



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 $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-12	V
Gate-to-Source Voltage	V_{GS}		± 8	V
Drain Current (DC)	I_D		-2.4	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-9.6	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² X0.8mm)	0.8	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}$, $V_{GS}=0\text{V}$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-4\text{V}$, $V_{GS}=0\text{V}$			-1	μA
		$V_{DS}=-12\text{V}$, $V_{GS}=0\text{V}$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 6.4\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-6\text{V}$, $I_D=-1\text{mA}$	-0.3		-1.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-6\text{V}$, $I_D=-1.3\text{A}$	2.52	4.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-1.3\text{A}$, $V_{GS}=-4.5\text{V}$		90	120	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-0.7\text{A}$, $V_{GS}=-2.5\text{V}$		125	175	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=-0.3\text{A}$, $V_{GS}=-1.8\text{V}$		165	280	$\text{m}\Omega$
	$R_{DS(on)4}$	$I_D=-0.1\text{A}$, $V_{GS}=-1.5\text{V}$		330	580	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-6\text{V}$, $f=1\text{MHz}$		450		pF
Output Capacitance	C_{oss}	$V_{DS}=-6\text{V}$, $f=1\text{MHz}$		100		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-6\text{V}$, $f=1\text{MHz}$		85		pF

Marking : JA

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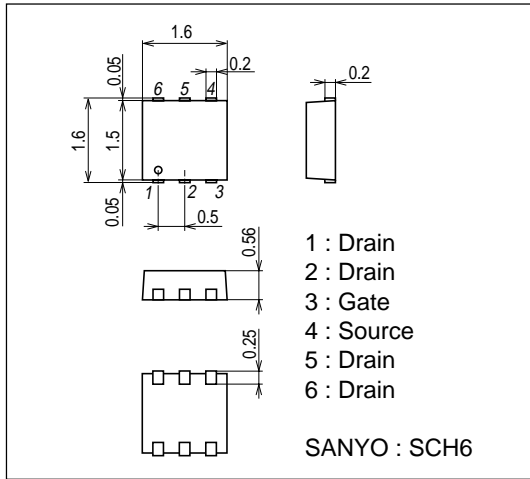
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		15		ns
Rise Time	t_r	See specified Test Circuit.		70		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		65		ns
Fall 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

