# 4V Drive Nch MOSFET RHP030N03

### ●Structure

Silicon N-channel MOSFET

## ● Features

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

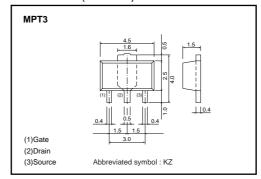
# Applications

Switching

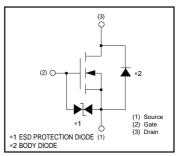
## Packaging specifications

	Package	Taping	
Type	Code	T100	
	Basic ordering unit (pieces)	1000	
RHP030N03		0	

# ●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		$V_{GSS}$	±20	V
Drain current	Continuous	ID	3	Α
Drain current	Pulsed	IDP *1	10	Α
Reverse drain current	Continuous	$I_{DR}$	3	Α
Reverse drain current	Pulsed	I <sub>DRP</sub> *1	10	Α
Total power dissipation		Б	500	mW
		Pb	2 *2	W
Channel temperature		Tch	150	°C
Range of storage temperature		Tstg	-55 to +150	°C

### Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	Rth(ch-a)	250	°C/W
Charmer to ambient		62.5 *	°C/W

<sup>\*</sup> When mounted on a 40×40×0.7mm ceramic board

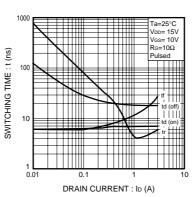
<sup>\*1</sup> Pw≤10μs, Duty cycle≤1% \*2 When mounted on a 40×40×0.7mm ceramic board

# ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	Igss	-	_	±10	μΑ	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	IDSS	_	_	1	μΑ	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	D *	_	90	120	mΩ	I <sub>D</sub> = 3A, V <sub>GS</sub> = 10V
resistance	R <sub>DS</sub> (on)*	_	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	Ciss	_	160	_	pF	V <sub>DS</sub> = 10V
Output capacitance	Coss	_	90	_	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	Crss	-	27	_	pF	f=1MHz
Turn-on delay time	t <sub>d (on)</sub> *	-	7	_	ns	Vpp≒ 15V
Rise time	tr *	-	11	_	ns	I <sub>D</sub> = 1.5A V <sub>G</sub> S= 10V
Turn-off delay time	t <sub>d (off)</sub> *	-	15	_	ns	VGS= 10V   RL=10Ω
Fall time	t <sub>f</sub> *	_	4.5	_	ns	R <sub>G</sub> =10Ω
Total gate charge	Qg *	-	6.5	_	nC	V <sub>DD</sub> ≒15V
Gate-source charge	Qgs *	_	1.0	_	nC	Vgs= 10V
Gate-drain charge	Q <sub>gd</sub> *	_	1.5	_	nC	ID=3A

<sup>\*</sup>Pulsed

# Electrical characteristics curves Ta=25°C [stMHz] Vos=0V Tos=0V Tos=0V



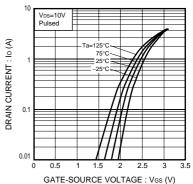


Fig.2 Switching Characteristics

Fig.3 Typical Transfer Characteristics

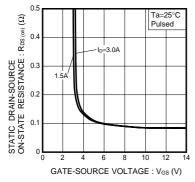


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

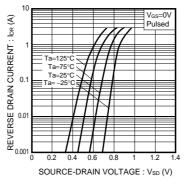


Fig.5 Reverse Drain Current vs. Source-Drain Voltage ( I )

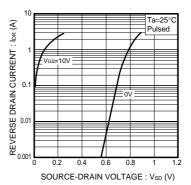


Fig.6 Reverse Drain Current vs. Source-Drain Voltage ( II )

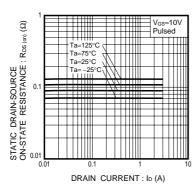


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current ( I )

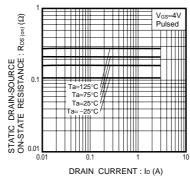


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current ( II )

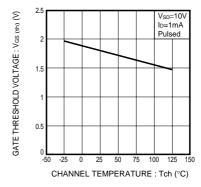


Fig.9 Gate Threshold Voltage vs. Channel Temperature

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