



ON Semiconductor®

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DATA SHEET

N-Channel Silicon MOSFET

SCH1406 — 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 _{DSS}		20	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		1.7	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)	0.8	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =1A	1.9	2.8		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =1A, V _{GS} =4V		160	210	mΩ
	R _{DS(on)2}	I _D =0.5A, V _{GS} =2.5V		200	280	mΩ
	R _{DS(on)3}	I _D =0.1A, V _{GS} =1.8V		280	390	mΩ

Marking : KF

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SCH1406

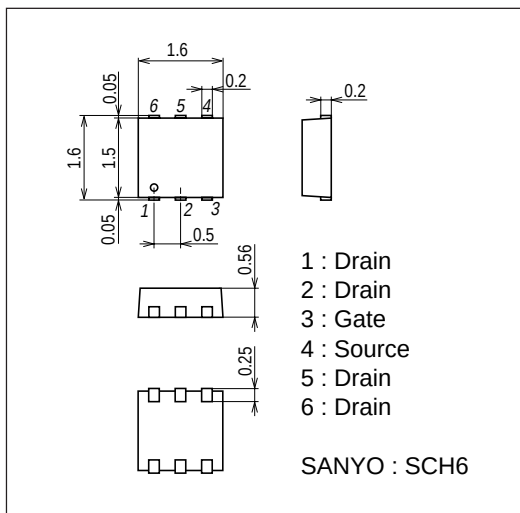
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V, f=1MHz$		100		pF
Output Capacitance	Coss	$V_{DS}=10V, f=1MHz$		22		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V, f=1MHz$		15		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		5.5		ns
Rise Time	t_r	See specified Test Circuit		18		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		17		ns
Fall Time	t_f	See specified Test Circuit		8		ns
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=10V, I_D=1.2A$		4.5		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V, V_{GS}=10V, I_D=1.2A$		0.4		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V, V_{GS}=10V, I_D=1.2A$		0.4		nC
Diode Forward Voltage	V_{SD}	$I_S=-1.2A, V_{GS}=0V$		0.9	1.2	V

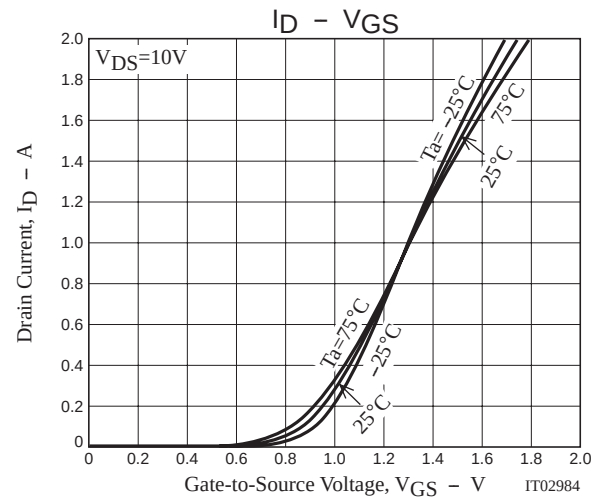
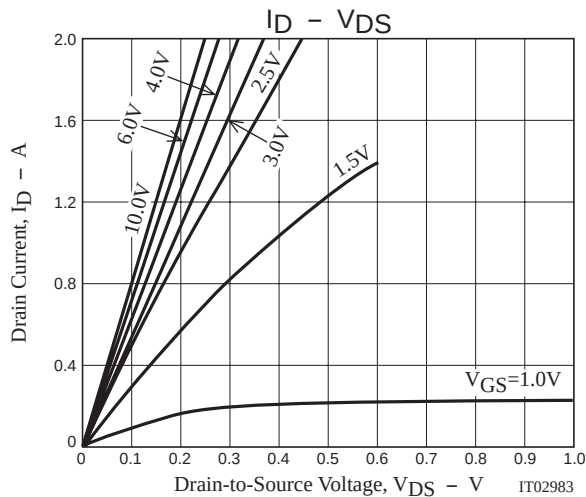
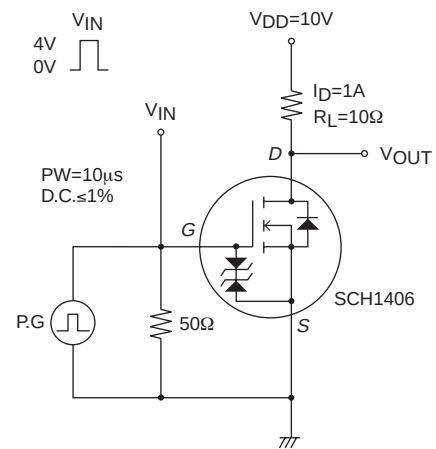
Package Dimensions

