



# SCH1301 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

### Specifications

**Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-12	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±8	V
Drain Current (DC)	I <sub>D</sub>		-2.4	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-9.6	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm <sup>2</sup> X0.8mm)	0.8	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics** at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-12			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DSS</sub> =-4V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DSS</sub> =-12V, V <sub>GS</sub> =0V			-10	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±6.4V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-6V, I <sub>D</sub> =-1mA	-0.3		-1.0	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-6V, I <sub>D</sub> =-1.3A	2.52	4.2		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-1.3A, V <sub>GS</sub> =-4.5V		90	120	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-0.7A, V <sub>GS</sub> =-2.5V		125	175	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =-0.3A, V <sub>GS</sub> =-1.8V		165	280	mΩ
	R <sub>DS(on)4</sub>	I <sub>D</sub> =-0.1A, V <sub>GS</sub> =-1.5V		330	580	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-6V, f=1MHz		450		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =-6V, f=1MHz		100		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =-6V, f=1MHz		85		pF

Marking : JA

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# SCH1301

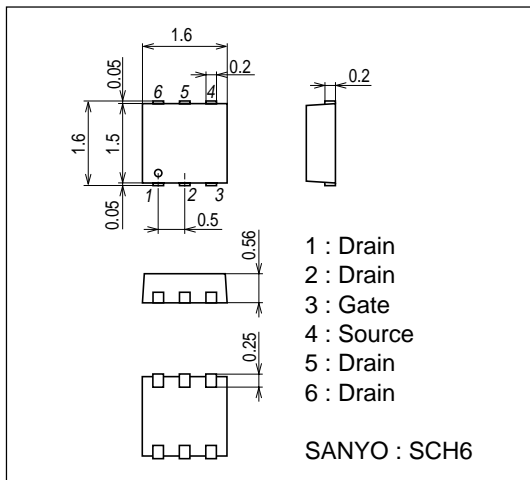
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		15		ns
Rise Time	$t_r$	See specified Test Circuit.		70		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		65		ns
Fall Time	$t_f$	See specified Test Circuit.		50		ns
Total Gate Charge	$Q_g$	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.6A$		6.5		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.6A$		0.8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.6A$		2.0		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-2.6A, V_{GS}=0V$		-0.87	-1.5	V

