conditions	Ratings	Unit
Surge Forward Current	I_{FSM}	50Hz sine wave, 1 cycle	3	A
Junction Temperature	Tj		−55 to +125	°C
Storage Temperature	Tstg		−55 to +125	°C

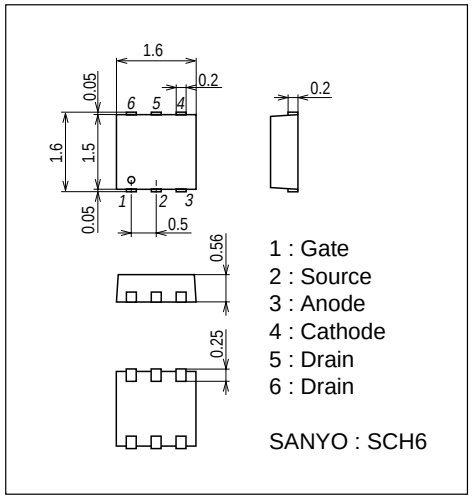
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=-1mA, V_{GS}=0V	−20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=-10V, I_D=-1mA	−0.4		−1.4	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=-10V, I_D=-0.5A	0.72	1.2		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=-0.5A, V_{GS}=-4V		380	500	mΩ
	$R_{DS}(on)2$	I_D=-0.3A, V_{GS}=-2.5V		540	760	mΩ
	$R_{DS}(on)3$	I_D=-0.1A, V_{GS}=-1.8V		670	1000	mΩ
Input Capacitance	Ciss	V_{DS}=-10V, f=1MHz		115		pF
Output Capacitance	Coss	V_{DS}=-10V, f=1MHz		23		pF
Reverse Transfer Capacitance	Crss	V_{DS}=-10V, f=1MHz		15		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8		ns
Rise Time	t_r	See specified Test Circuit.		6		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		15		ns
Fall Time	t_f	See specified Test Circuit.		7		ns
Total Gate Charge	Qg	V_{DS}=-10V, V_{GS}=-4V, I_D=-1A		1.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=-10V, V_{GS}=-4V, I_D=-1A		0.4		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=-10V, V_{GS}=-4V, I_D=-1A		0.3		nC
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V		−0.89	−1.2	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	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

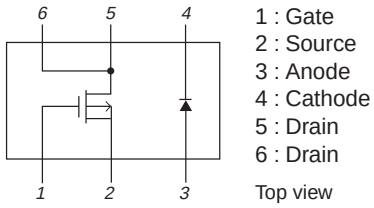
Package Dimensions

unit : mm (typ)

7028-003

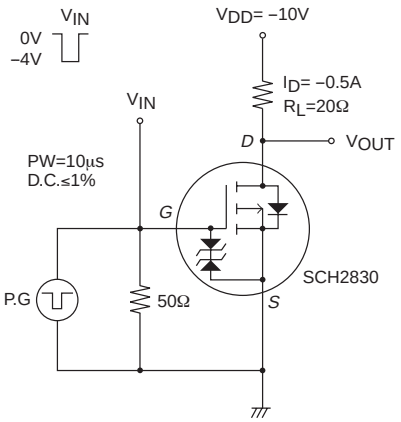


Electrical Connection



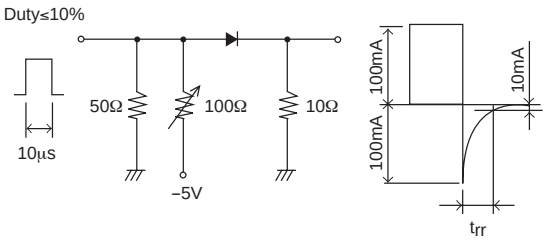
Switching Time Test Circuit

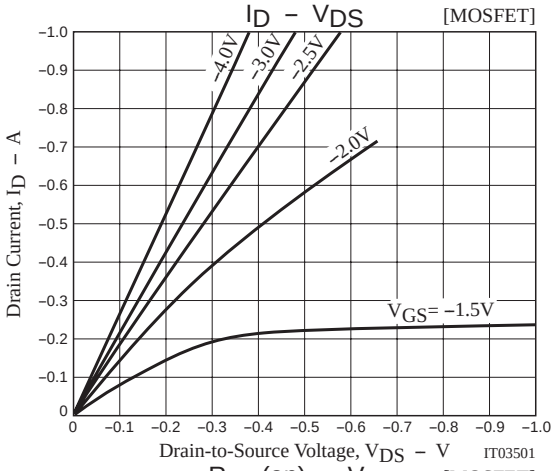
[MOSFET]