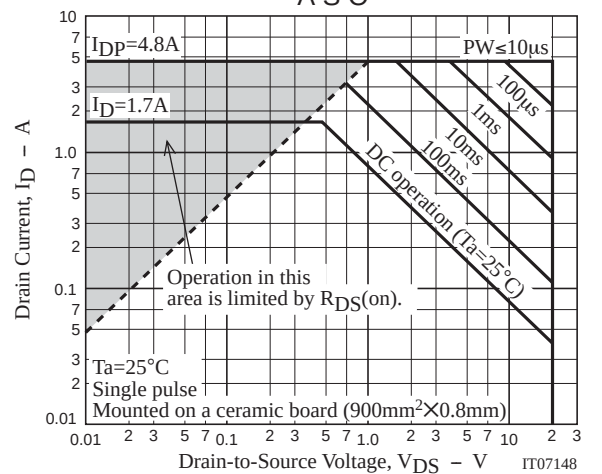
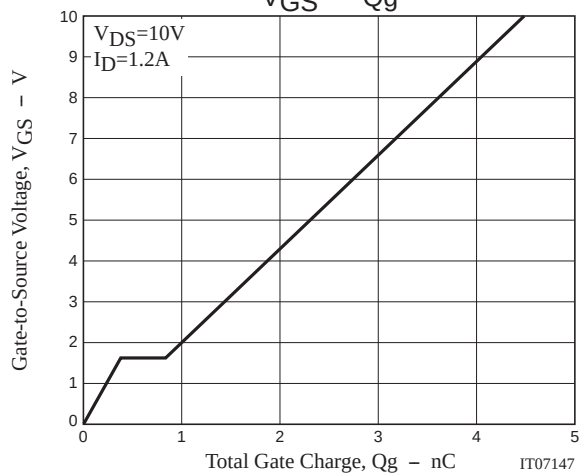
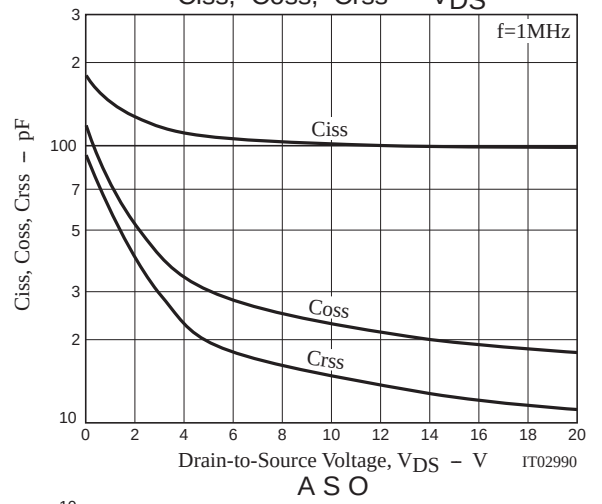
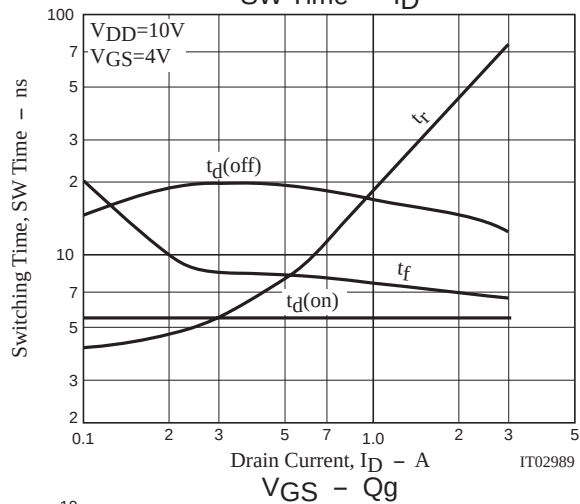
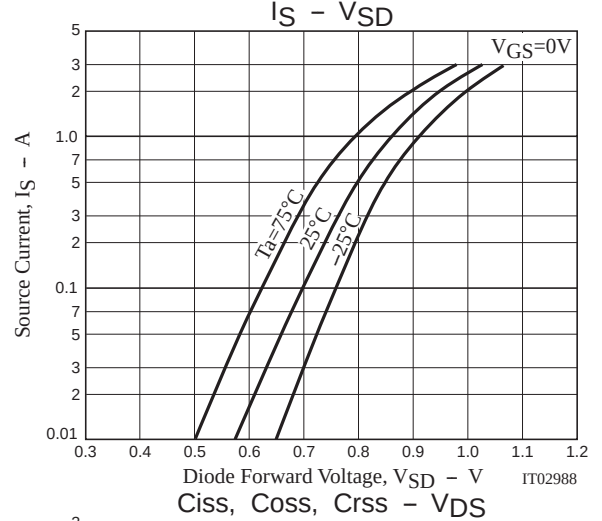
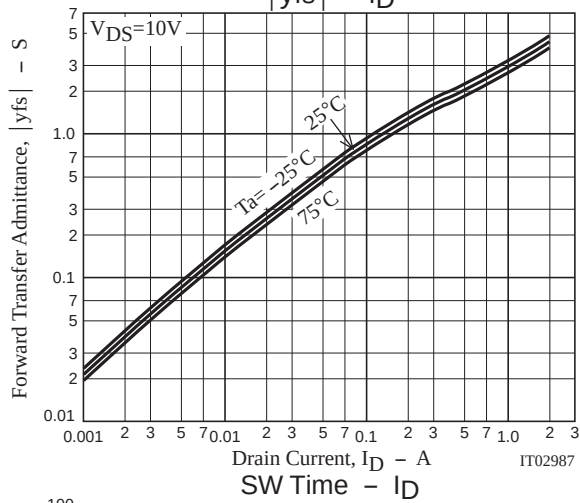
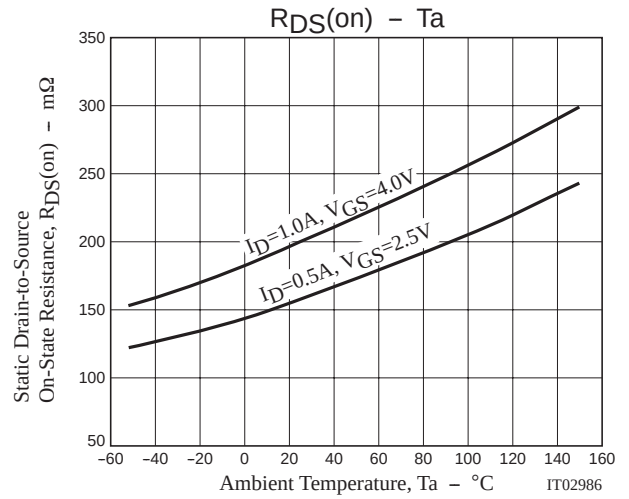
