

●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 | | ○ |

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit | |
|------------------------------|------------|-----------------|------|---|
| Drain-source voltage | V_{DS} | 30 | V | |
| Gate-source voltage | V_{GS} | ± 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 $\leq 1\%$

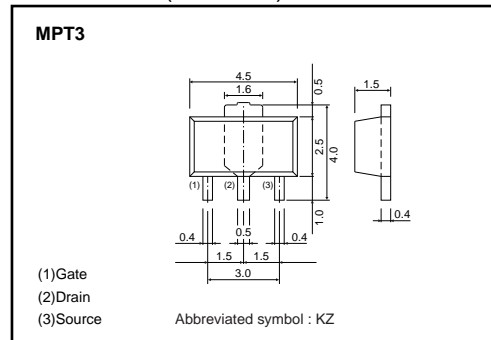
*2 When mounted on a 40×40×0.7mm ceramic board

●Thermal resistance

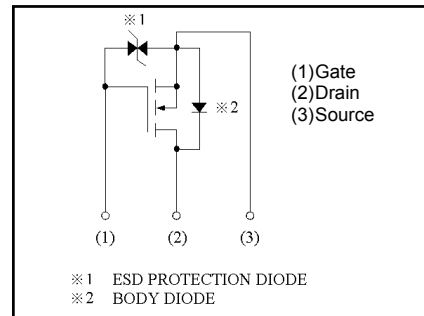
| Parameter | Symbol | Limits | Unit |
|--------------------|----------------|-------------------|------|
| Channel to ambient | $R_{th(ch-a)}$ | 250 | °C/W |
| | | 62.5 [*] | °C/W |

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

●Dimensions (Unit : mm)



●Inner circuit



●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} | 30 | – | – | V | I _D = 1mA, V _{GS} =0V |
| Zero gate voltage drain current | I _{DSS} | – | – | 1 | μA | V _{DS} = 30V, 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)*} | – | 90 | 120 | mΩ | I _D = 3A, V _{GS} = 10V |
| | | – | 160 | 210 | mΩ | I _D = 3A, V _{GS} = 4V |
| Forward transfer admittance | Y _{fs} * | 2.0 | – | – | S | V _{DS} = 10V, I _D = 3A |
| Input capacitance | C _{iss} | – | 160 | – | pF | V _{DS} = 10V |
| Output capacitance | C _{oss} | – | 90 | – | pF | V _{GS} =0V |
| Reverse transfer capacitance | C _{rss} | – | 27 | – | pF | f=1MHz |
| Turn-on delay time | t _{d(on)*} | – | 7 | – | ns | V _{DD} ≐ 15V |
| Rise time | t _r * | – | 11 | – | ns | I _D = 1.5A |
| Turn-off delay time | t _{d(off)*} | – | 15 | – | ns | V _{GS} = 10V |
| Fall time | t _f * | – | 4.5 | – | ns | R _L =10Ω R _G =10Ω |
| Total gate charge | Q _g * | – | 6.5 | – | nC | V _{DD} ≐ 15V |
| Gate-source charge | Q _{gs} * | – | 1.0 | – | nC | V _{GS} = 10V |
| Gate-drain charge | Q _{gd} * | – | 1.5 | – | nC | I _D = 3A |

