



N-Channel Silicon MOSFET

2SK3980 — 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}		60	V
Gate-to-Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		0.9	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	3.6	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (250mm ² X0.8mm)	0.9	W
		T _c =25°C	3.5	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	60			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GSS(off)}	V _{DS} =10V, I _D =1mA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =0.5A	0.9	1.5		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =0.5A, V _{GS} =4V		635	830	mΩ
	R _{DS(on)2}	I _D =0.3A, V _{GS} =2.5V		705	990	mΩ
	R _{DS(on)3}	I _D =0.1A, V _{GS} =1.8V		850	1310	mΩ
Input Capacitance	C _{iss}	V _{DS} =20V, f=1MHz		100		pF
Output Capacitance	C _{oss}	V _{DS} =20V, f=1MHz		9.5		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =20V, f=1MHz		6.7		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		8.8		ns
Rise Time	t _r	See specified Test Circuit.		10.5		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		21.5		ns
Fall Time	t _f	See specified Test Circuit.		15.8		ns

Marking : LS

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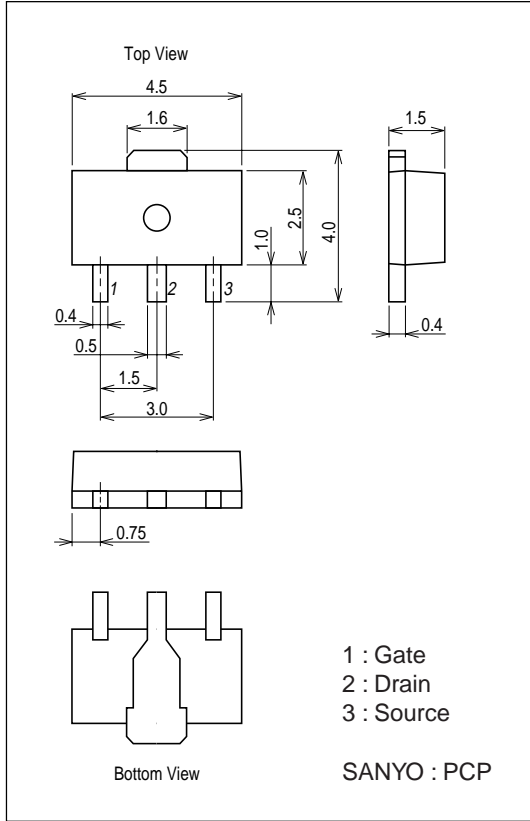
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =30V, V _{GS} =4V, I _D =0.9A		2.1		nC
Gate-to-Source Charge	Qgs	V _{DS} =30V, V _{GS} =4V, I _D =0.9A		0.39		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =30V, V _{GS} =4V, I _D =0.9A		0.28		nC
Diode Forward Voltage	V _{SD}	I _S =0.9A, V _{GS} =0V		0.91	1.2	V

