

4V Drive Pch MOSFET

RSS060P05

●Structure

Silicon P-channel
MOSFET

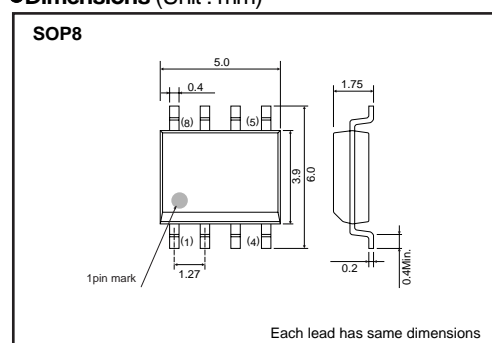
●Features

- 1) Built-in G-S Protection Diode.
- 2) Small and Surface Mount Package (SOP8).

●Applications

Power switching , DC / DC converter , Inverter

●Dimensions (Unit : mm)



●Packaging dimensions

| Type | Package | Taping |
|-----------|------------------------------|--------|
| | Code | TB |
| | Basic ordering unit (pieces) | 2500 |
| RSS060P05 | | ○ |

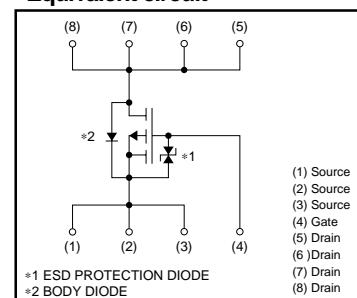
●Absolute maximum ratings (Ta=25°C)

| Parameter | | Symbol | Limits | Unit |
|--------------------------------|------------|-------------|-------------|------|
| Drain-source voltage | | V_{DS} | -45 | V |
| Gate-source voltage | | V_{GS} | ± 20 | V |
| Drain current | Continuous | I_D | ± 6.0 | A |
| | Pulsed | I_{DP} *1 | ± 24 | A |
| Source current (Body diode) | Continuous | I_S | -1.6 | A |
| | Pulsed | I_{SP} *1 | -24 | A |
| Total power dissipation | | P_D *2 | 2 | W |
| Chanel temperature | | T_{ch} | 150 | °C |
| Range of Storage temperature | | T_{stg} | -55 to +150 | °C |

*1 $PW \leq 10\mu s$, Duty cycle $\leq 1\%$

*2 Mounted on a ceramic board

●Equivalent circuit



●Thermal resistance

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

* Mounted on a ceramic board

Transistor

●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} | −45 | — | — | V | I _D = −1mA, V _{GS} =0V |
| Zero gate voltage drain current | I _{DSS} | — | — | −1 | μA | V _{DS} = −45V, 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)} * | — | 26 | 36 | mΩ | I _D = −6A, V _{GS} = −10V |
| | | — | 35 | 49 | mΩ | I _D = −6A, V _{GS} = −4.5V |
| | | — | 38 | 53 | mΩ | I _D = −6A, V _{GS} = −4.0V |
| Forward transfer admittance | Y _{fs} * | 8.0 | — | — | S | V _{DS} = −10V, I _D = −6A |
| Input capacitance | C _{iss} | — | 2700 | — | pF | V _{DS} = −10V |
| Output capacitance | C _{oss} | — | 360 | — | pF | V _{GS} =0V |
| Reverse transfer capacitance | C _{rss} | — | 230 | — | pF | f=1MHz |
| Turn-on delay time | t _{d (on)} * | — | 25 | — | ns | V _{DD} ≐ −25V I _D = −3.0A |
| Rise time | t _r * | — | 28 | — | ns | V _{GS} = −10V |
| Turn-off delay time | t _{d (off)} * | — | 100 | — | ns | R _L = −8.3Ω |
| Fall time | t _f * | — | 28 | — | ns | R _G =10Ω |
| Total gate charge | Q _g * | — | 23.0 | 32.2 | nC | V _{DD} ≐ −25V V _{GS} = −5V |
| Gate-source charge | Q _{gs} * | — | 6.6 | — | nC | I _D = −6.0A |
| Gate-drain charge | Q _{gd} * | — | 8.0 | — | nC | R _L =4.2Ω R _G =10Ω |