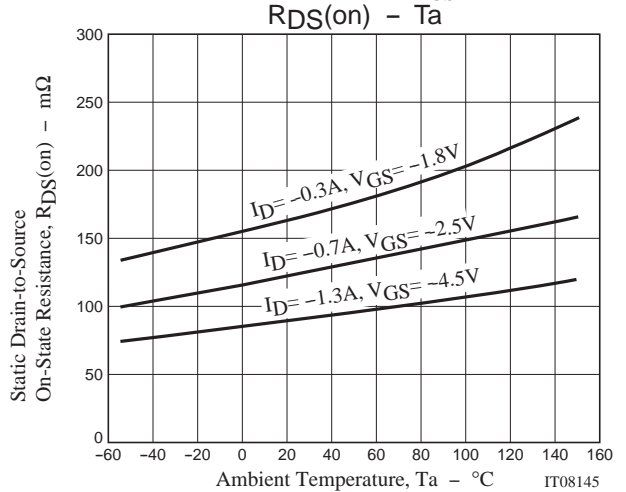
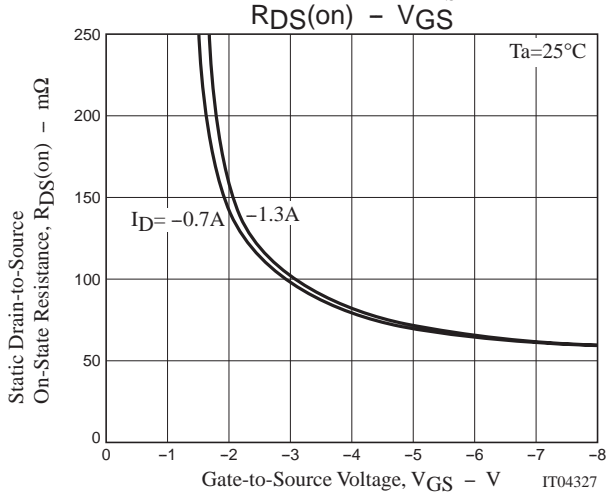
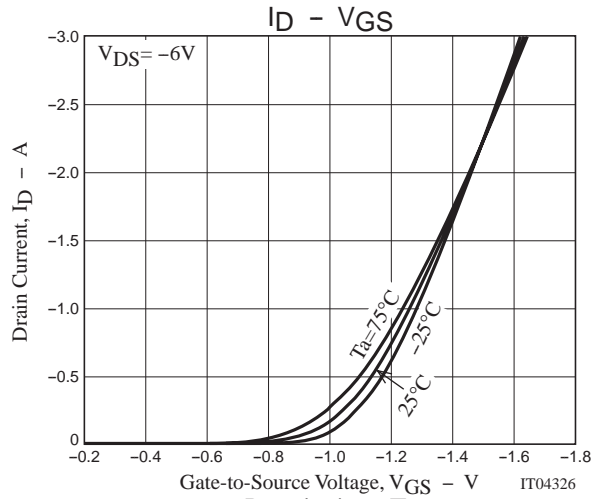
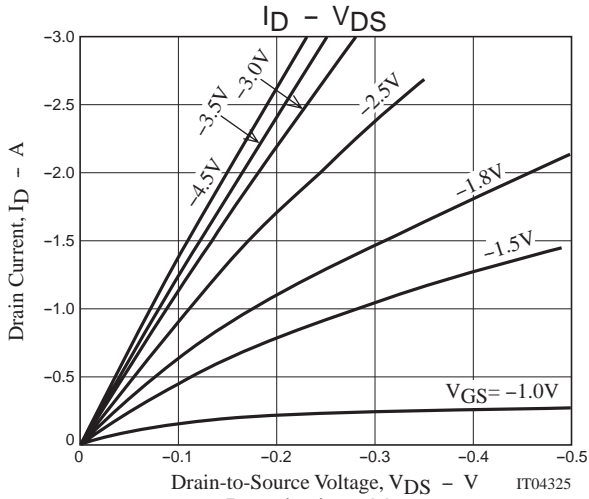
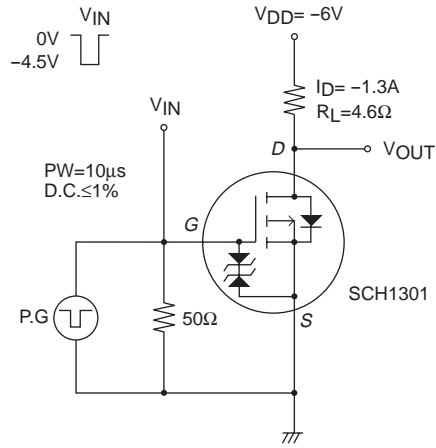
Package Dimensions