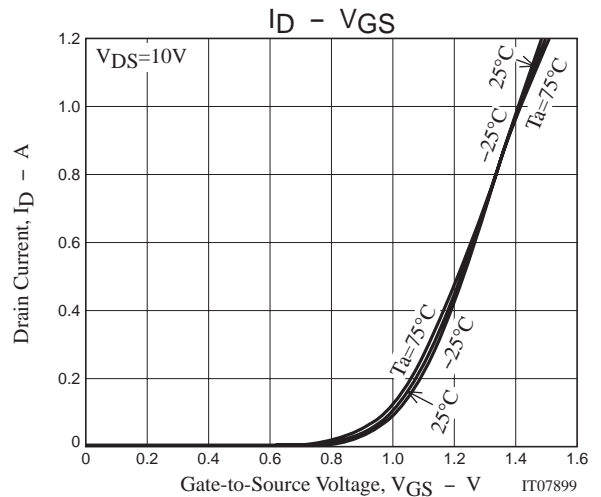
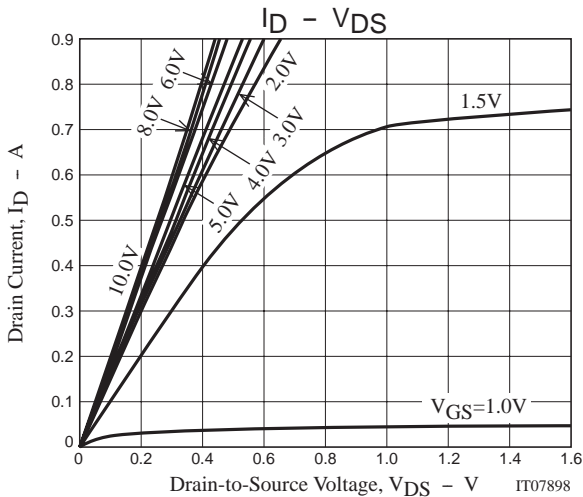
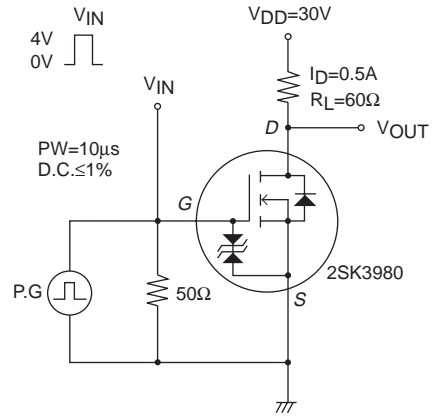
Package Dimensions

unit : mm (typ)