*Pulsed

●Body diode characteristics (Source-Drain)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|-----------------|-------------------|------|------|------|------|---|
| Forward voltage | V _{SD} * | — | — | −1.2 | V | I _S = −6A, V _{GS} =0V |

*Pulsed

Transistor

●Electrical characteristic curves

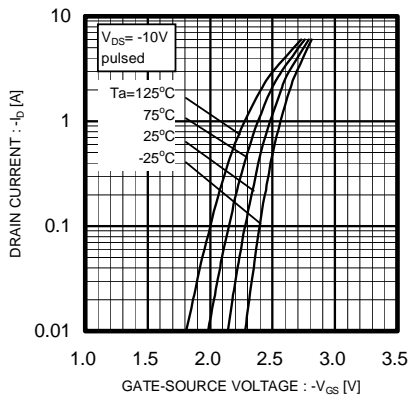


Fig.1 Typical Transfer Characteristics

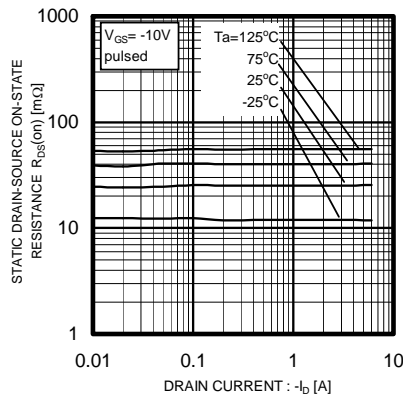


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

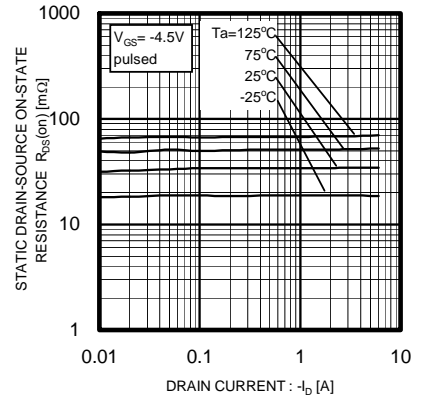


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

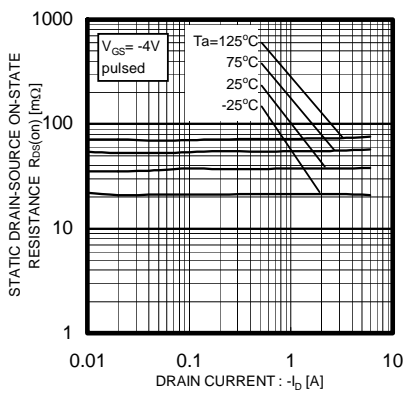


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

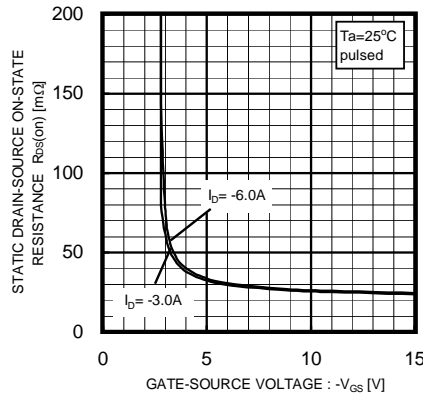


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