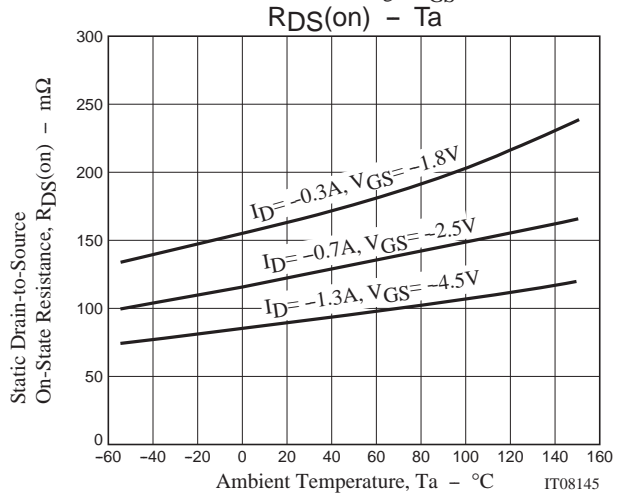
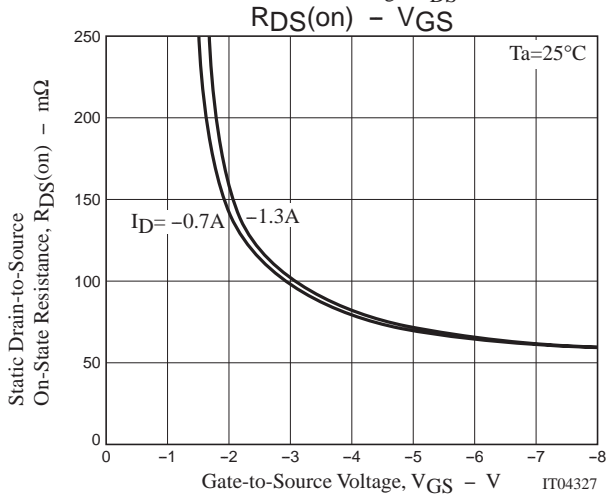
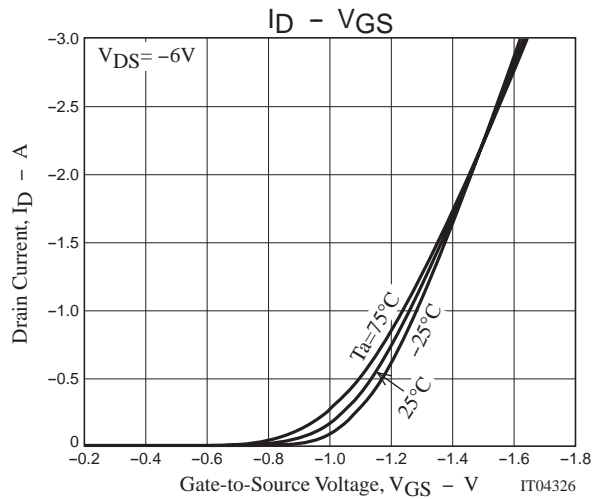
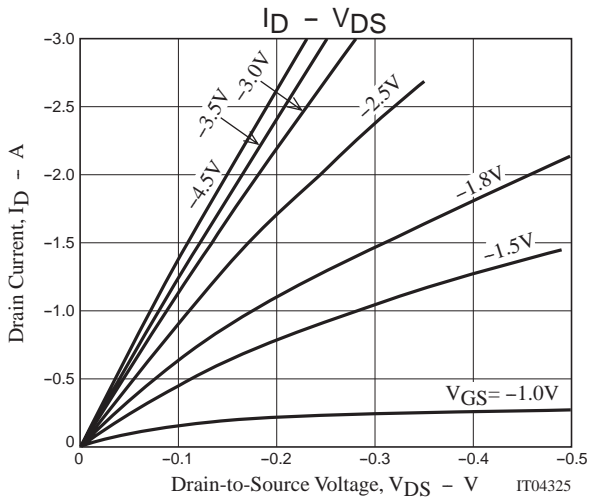
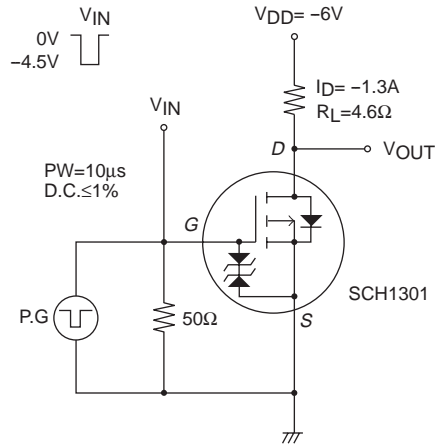
## Package Dimensions