unit : mm

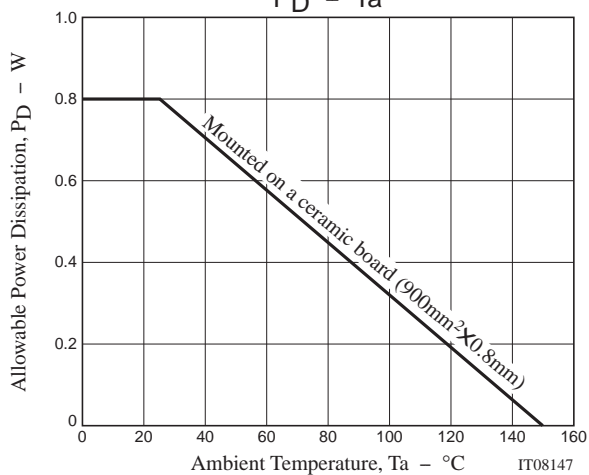
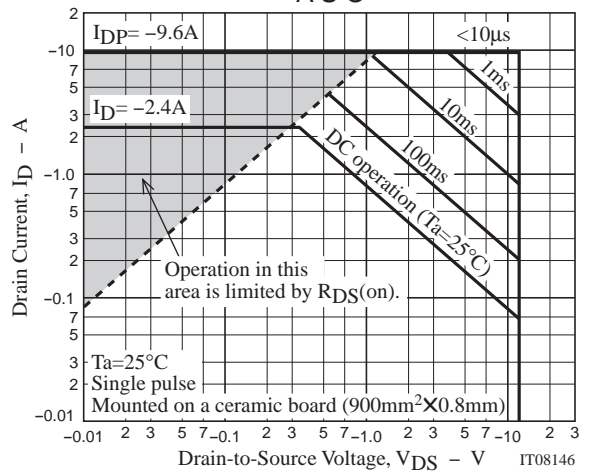
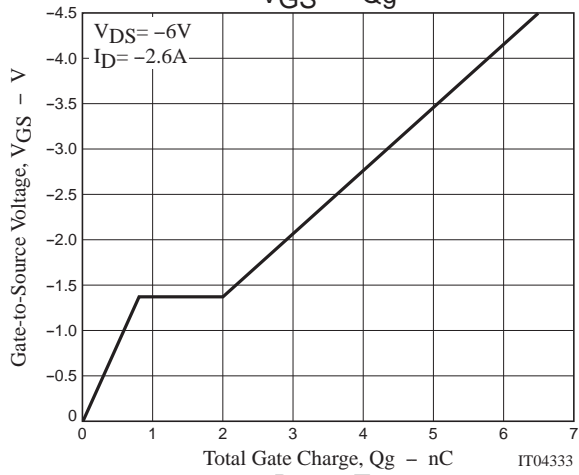
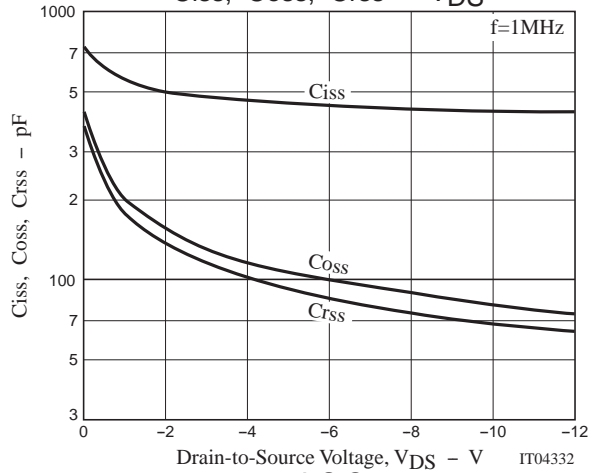
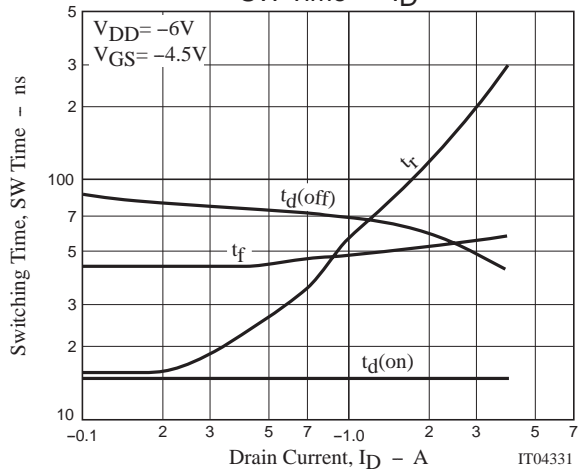
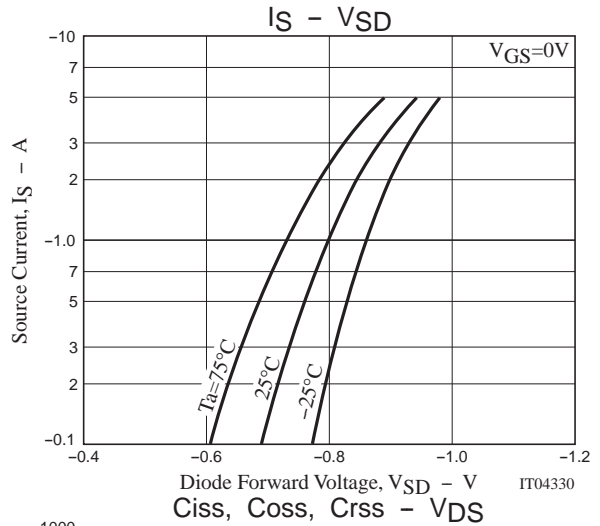
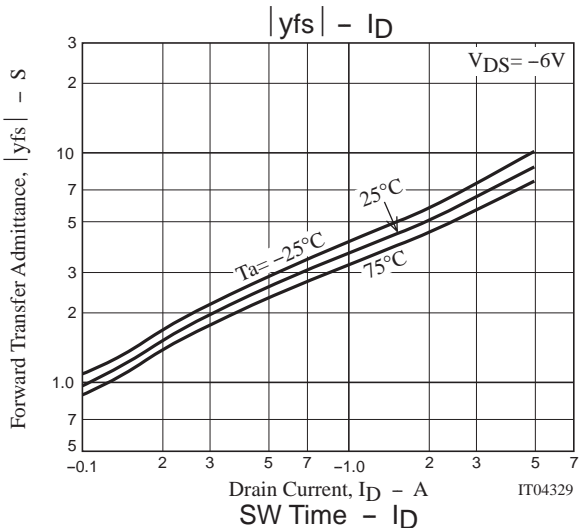
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Switching Time Test Circuit



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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