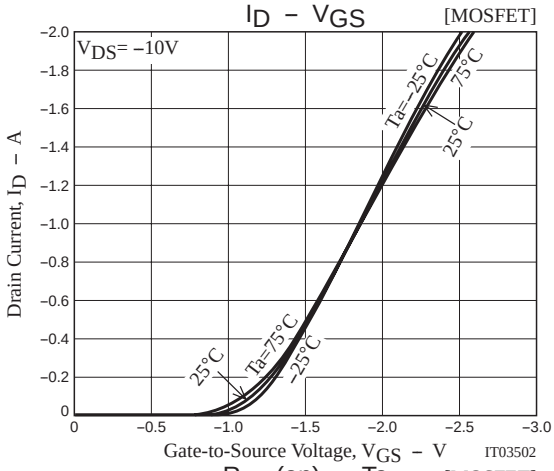


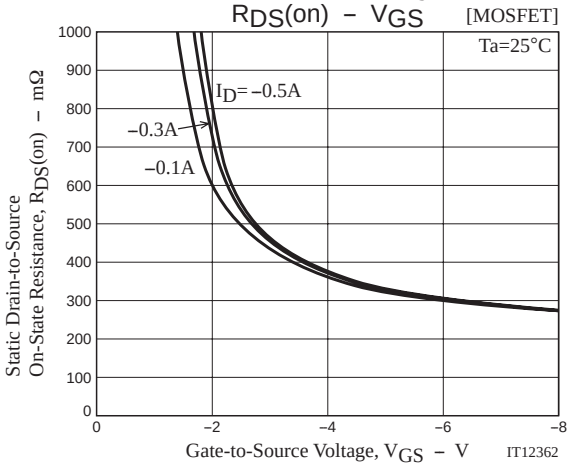
t_{rr} Test Circuit

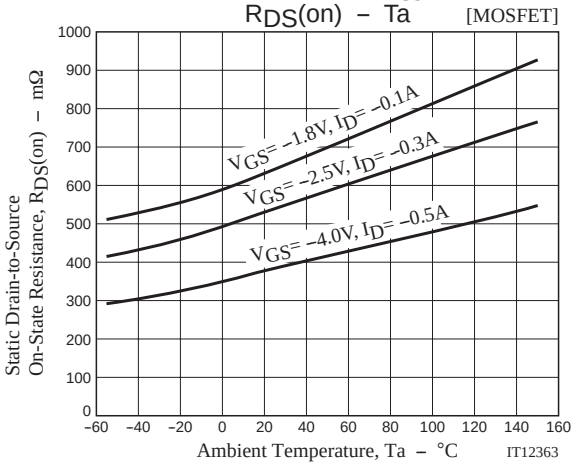
[SBD]