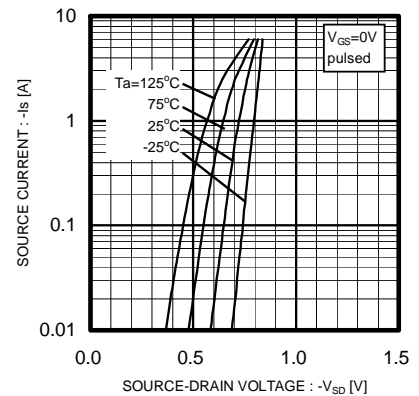


Fig.6 Source-Current vs. Source-Drain Voltage

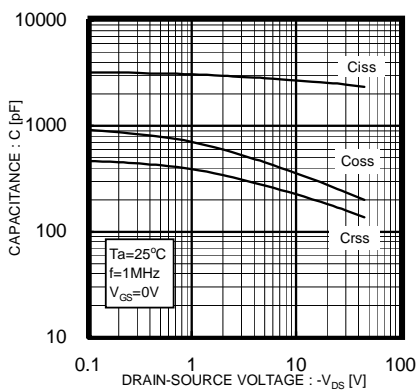


Fig.7 Typical capacitance vs. Source-Drain Voltage

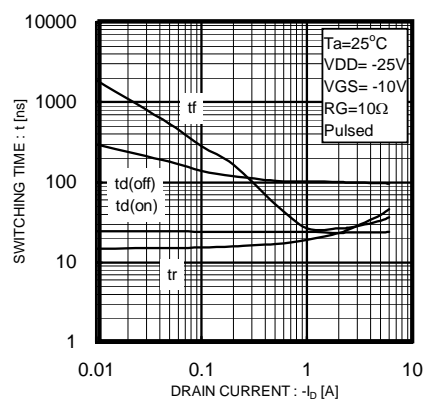


Fig.8 Switching Characteristics

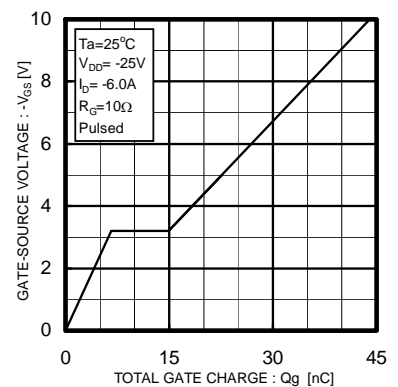


Fig.9 Dynamic Input Characteristics

Transistor

●Measurement circuits

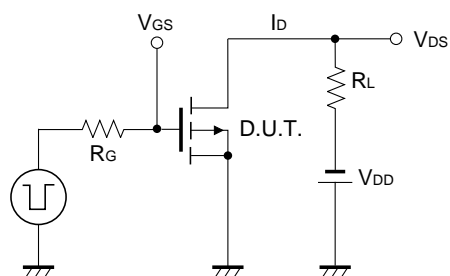


Fig.10 Switching Time Test Circuit

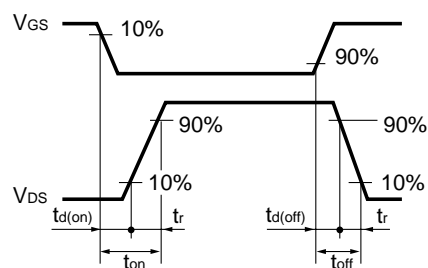


Fig.11 Switching Time Waveforms

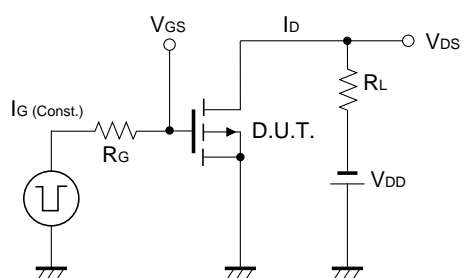


Fig.12 Gate Charge Test Circuit

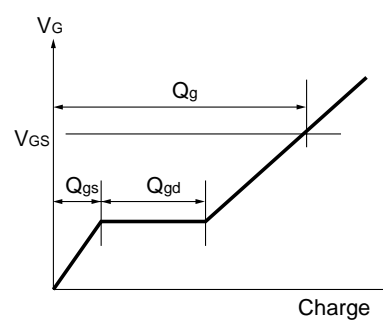


Fig.13 Gate Charge Waveform

Notes

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