

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.

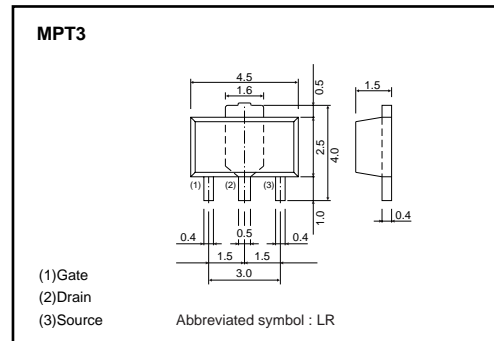
●Applications

Switching

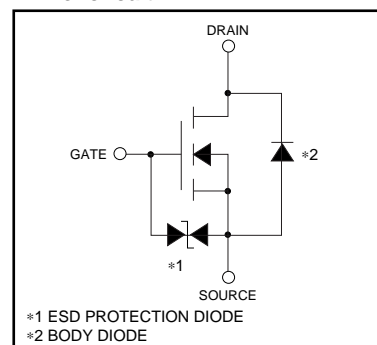
●Packaging specifications and hFE

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}	± 20	V	
Drain current	Continuous	I_D	± 2	A
	Pulsed	I_{DP} *1	± 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 _{GSS}	–	–	±10	μA	V _{GS} = ±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)} *	–	150	200	mΩ	I _D = 2A, V _{GS} = 10V
		–	200	280	mΩ	I _D = 2A, V _{GS} = 4.5V
		–	240	340	mΩ	I _D = 2A, V _{GS} = 4V
Forward transfer admittance	Y _{fs} *	2.0	–	–	S	V _{DS} = 10V, I _D = 2A
Input capacitance	C _{iss}	–	140	–	pF	V _{DS} = 10V
Output capacitance	C _{oss}	–	50	–	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	–	40	–	pF	f=1MHz
Turn-on delay time	t _{d(on)} *	–	7	–	ns	V _{DD} ≐ 30V
Rise time	t _r *	–	10	–	ns	I _D = 1A
Turn-off delay time	t _{d(off)} *	–	22	–	ns	V _{GS} = 10V
Fall time	t _f *	–	18	–	ns	R _L =30Ω R _G =10Ω
Total gate charge	Q _g *	–	7	14	nC	V _{DD} ≐ 30V
Gate-source charge	Q _{gs} *	–	1	–	nC	V _{GS} = 10V
Gate-drain charge	Q _{gd} *	–	2	–	nC	I _D = 2A

*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 = 2A, V _{GS} =0V

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