

Transistors

# 4V Drive Nch MOS FET

## RHK005N03

●Structure

Silicon N-channel MOS FET

●Features

- 1) Low On-resistance.
- 2) High speed switching.

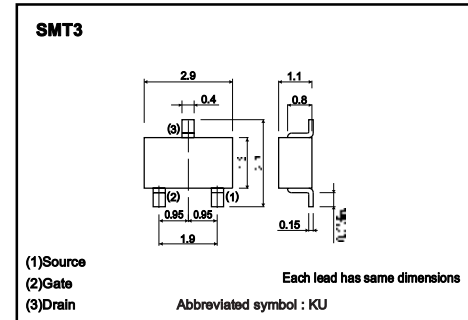
●Applications

Switching

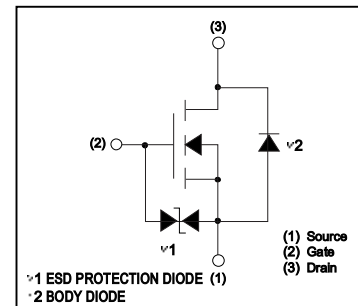
●Packaging specifications and hFE

Type	Package	Taping
	Code	T146
	Basic ordering unit (pieces)	3000
RHK005N03		○

●External dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V <sub>DSS</sub>	30	V	
Gate-source voltage	V <sub>GSS</sub>	±20	V	
Drain current	Continuous	I <sub>D</sub>	±500	mA
	Pulsed	I <sub>DP</sub> <sup>∗1</sup>	±2.0	A
Total power dissipation	P <sub>D</sub> <sup>∗2</sup>	200	mW	
Channel temperature	T <sub>ch</sub>	150	°C	
Range of storage temperature	T <sub>stg</sub>	-55 to +150	°C	

<sup>∗1</sup> Pw≤10μs, Duty cycle≤1%

<sup>∗2</sup> Each terminal mounted on a recommended land

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	R <sub>th(ch-a)</sub> <sup>∗</sup>	625	°C/W

<sup>∗</sup> Each terminal mounted on a recommended land

## Transistors

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	$I_{GSS}$	-	-	±10	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	30	-	-	V	$I_D = 1mA, V_{GS} = 0V$
Zero gate voltage drain current	$I_{DSS}$	-	-	1	μA	$V_{DS} = 30V, V_{GS} = 0V$
Gate threshold voltage	$V_{GS(th)}$	1.0	-	2.5	V	$V_{DS} = 10V, I_D = 1mA$
Static drain-source on-state resistance	$R_{DS(on)}$	-	350	550	mΩ	$I_D = 500mA, V_{GS} = 10V$
		-	510	720	mΩ	$I_D = 500mA, V_{GS} = 4.5V$
		-	600	840	mΩ	$I_D = 500mA, V_{GS} = 4V$
Forward transfer admittance	$ Y_{fs} $	0.5	-	-	S	$V_{DS} = 10V, I_D = 500mA$
Input capacitance	$C_{iss}$	-	45	-	pF	$V_{DS} = 10V$
Output capacitance	$C_{oss}$	-	20	-	pF	$V_{GS} = 0V$
Reverse transfer capacitance	$C_{rss}$	-	10	-	pF	$f = 1MHz$
Turn-on delay time	$t_{d(on)}$	-	10	-	ns	$V_{DD} = 15V$
Rise time	$t_r$	-	10	-	ns	$I_D = 250mA$
Turn-off delay time	$t_{d(off)}$	-	15	-	ns	$V_{GS} = 10V$
Fall time	$t_f$	-	30	-	ns	$R_L = 60\Omega$ $R_G = 10\Omega$

\*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}$	-	-	1.2	V	$I_S = 0.16A, V_{GS} = 0V$

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