unit : mm

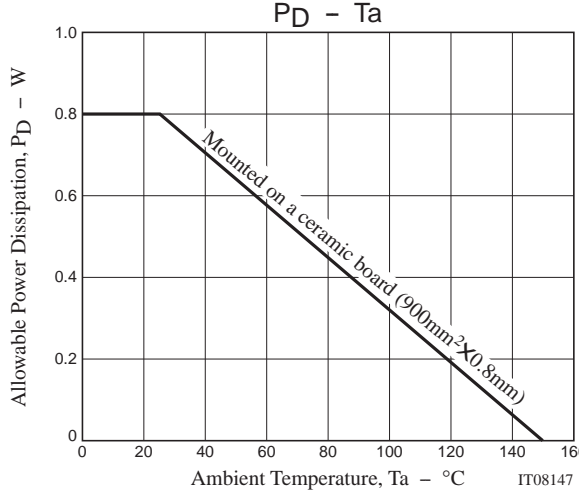
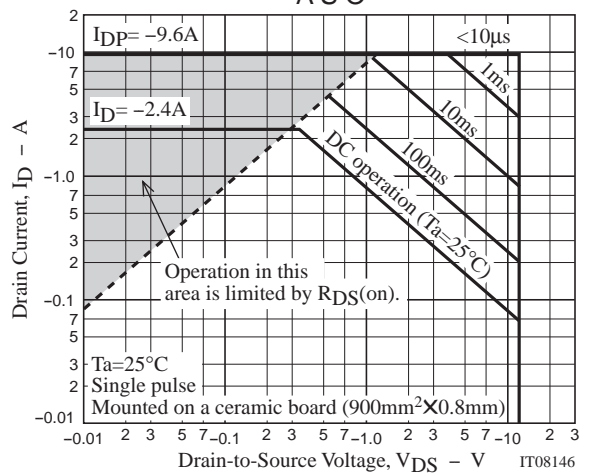
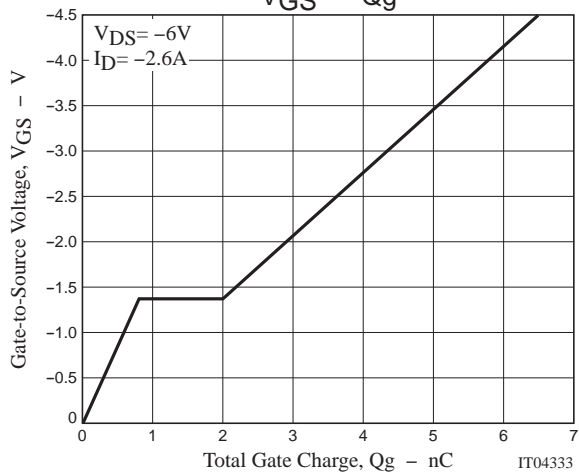
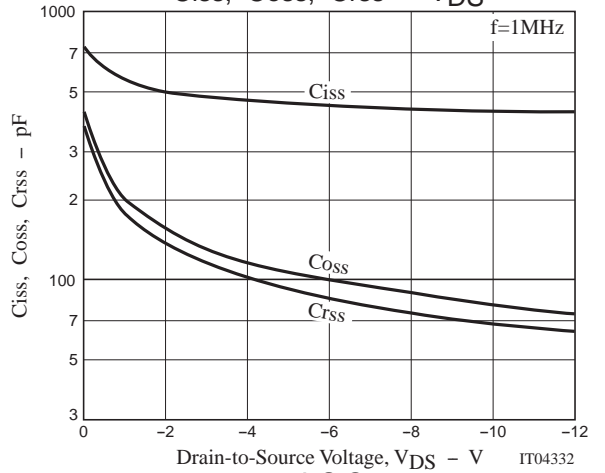
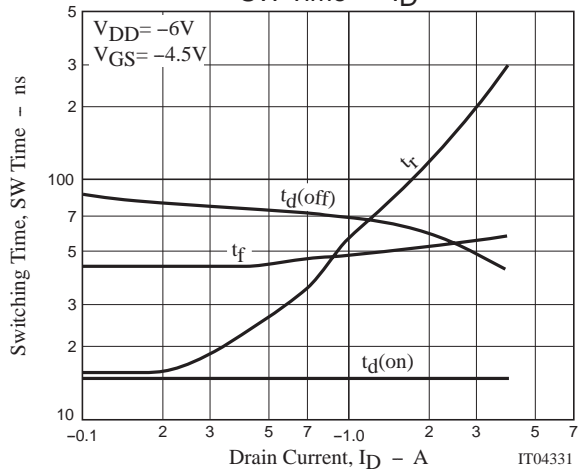
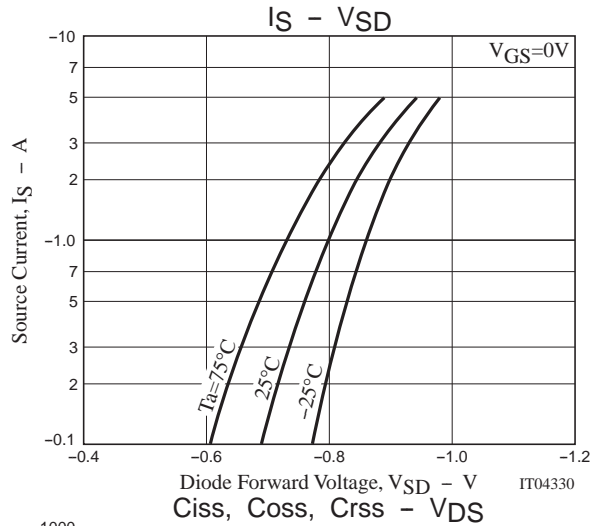
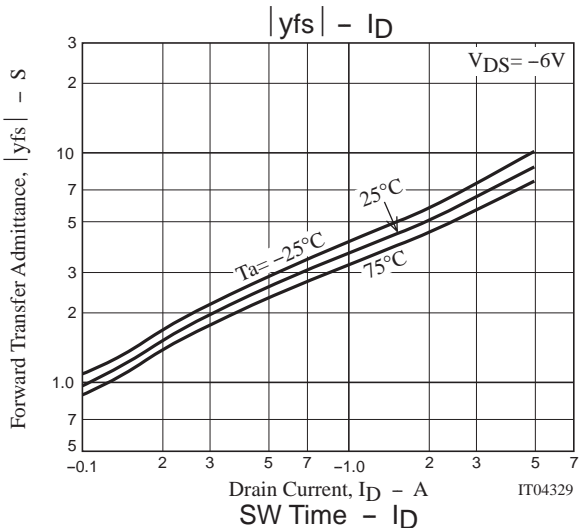
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## Switching Time Test Circuit



# SCH1301



Note on usage : Since the SCH1301 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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