

## Transistors

## 2.5V Drive Nch MOS FET

## RJK005N03

## ●Structure

Silicon N-channel MOS FET

## ●Features

- 1) Low On-resistance.
- 2) Low voltage drive (2.5V drive).

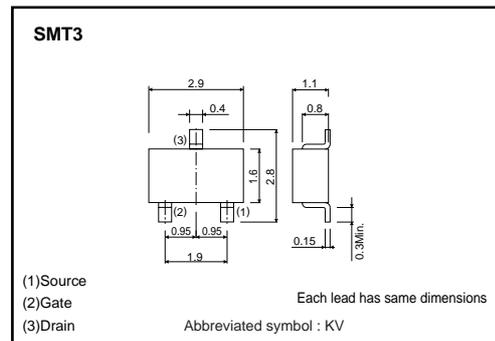
## ●Applications

Switching

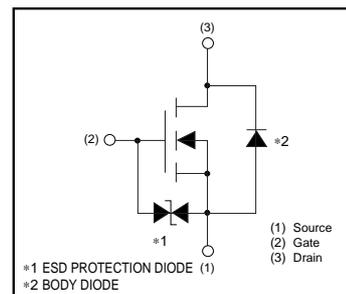
## ●Packaging specifications and hFE

Type	Package	Taping
	Code	T146
	Basic ordering unit (pieces)	3000
RJK005N03		○

## ●External dimensions (Unit : mm)



## ●Inner circuit



## ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	$V_{DSS}$	30	V
Gate-source voltage	$V_{GSS}$	$\pm 12$	V
Drain current	Continuous	$I_D$	$\pm 500$ mA
	Pulsed	$I_{DP}$ *1	$\pm 2.0$ A
Source current (Body Diode)	Continuous	$I_S$	200 mA
	Pulsed	$I_{SP}$ *1	800 mA
Total power dissipation	$P_D$ *2	200	mW
Channel temperature	$T_{ch}$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C

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

\*2 Each terminal mounted on a recommended land

## ●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$ *	625	°C/W

\* Each terminal mounted on a recommended land

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## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I <sub>GSS</sub>	–	–	±10	μA	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V
Drain-source breakdown voltage	V <sub>(BR) DSS</sub>	30	–	–	V	I <sub>D</sub> = 1mA, V <sub>GS</sub> =0V
Zero gate voltage drain current	I <sub>DSS</sub>	–	–	1	μA	V <sub>DS</sub> = 30V, V <sub>GS</sub> =0V
Gate threshold voltage	V <sub>GS(th)</sub>	0.8	–	1.5	V	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA
Static drain-source on-state resistance	R <sub>DS(on)</sub> *	–	400	580	mΩ	I <sub>D</sub> = 500mA, V <sub>GS</sub> = 4.5V
		–	420	600	mΩ	I <sub>D</sub> = 500mA, V <sub>GS</sub> = 4V
		–	650	940	mΩ	I <sub>D</sub> = 500mA, V <sub>GS</sub> = 2.5V
Forward transfer admittance	Y <sub>fs</sub>  *	0.5	–	–	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 500mA
Input capacitance	C <sub>iss</sub>	–	60	–	pF	V <sub>DS</sub> = 10V
Output capacitance	C <sub>oss</sub>	–	24	–	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	C <sub>rss</sub>	–	12	–	pF	f=1MHz
Turn-on delay time	t <sub>d(on)</sub> *	–	9	–	ns	V <sub>DD</sub> ≐ 15V
Rise time	t <sub>r</sub> *	–	11	–	ns	I <sub>D</sub> = 250mA
Turn-off delay time	t <sub>d(off)</sub> *	–	16	–	ns	V <sub>GS</sub> = 4V
Fall time	t <sub>f</sub> *	–	31	–	ns	R <sub>L</sub> =60Ω
Total gate charge	Q <sub>g</sub> *	–	2.0	4.0	nC	V <sub>DD</sub> ≐ 24V
Gate-source charge	Q <sub>gs</sub> *	–	0.6	–	nC	V <sub>GS</sub> = 4V
Gate-drain charge	Q <sub>gd</sub> *	–	0.7	–	nC	I <sub>D</sub> = 500mA

\*Pulsed

## ●Body diode characteristics (Source-drain) (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V <sub>SD</sub> *	–	–	1.2	V	I <sub>S</sub> = 500mA, V <sub>GS</sub> =0V

\*Pulsed

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