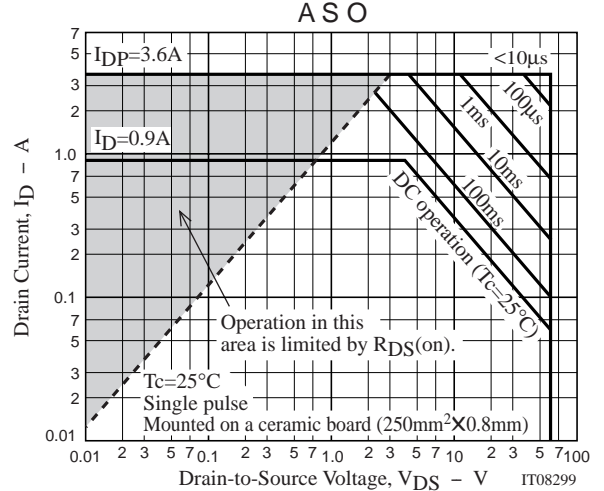
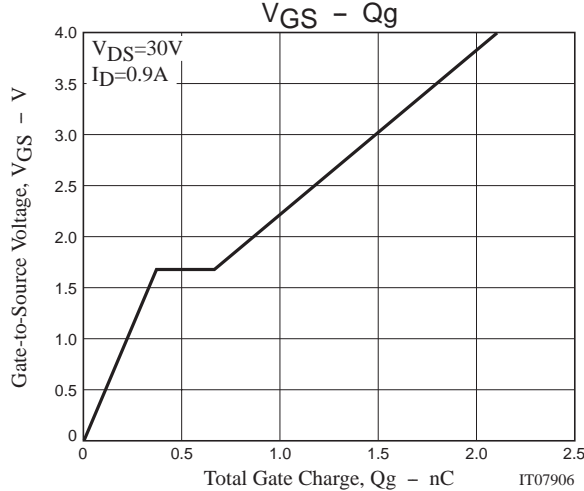
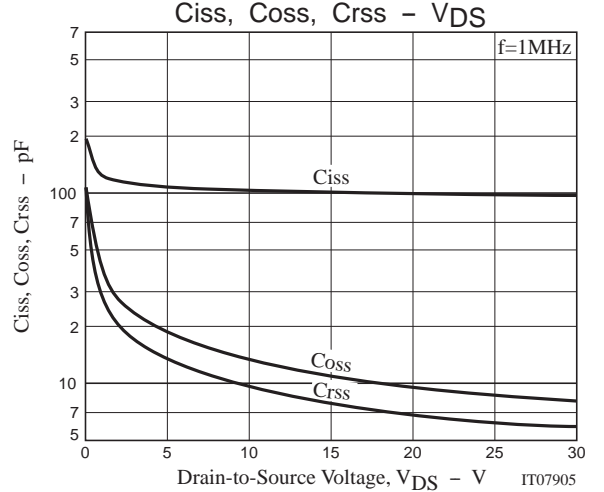
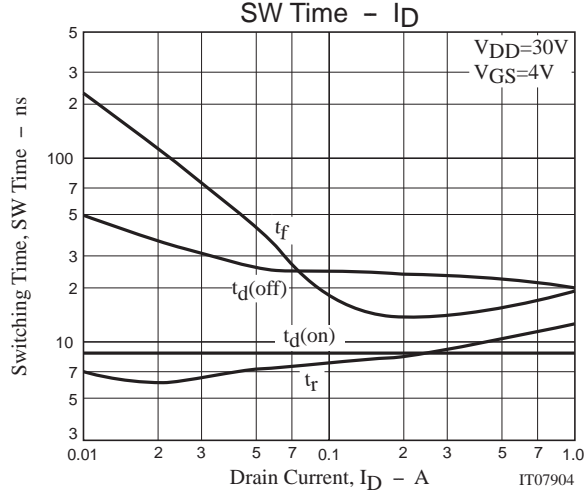
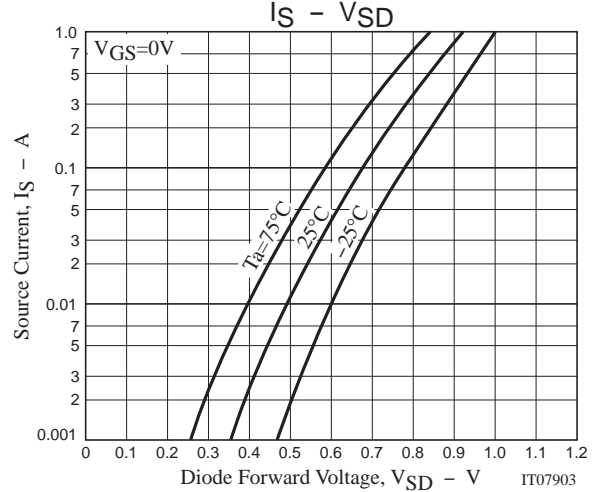
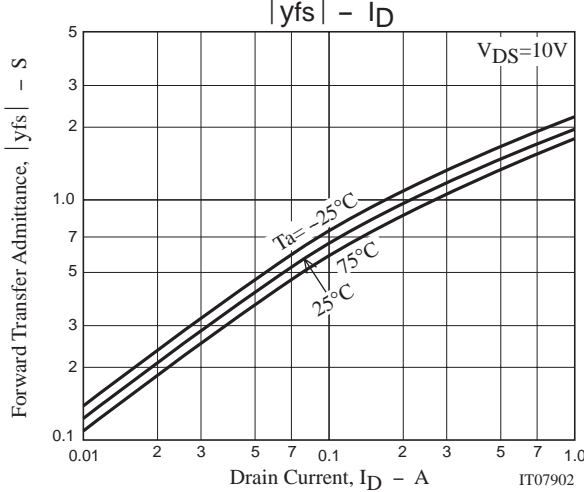
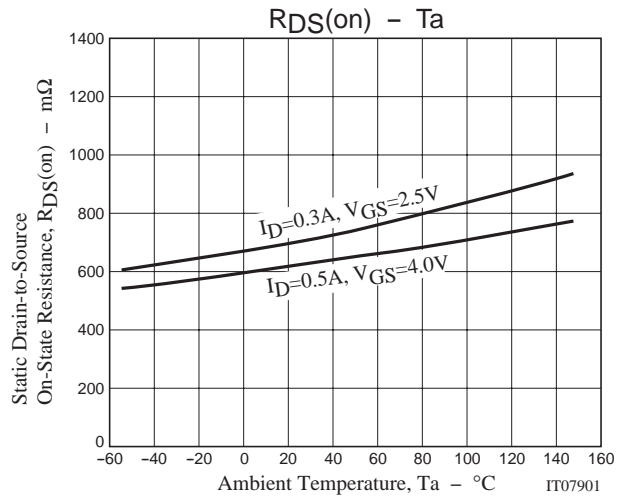
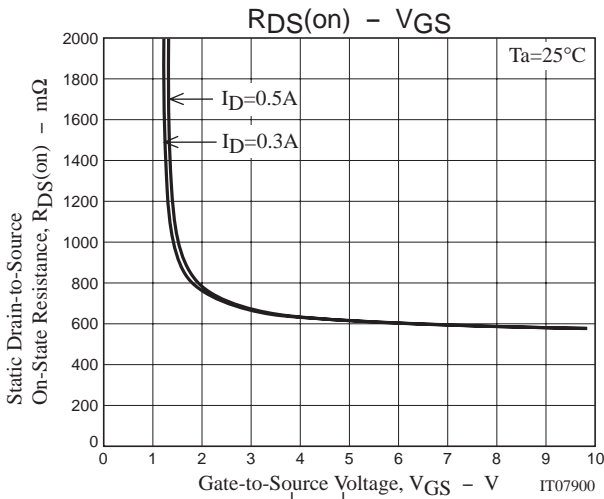
