

4V Drive Nch MOS FET

RHK003N06

●Structure

Silicon N-channel MOS FET

●Features

- 1) Low On-resistance.
- 2) 4V drive.

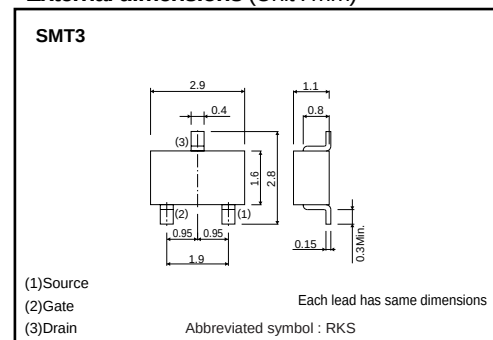
●Applications

Switching

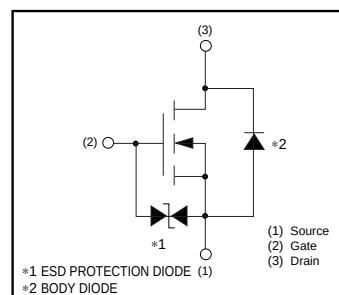
●Packaging specifications and h_{FE}

Type	Package	Taping
	Code	T146
	Basic ordering unit (pieces)	3000
RHK003N06		○

●External dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings ($T_a=25^{\circ}\text{C}$)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DS}	60	V
Gate-source voltage		V_{GS}	± 20	V
Drain current	Continuous	I_D	± 300	mA
	Pulsed	I_{DP}^{*1}	± 1.2	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	$^{\circ}\text{C}$
Range of storage temperature		T_{stg}	-55 to +150	$^{\circ}\text{C}$

*1 $P_w \leq 10\mu\text{s}$, Duty cycles $\leq 1\%$

*2 Each terminal mounted on a recommended land

●Thermal resistance

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

* 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	$V_{(BR) DSS}$	60	—	—	V	$I_D=1mA$, $V_{GS}=0V$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS}=60V$, $V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	1.0	—	2.5	V	$V_{DS}=10V$, $I_D=1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	—	0.7	1.0	Ω	$I_D=300mA$, $V_{GS}=10V$
		—	1.1	1.5	Ω	$I_D=300mA$, $V_{GS}=4V$
Forward transfer admittance	$ Y_{fs} ^*$	0.2	—	—	S	$V_{DS}=10V$, $I_D=300mA$
Input capacitance	C_{iss}	—	33	—	pF	$V_{DS}=10V$
Output capacitance	C_{oss}	—	14	—	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	—	9	—	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	—	6	—	ns	$V_{DD} \doteq 30V$
Rise time	t_r^*	—	5	—	ns	$I_D=150mA$
Turn-off delay time	$t_{d(off)}^*$	—	13	—	ns	$V_{GS}=10V$
Fall time	t_f^*	—	80	—	ns	$R_L=200\Omega$
Total gate charge	Q_g^*	—	3	6	nC	$V_{DD} \doteq 30V$
Gate-source charge	Q_{gs}^*	—	0.6	—	nC	$V_{GS}=10V$
Gate-drain charge	Q_{gd}^*	—	0.5	—	nC	$I_D=300mA$

*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD}^*	—	—	1.2	V	$I_S=300mA$, $V_{GS}=0V$

*Pulsed

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