方晶科技
FANGJING

2SK3018

2.5V Drive N-Channel MOSFET

●Structure

Silicon N-channel
MOSFET

●Applications

Interfacing, switching (30V, 100mA)

●Features

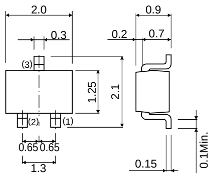
1) Low on-resistance.
2) Fast switching speed.
3) Low voltage drive (2.5V) makes this device ideal for portable equipment.
4) Drive circuits can be simple.
5) Parallel use is easy.

●Packaging specifications

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

●External dimensions (Unit : mm)

SOT-323

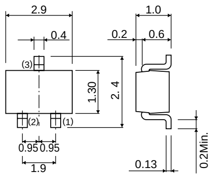


(1) Source
(2) Gate
(3) Drain

Each lead has same dimensions

Abbreviated symbol : KN

SOT-23



(1) Source
(2) Gate
(3) Drain

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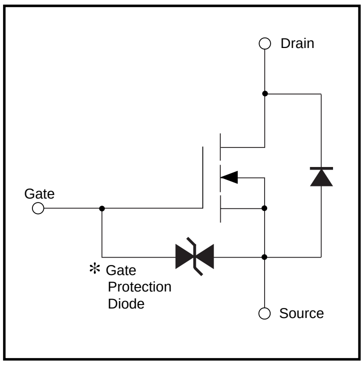
Abbreviated symbol : KN

●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	30	V
Gate-source voltage		V_{GSS}	±20	V
Drain current	Continuous	I_D	±100	mA
	Pulsed	I_{DP}*1	±400	mA
Total power dissipation		P_D*2	200	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	−55 to +150	°C

*1 Pw≤10µs, Duty cycle≤1%
*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.

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	Rth(ch-a) *	625	°C / W

* With each pin mounted on the recommended lands.

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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	–	–	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
Drain-source breakdown voltage	$V_{(BR)DSS}$	30	–	–	V	I_D = 10μA, 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 = 100μA
Static drain-source on-state resistance	$R_{DS(on)}$	–		8	Ω	I_D = 10mA, V_{GS} = 4V
	$R_{DS(on)}$	–		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 = 500Ω
Fall time	t_f	–	80	–	ns	R_G = 10Ω

●Electrical characteristic curves

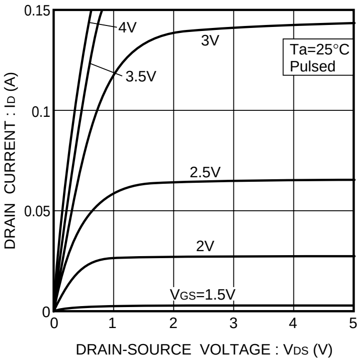

Fig.1 Typical output characteristics

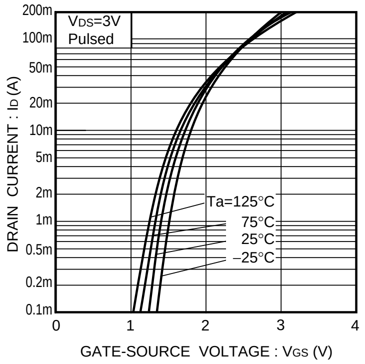

Fig.2 Typical transfer characteristics

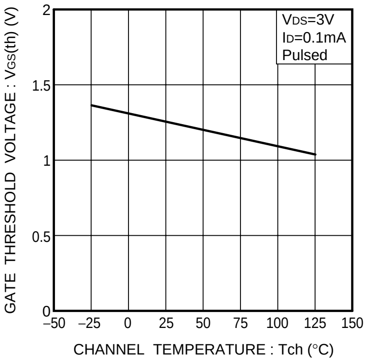

Fig.3 Gate threshold voltage vs. channel temperature

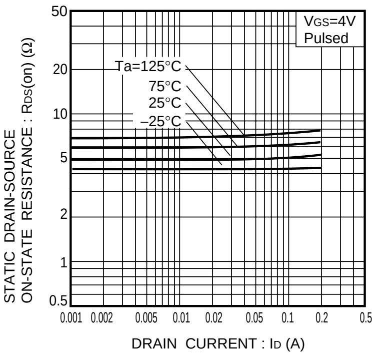

Fig.4 Static drain-source on-state resistance vs. drain current (I)

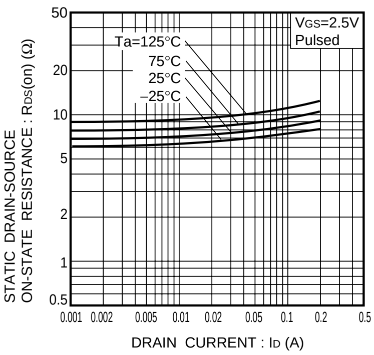

Fig.5 Static drain-source on-state resistance vs. drain current (II)

