

# 4V Drive Nch MOSFET

## RHP030N03

### ●Structure

Silicon N-channel MOSFET

### ●Features

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

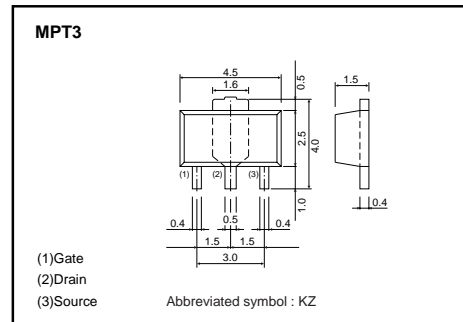
### ●Applications

Switching

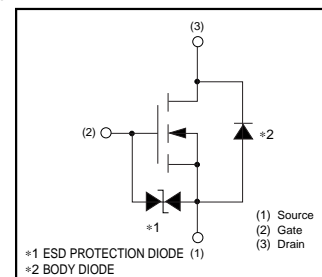
### ●Packaging specifications

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
RHP030N03		○

### ●Dimensions (Unit : mm)



### ●Inner circuit



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

Parameter	Symbol	Limits	Unit
Drain-source voltage	$V_{DS}$	30	V
Gate-source voltage	$V_{GS}$	$\pm 20$	V
Drain current	Continuous	$I_D$	3 A
	Pulsed	$I_{DP}$ *1	10 A
Reverse drain current	Continuous	$I_{DR}$	3 A
	Pulsed	$I_{DRP}$ *1	10 A
Total power dissipation	$P_D$	500	mW
		2 *2	W
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 When mounted on a 40×40×0.7mm ceramic board

### ●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$	250	°C/W
		62.5 *	°C/W

\* When mounted on a 40×40×0.7mm ceramic board

## Transistors

## ●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> =±20V, 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>	1.0	-	2.5	V	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA
Static drain-source on-state resistance	R <sub>DS (on)</sub> *	-	90	120	mΩ	I <sub>D</sub> = 3A, V <sub>GS</sub> = 10V
		-	160	210	mΩ	I <sub>D</sub> = 3A, V <sub>GS</sub> = 4V
Forward transfer admittance	Y <sub>fs</sub>  *	2.0	-	-	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 3A
Input capacitance	C <sub>iss</sub>	-	160	-	pF	V <sub>DS</sub> = 10V
Output capacitance	C <sub>oss</sub>	-	90	-	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	C <sub>rss</sub>	-	27	-	pF	f=1MHz
Turn-on delay time	t <sub>d (on)</sub> *	-	7	-	ns	V <sub>DD</sub> ≐ 15V
Rise time	t <sub>r</sub> *	-	11	-	ns	I <sub>D</sub> = 1.5A
Turn-off delay time	t <sub>d (off)</sub> *	-	15	-	ns	V <sub>GS</sub> = 10V
Fall time	t <sub>f</sub> *	-	4.5	-	ns	R <sub>L</sub> =10Ω
Total gate charge	Q <sub>g</sub> *	-	6.5	-	nC	R <sub>G</sub> =10Ω
Gate-source charge	Q <sub>gs</sub> *	-	1.0	-	nC	V <sub>DD</sub> ≐ 15V
Gate-drain charge	Q <sub>gd</sub> *	-	1.5	-	nC	V <sub>GS</sub> = 10V
						I <sub>D</sub> = 3A

\*Pulsed

Transistors

● Electrical characteristics curves

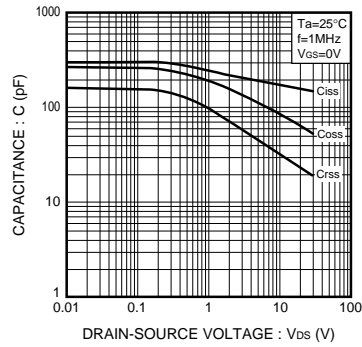


Fig.1 Typical Capacitance vs. Drain-Source Voltage

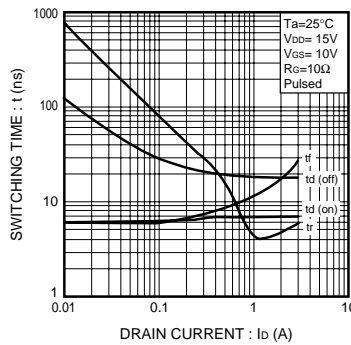


Fig.2 Switching Characteristics

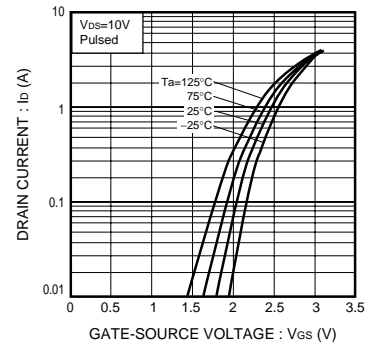


Fig.3 Typical Transfer Characteristics

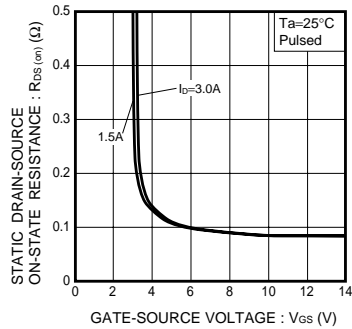


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

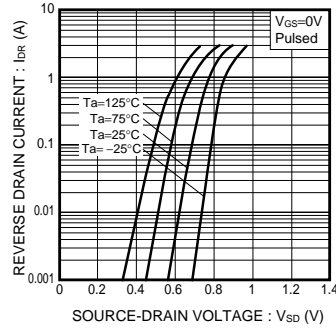


Fig.5 Reverse Drain Current vs. Source-Drain Voltage ( I )

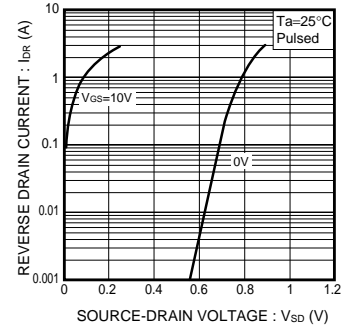


Fig.6 Reverse Drain Current vs. Source-Drain Voltage ( II )

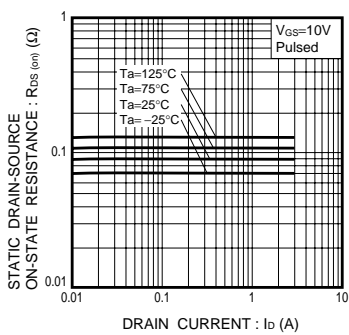


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current ( I )

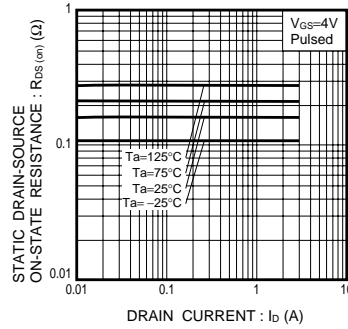


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current ( II )

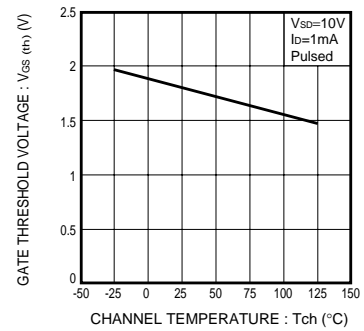


Fig.9 Gate Threshold Voltage vs. Channel Temperature

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