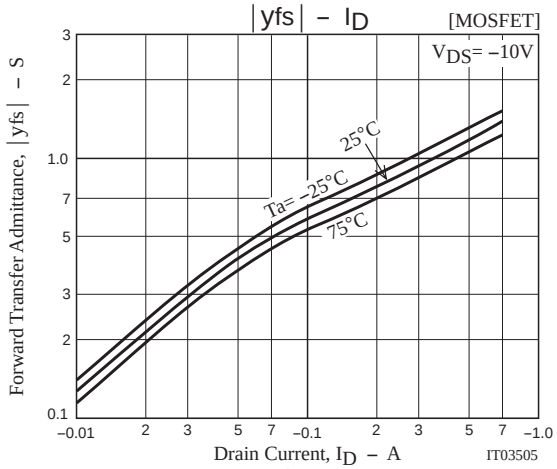


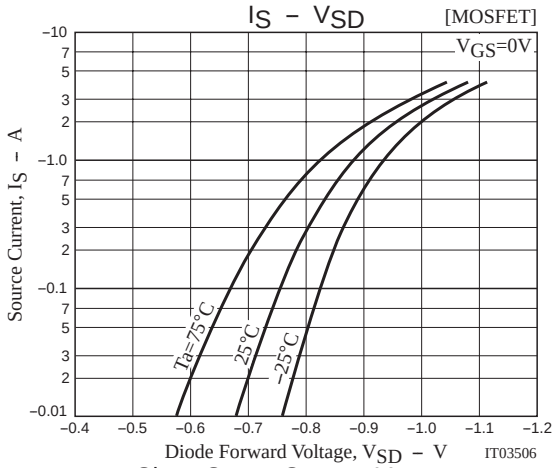


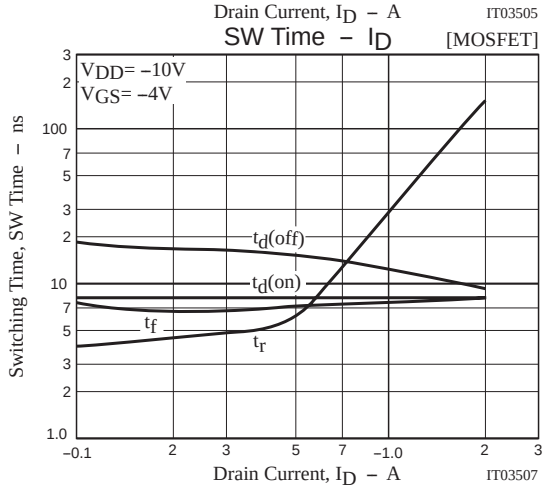


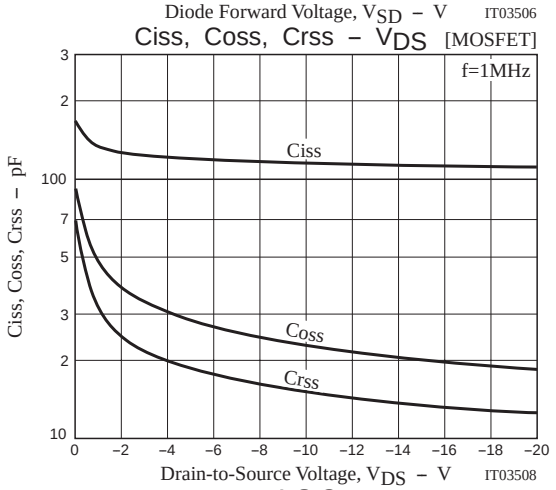


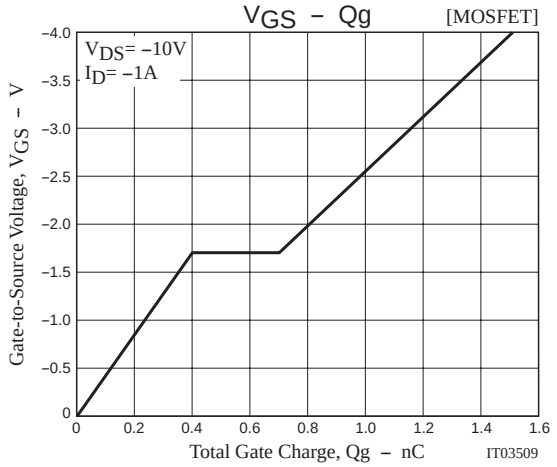


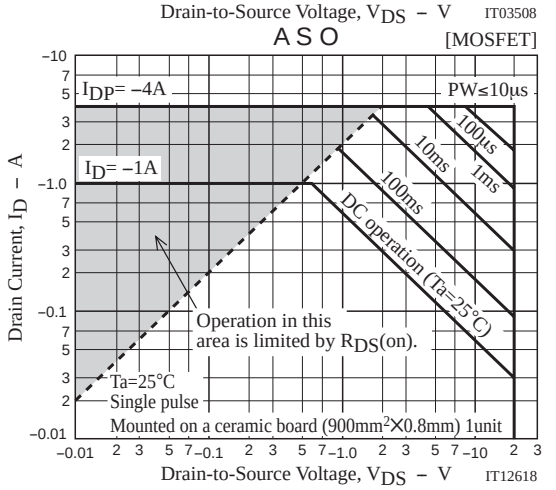


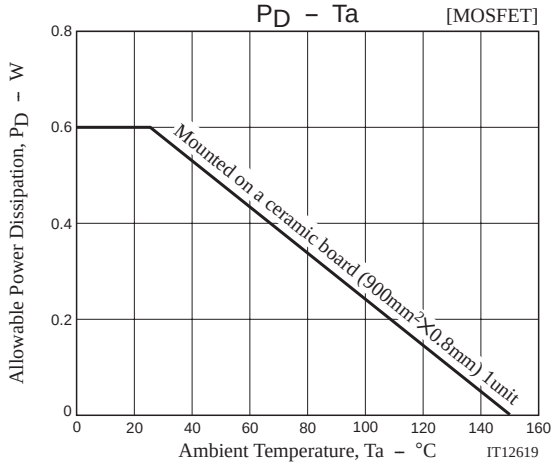




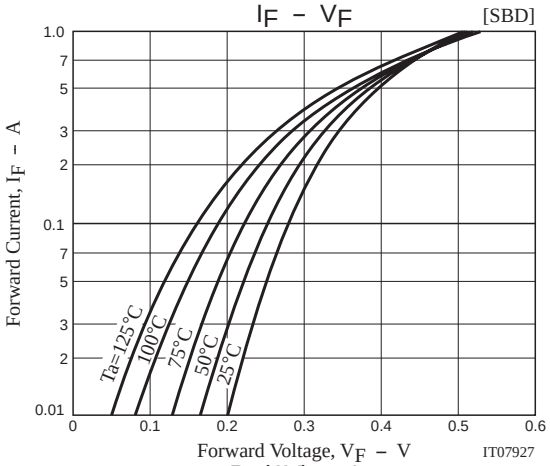




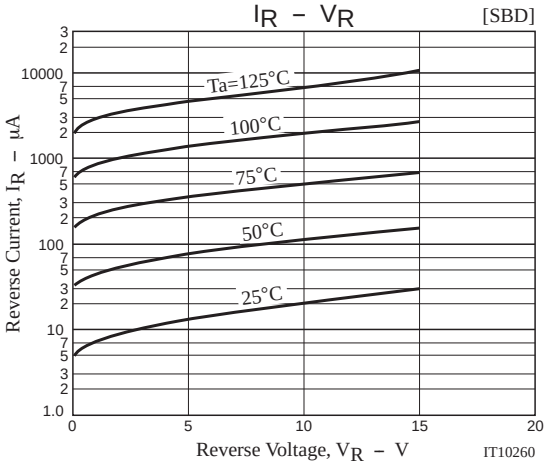