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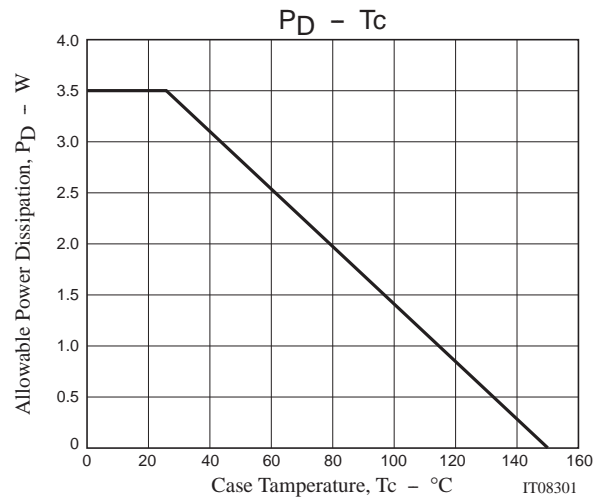
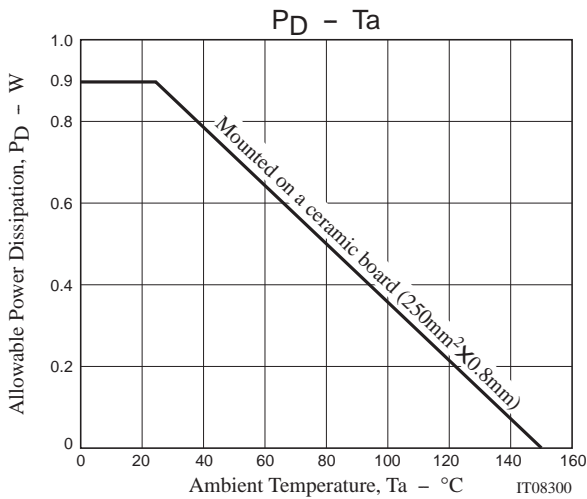
Switching Time Test Circuit



2SK3980



2SK3980



Note on usage : Since the 2SK3980 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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