

Small switching (30V, 0.1A)

2SK3018

●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.

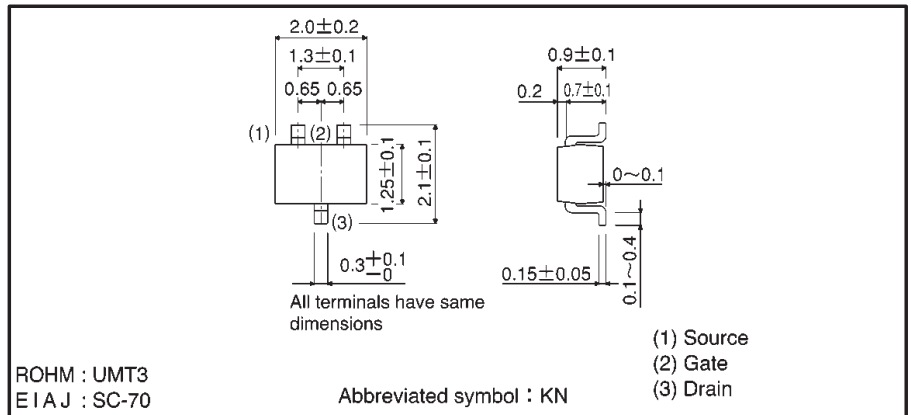
●Applications

Interfacing, switching (30V, 100mA)

●Structure

Silicon N-channel
MOSFET

●External dimensions (Units: mm)



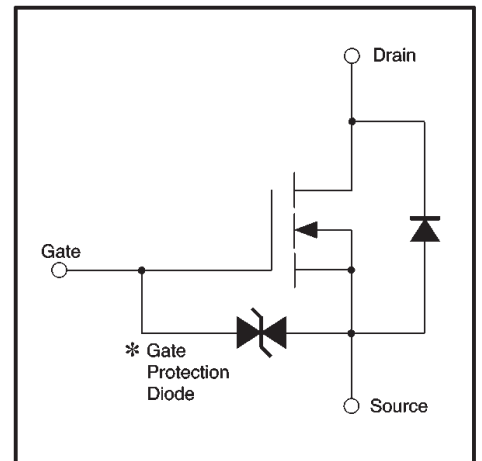
●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DS}	30	V
Gate-source voltage		V_{GS}	± 20	V
Drain current	Continuous	I_D	100	mA
	Pulsed	I_{DP}^{*1}	200	mA
Reverse drain current	Continuous	I_{DR}	100	mA
	Pulsed	I_{DRP}^{*1}	200	mA
Total power dissipation (Tc=25°C)		P_D^{*2}	200	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55~+150	°C

*1 $P_w \leq 10 \mu s$, Duty cycle $\leq 50\%$

*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.	Typ.	Max.	Unit	Test Conditions
Gate-source leakage	I _{GSS}	—	—	±1	μA	V _{GS} =±20V, V _{DS} =0V
Drain-source breakdown voltage	V _{(BR)DSS}	30	—	—	V	I _D =10 μA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	—	—	1	μA	V _{DS} =30V, V _{GS} =0V
Gate threshold voltage	V _{GS(th)}	0.8	—	1.5	V	V _{DS} =3V, I _D =100 μA
Static drain-source on-state resistance	R _{DS(on)}	—	5	8	Ω	I _D =10mA, V _{GS} =4V
	R _{DS(on)}	—	7	13	Ω	I _D =1mA, V _{GS} =2.5V
Forward transfer admittance	Y _{fs}	20	—	—	mS	V _{DS} =3V, I _D =10mA
Input capacitance	C _{iss}	—	13	—	pF	V _{DS} =5V
Output capacitance	C _{oss}	—	9	—	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	—	4	—	pF	f=1MHz
Turn-on delay time	t _{d(on)}	—	15	—	ns	I _D =10mA, V _{DD} ≧5V
Rise time	t _r	—	35	—	ns	V _{GS} =5V
Turn-off delay time	t _{d(off)}	—	80	—	ns	R _L =500 Ω
Fall time	t _f	—	80	—	ns	R _{GS} =10 Ω