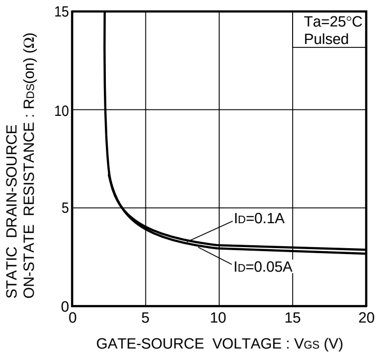

Fig.6 Static drain-source on-state resistance vs. gate-source voltage

2.5V Drive N-Channel MOSFET

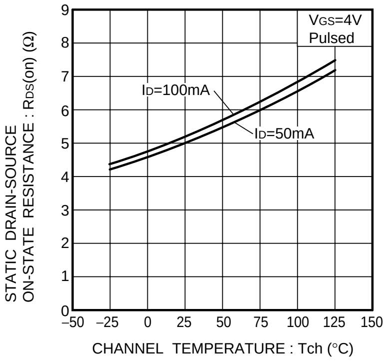

Fig.7 Static drain-source on-state resistance vs. channel temperature

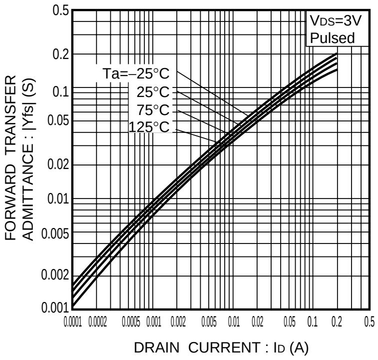

Fig.8 Forward transfer admittance vs. drain current

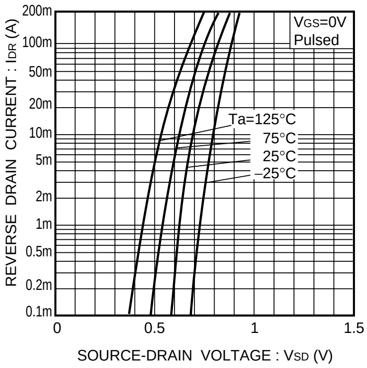

Fig.9 Reverse drain current vs. source-drain voltage (I)

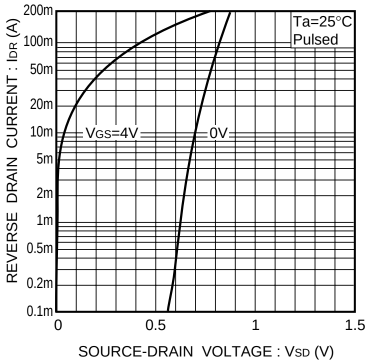

Fig.10 Reverse drain current vs. source-drain voltage (II)

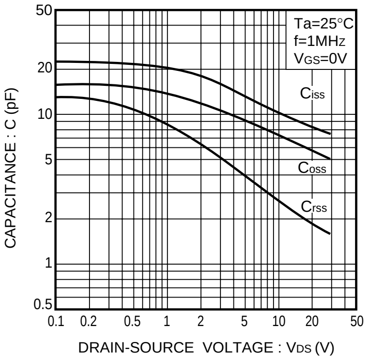

Fig.11 Typical capacitance vs. drain-source voltage

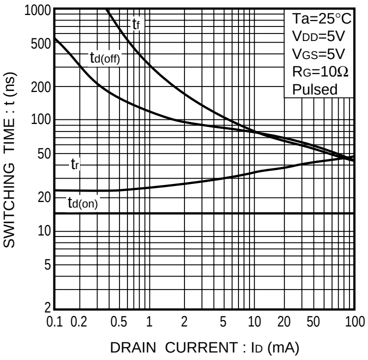

Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

●**Switching characteristics measurement circuit**

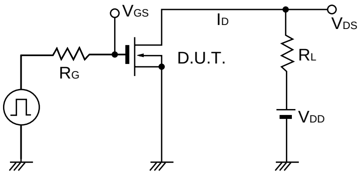

Fig.13 Switching time measurement circuit

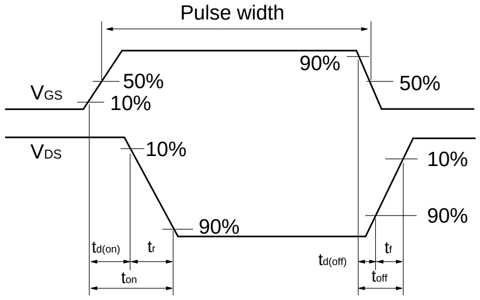

Fig.14 Switching time waveforms