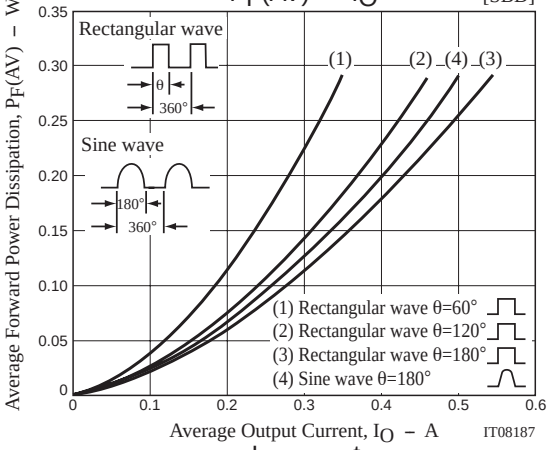
$I_F - V_F$ [SBD]



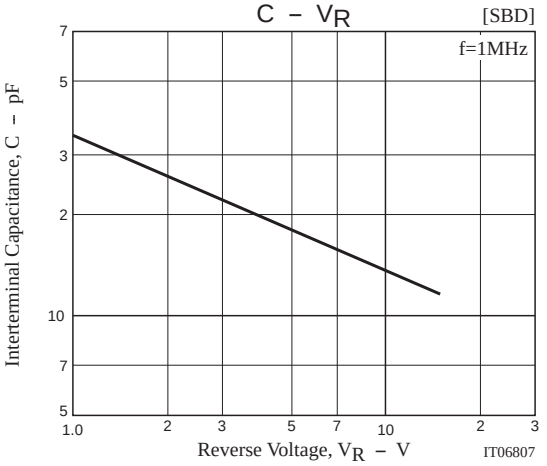
$I_R - V_R$ [SBD]



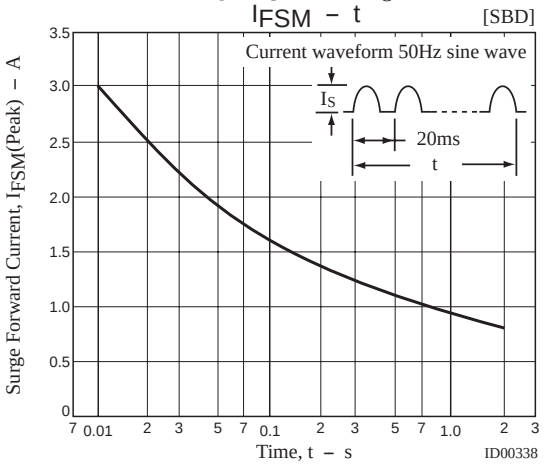
$P_{F(AV)} - I_O$ [SBD]



$C - V_R$ [SBD]



$I_{FSM} - t$ [SBD]



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

This catalog provides information as of June, 2007. Specifications and information herein are subject to change without notice.