●Packaging specifications

Type	Package	Taping
	Code	T106
	Basic ordering unit (pieces)	3000
2SK3018		○

●Electrical characteristic curves

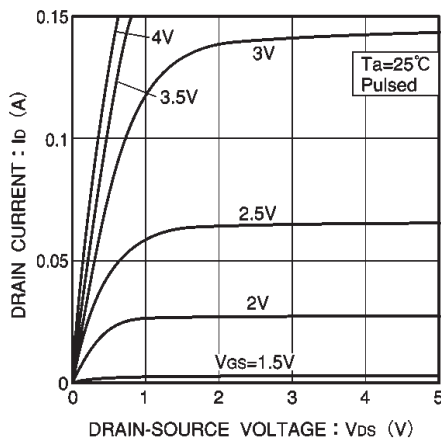


Fig.1 Typical output characteristics

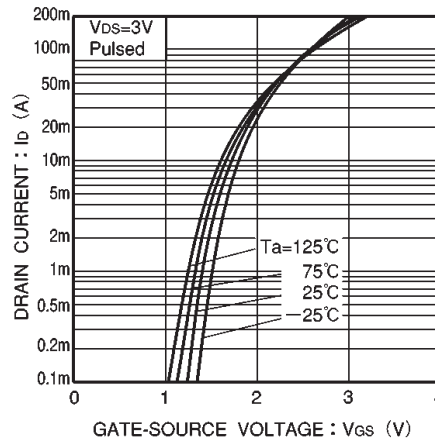


Fig.2 Typical transfer characteristics

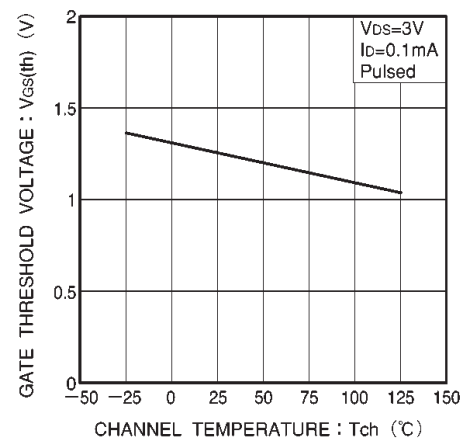


Fig.3 Gate threshold voltage vs. channel temperature

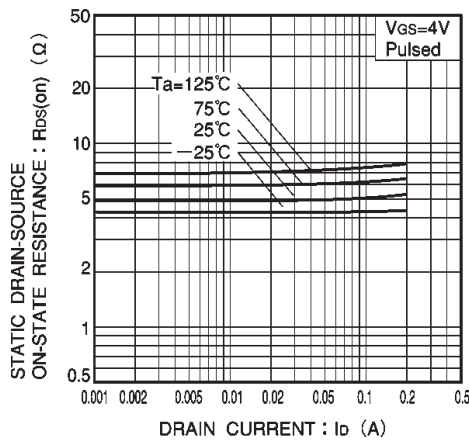


Fig.4 Static drain-source on-state resistance vs. drain current (I)

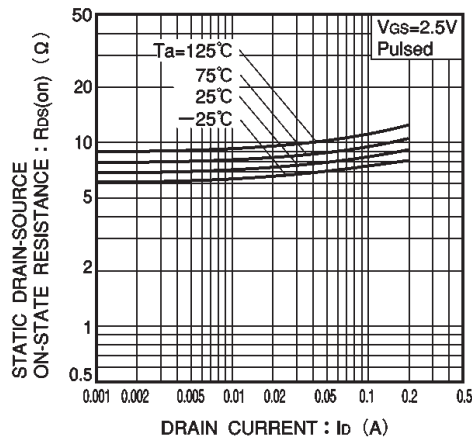


Fig.5 Static drain-source on-state resistance vs. drain current (II)

