Small switching (30V, 0.1A)

2SK3019

Applications

Interfacing, switching (30V, 100mA)

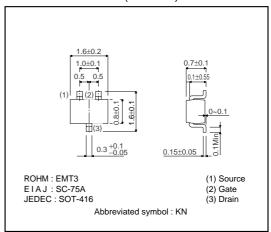
Features

- 1) Low on-resistance.
- 2) Fast switching speed.
- 3) Low voltage drive (2.5V) makes this device ideal for portable equipment.
- 4) Easily designed drive circuits.
- 5) Easy to parallel.

●Structure

Silicon N-channel MOSFET

●External dimensions (Unit : mm)

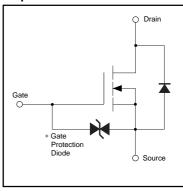


● Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		VDSS	30	V
Gate-source voltage		Vgss	±20	V
Drain current	Continuous	lo	±100	mA
	Pulsed	IDP*1	±400	mA
Total power dissipation (Tc=25°C)		Po*2	150	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

- *1 Pw≤10μs, Duty cycle≤50%
- *2 With each pin mounted on the recommended lands

●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	μΑ	Vgs=±20V, Vps=0V
Drain-source breakdown voltage	V(BR)DSS	30	_	_	V	In=10μA, Vgs=0V
Zero gate voltage drain current	Ipss	_	-	1.0	μΑ	V _{DS} =30V, V _{GS} =0V
Gate threshold voltage	VGS(th)	0.8	-	1.5	V	V _D S=3V, I _D =100μA
Static drain-source on-state resistance	RDS(on)	-	5	8	Ω	In=10mA, Vgs=4V
	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	V _G s=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	tr	-	80	-	ns	R _G =10Ω

Packaging specifications

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

•Electrical characteristic curves

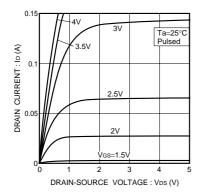


Fig.1 Typical output characteristics

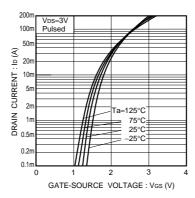


Fig.2 Typical transfer characteristics

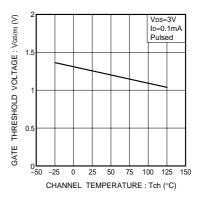


Fig.3 Gate threshold voltage vs. channel temperature

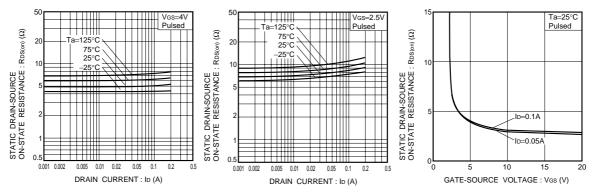


Fig.4 Static drain-source on-state resistance vs. drain current (I)

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

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

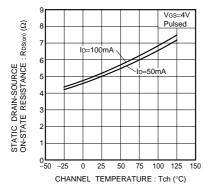


Fig.7 Static drain-source on-state resistance vs. channel temperature

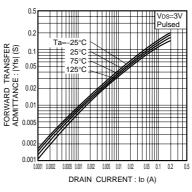


Fig.8 Forward transfer admittance vs. drain current

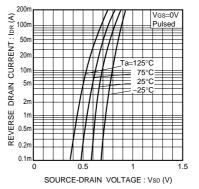


Fig.9 Reverse drain current vs. source-drain voltage (I)

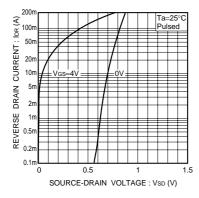


Fig.10 Reverse drain current vs. source-drain voltage (II)

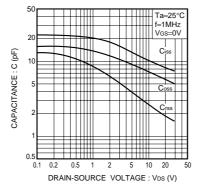


Fig.11 Typical capacitance vs. drain-source voltage

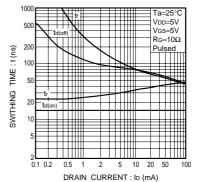
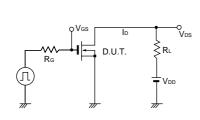


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

•Switching characteristics measurement circuit



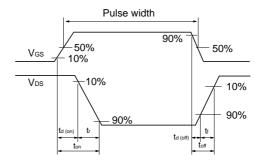


Fig.13 Switching time measurement circuit

Fig.14 Switching time waveforms



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