

## Transistors

## 4V Drive Nch MOS FET

## RHP020N06

## ●Structure

Silicon N-channel MOS FET

## ●Features

- 1) Low On-resistance.
- 2) High speed switching.
- 3) Wide SOA.

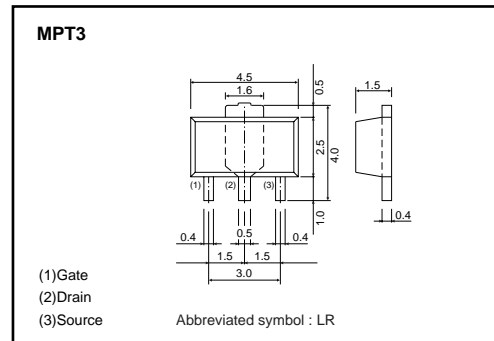
## ●Applications

Switching

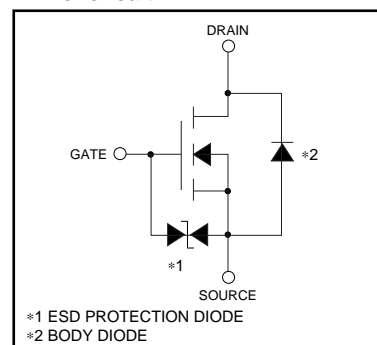
## ●Packaging specifications and hFE

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
RHP020N06		○

## ●External dimensions (Unit : mm)



## ●Inner circuit



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

Parameter	Symbol	Limits	Unit
Drain-source voltage	$V_{DSS}$	60	V
Gate-source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	Continuous	$I_D$	$\pm 2$ A
	Pulsed	$I_{DP}$ *1	$\pm 8$ A
Source current	Continuous	$I_S$	2 A
	Pulsed	$I_{SP}$ *1	8 A
Total power dissipation	$P_D$	500	mW
		2	W *2
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>	60	–	–	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> = 60V, 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> *	–	150	200	mΩ	I <sub>D</sub> = 2A, V <sub>GS</sub> = 10V
		–	200	280	mΩ	I <sub>D</sub> = 2A, V <sub>GS</sub> = 4.5V
		–	240	340	mΩ	I <sub>D</sub> = 2A, V <sub>GS</sub> = 4V
Forward transfer admittance	Y <sub>fs</sub>  *	2.0	–	–	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 2A
Input capacitance	C <sub>iss</sub>	–	140	–	pF	V <sub>DS</sub> = 10V
Output capacitance	C <sub>oss</sub>	–	50	–	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	C <sub>rss</sub>	–	40	–	pF	f=1MHz
Turn-on delay time	t <sub>d(on)</sub> *	–	7	–	ns	V <sub>DD</sub> ≐ 30V
Rise time	t <sub>r</sub> *	–	10	–	ns	I <sub>D</sub> = 1A
Turn-off delay time	t <sub>d(off)</sub> *	–	22	–	ns	V <sub>GS</sub> = 10V
Fall time	t <sub>f</sub> *	–	18	–	ns	R <sub>L</sub> =30Ω R <sub>G</sub> =10Ω
Total gate charge	Q <sub>g</sub> *	–	7	14	nC	V <sub>DD</sub> ≐ 30V
Gate-source charge	Q <sub>gs</sub> *	–	1	–	nC	V <sub>GS</sub> = 10V
Gate-drain charge	Q <sub>gd</sub> *	–	2	–	nC	I <sub>D</sub> = 2A

\*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> = 2A, V <sub>GS</sub> =0V

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