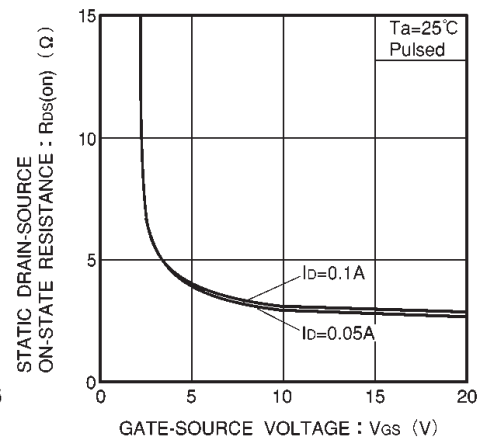


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

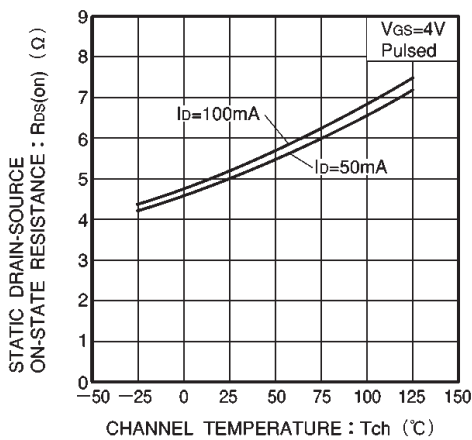


Fig.7 Static drain-source on-state resistance vs. channel temperature

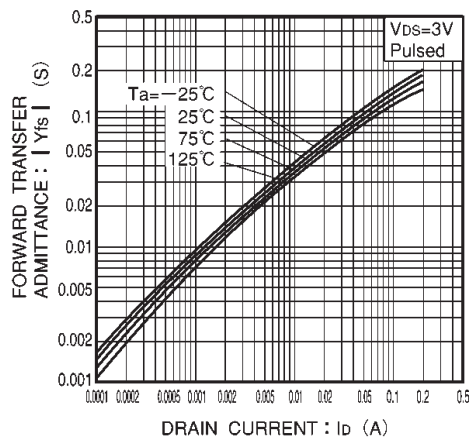


Fig.8 Forward transfer admittance vs. drain current

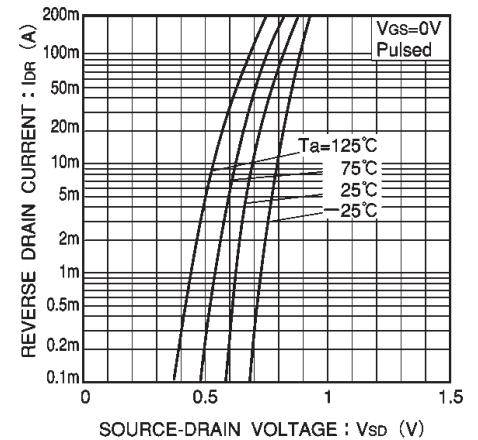


Fig.9 Reverse drain current vs. source-drain voltage (I)

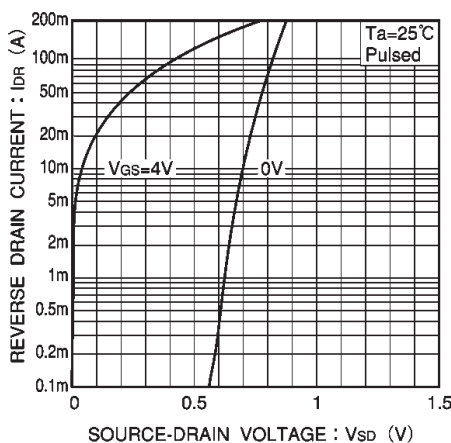


Fig.10 Reverse drain current vs. source-drain voltage (II)

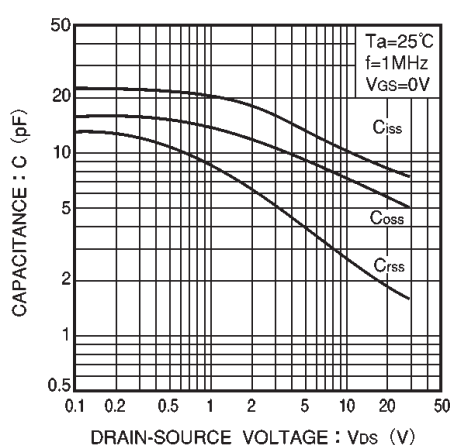


Fig.11 Typical capacitance vs. drain-source voltage

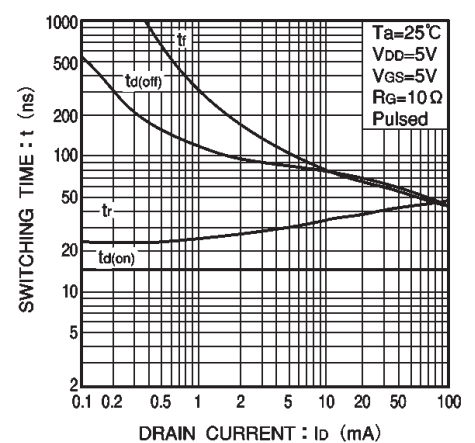


Fig.12 Switching characteristics (See Figures. 13 and 14 for the measurement circuit and resultant waveforms)

●Switching characteristics measurement circuit

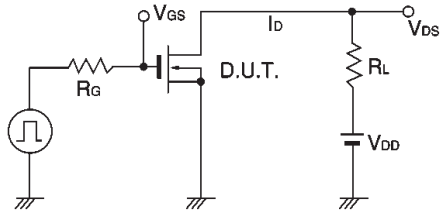


Fig.13 Switching time measurement circuit

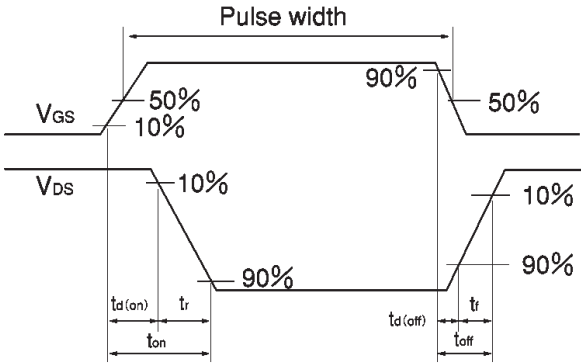


Fig.14 Switching time waveforms