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

	Package	
Type	Code	TL
, jpo	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 aurrant	Continuous	lo	±100	mA
Drain current	Pulsed	DP ^{*1}	±400	mA
Total power dissipation		Pd ^{*2}	150	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

∗1 Pw≤10µs, Duty cycle≤1%

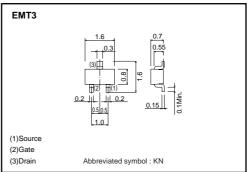
 $\ast 2$ With each pin mounted on the recommended lands.

Thermal resistance

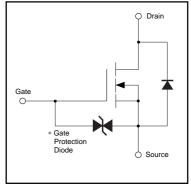
Parameter	Symbol	Limits	Unit	
Channel to ambient	Rth(ch-a)*	833	°C / W	

* 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.

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Transistor

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	lgss	-	-	±1	μΑ	Vgs=±20V, Vds=0V
Drain-source breakdown voltage	V(BR)DSS	30	-	-	V	ID=10µA, VGS=0V
Zero gate voltage drain current	Idss	-	-	1.0	μΑ	Vds=30V, Vgs=0V
Gate threshold voltage	VGS(th)	0.8	-	1.5	V	Vds=3V, Id=100µA
Static drain-source on-state	RDS(on)	_	5	8	Ω	ID=10mA, VGS=4V
resistance	RDS(on)	-	7	13	Ω	ID=1mA, VGs=2.5V
Forward transfer admittance	Y _{fs}	20	-	-	ms	ID=10mA, VDS=3V
Input capacitance	Ciss	-	13	-	pF	Vds=5V
Output capacitance	Coss	-	9	-	pF	Vgs=0V
Reverse transfer capacitance	Crss	-	4	-	pF	f=1MHz
Turn-on delay time	td(on)	-	15	-	ns	ID=10mA, VDD≒5V
Rise time	tr	-	35	-	ns	Vgs=5V
Turn-off delay time	td(off)	_	80	-	ns	R∟=500Ω
Fall time	tr	-	80	-	ns	R _G =10Ω

●Electrical characteristics (Ta=25°C)

Electrical characteristic curves

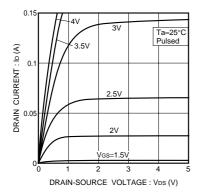


Fig.1 Typical output characteristics

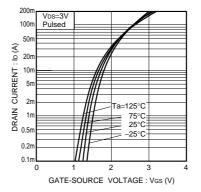


Fig.2 Typical transfer characteristics

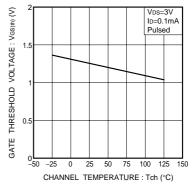
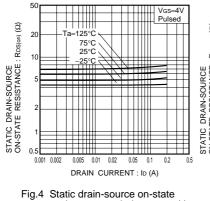
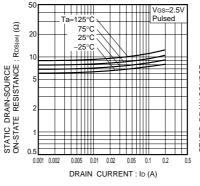
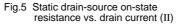


Fig.3 Gate threshold voltage vs. channel temperature



resistance vs. drain current (I)





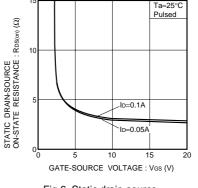


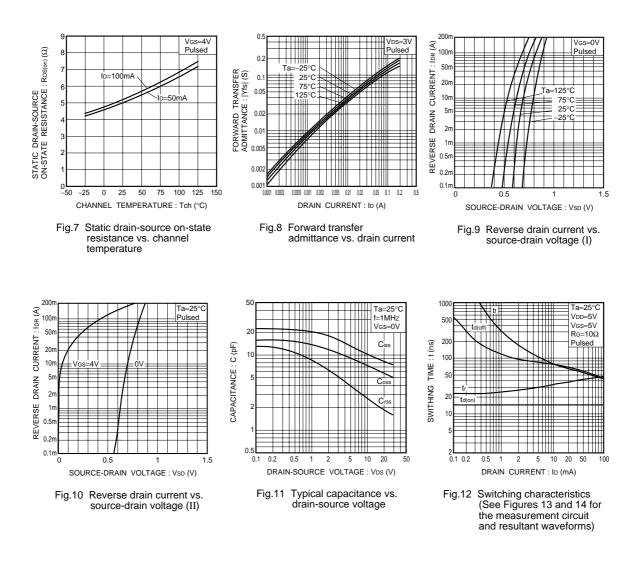
Fig.6 Static drain-source on-state resistance vs. gate-source voltage

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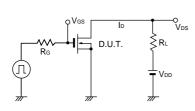
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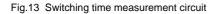
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Transistor



•Switching characteristics measurement circuit





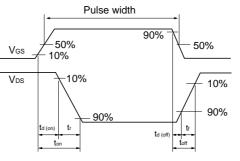


Fig.14 Switching time waveforms

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