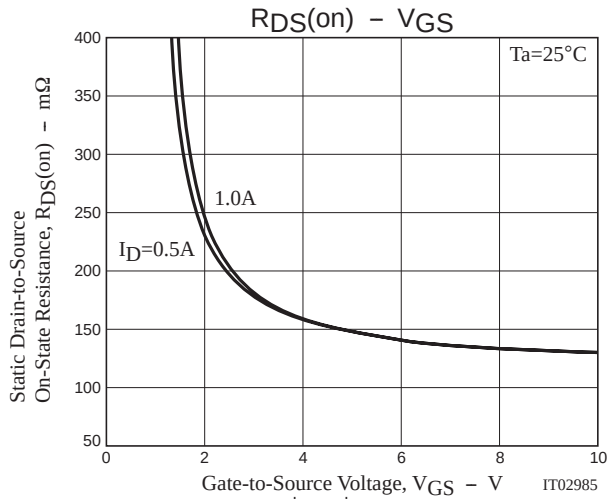
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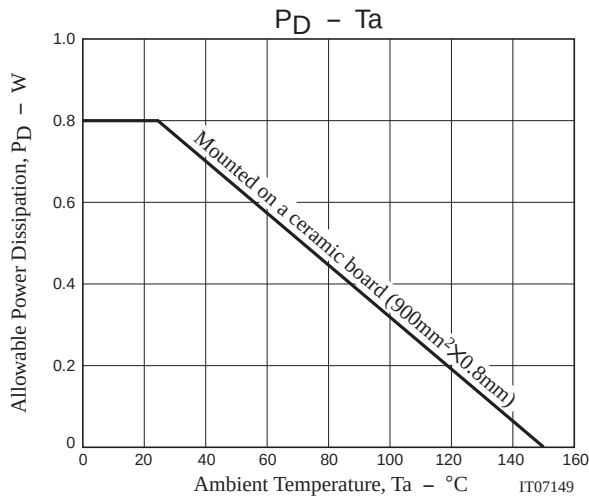
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Switching Time Test Circuit







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