*Pulsed

●Electrical characteristics curves

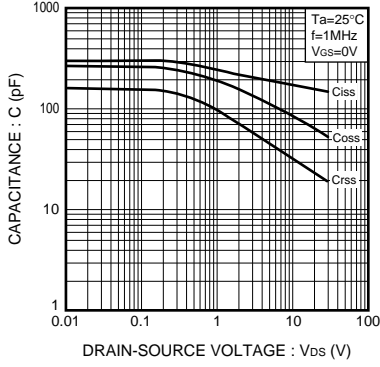


Fig.1 Typical Capacitance vs. Drain-Source Voltage

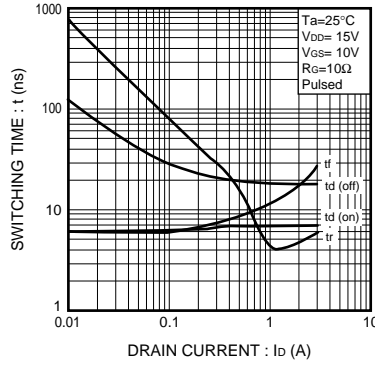


Fig.2 Switching Characteristics

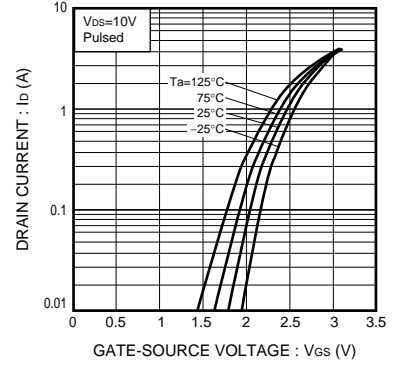


Fig.3 Typical Transfer Characteristics

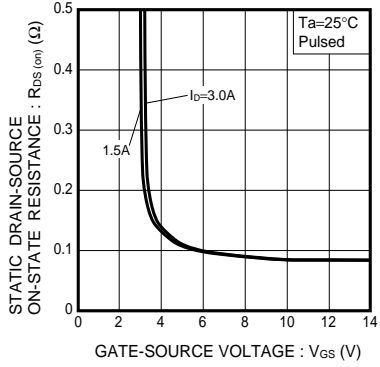


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

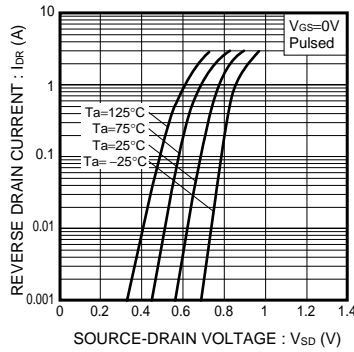


Fig.5 Reverse Drain Current vs. Source-Drain Voltage (I)

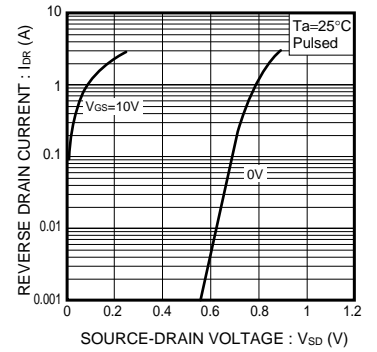


Fig.6 Reverse Drain Current vs. Source-Drain Voltage (II)

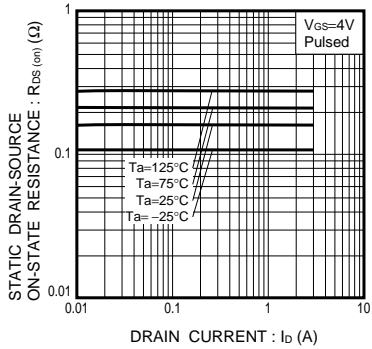


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current (II)

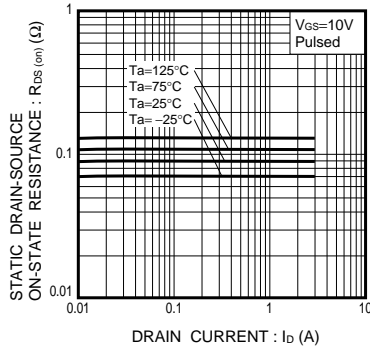


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current (I)

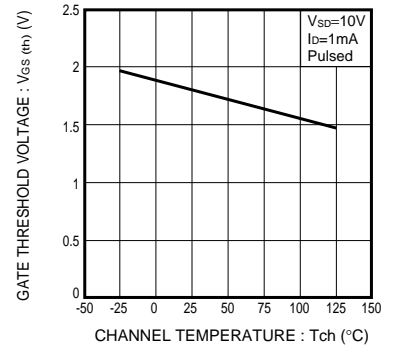


Fig.9 Gate Threshold Voltage vs. Channel Temperature

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