2.5V Drive Nch MOS FET

2SK3019

Structure

Silicon N-channel MOSFET

Applications

Interfacing, switching (30V, 100mA)

●Features

- 1) Low on-resistance.
- 2) Fast switching speed.
- 3) Low voltage drive (2.5V) makes this device ideal for portable equipment.
- 4) Drive circuits can be simple.
- 5) Parallel use is easy.

Packaging specifications

Туре	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SK3019		0

● Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		VDSS	30	V
Gate-source voltage		Vgss	±20	V
Drain current	Continuous	lσ	±100	mA
Drain current	Pulsed	IDP*1	±400	mA
Total power dissipation		Po*2	150	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

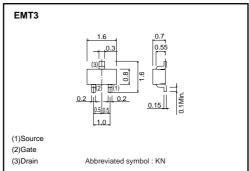
- *1 Pw≤10 μ s, Duty cycle≤1%
- *2 With each pin mounted on the recommended lands.

●Thermal resistance

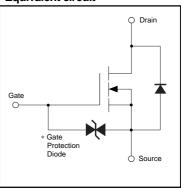
Parameter	Symbol	Limits	Unit
Channel to ambient	Rth(ch-a)*	833	°C / W

^{*} With each pin mounted on the recommended lands.

●Dimensions (Unit:mm)



●Equivalent circuit



*A protection diode is included between the gate and the source terminals to protect the diode against static electricity when the product is in use. Use a protection circuit when the fixed voltages are exceeded.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	Igss	-	-	±1	μА	Vgs=±20V, Vps=0V
Drain-source breakdown voltage	V(BR)DSS	30	-	_	V	In=10μA, Vgs=0V
Zero gate voltage drain current	IDSS	_	_	1.0	μΑ	V _{DS} =30V, V _{GS} =0V
Gate threshold voltage	VGS(th)	0.8	-	1.5	V	V _{DS} =3V, I _D =100μA
Static drain-source on-state	RDS(on)	-	5	8	Ω	In=10mA, Vgs=4V
resistance	RDS(on)	-	7	13	Ω	In=1mA, Vgs=2.5V
Forward transfer admittance	Yfs	20	-	_	ms	In=10mA, Vns=3V
Input capacitance	Ciss	-	13	_	pF	V _{DS} =5V
Output capacitance	Coss	-	9	_	pF	Vgs=0V
Reverse transfer capacitance	Crss	-	4	-	pF	f=1MHz
Turn-on delay time	td(on)	-	15	-	ns	I _D =10mA, V _D D ≒5V
Rise time	tr	_	35	-	ns	V _G S=5V
Turn-off delay time	td(off)	_	80	_	ns	RL=500Ω
Fall time	tf	_	80	_	ns	R _G =10Ω

•Electrical characteristic curves

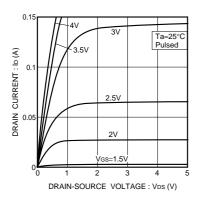


Fig.1 Typical output characteristics

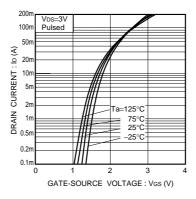


Fig.2 Typical transfer characteristics

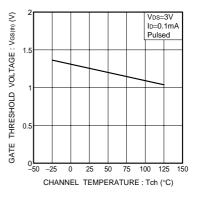


Fig.3 Gate threshold voltage vs. channel temperature

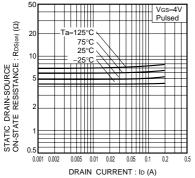


Fig.4 Static drain-source on-state resistance vs. drain current (I)

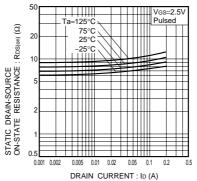


Fig.5 Static drain-source on-state resistance vs. drain current (II)

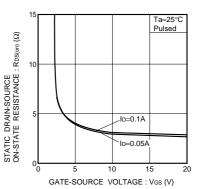


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

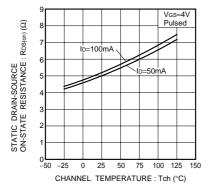


Fig.7 Static drain-source on-state resistance vs. channel temperature

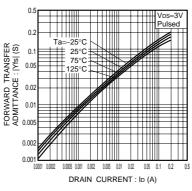


Fig.8 Forward transfer admittance vs. drain current

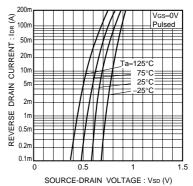


Fig.9 Reverse drain current vs. source-drain voltage (I)

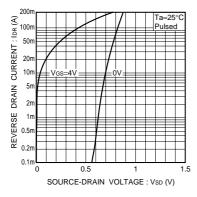


Fig.10 Reverse drain current vs. source-drain voltage (II)

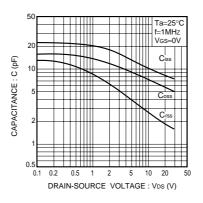


Fig.11 Typical capacitance vs. drain-source voltage

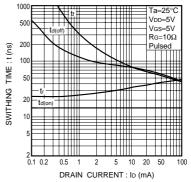


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

•Switching characteristics measurement circuit

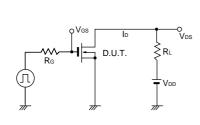


Fig.13 Switching time measurement circuit

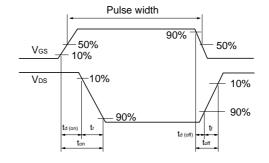


Fig.14 Switching time waveforms

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