

4V Drive Pch MOSFET

TT8J2

●Structure

Silicon P-channel MOSFET

●Features

- 1) Low On-resistance.
- 2) High Power Package.
- 3) Low voltage drive. (4V)

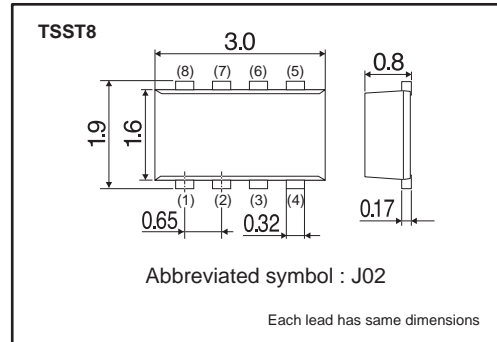
●Applications

Switching

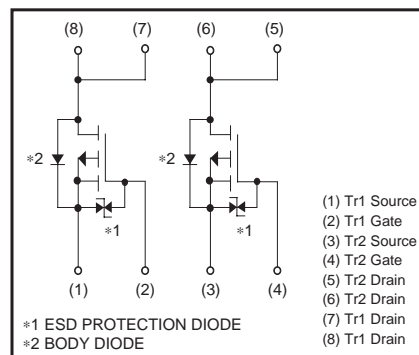
●Packaging specifications

| Type | Package | Taping |
|-------|------------------------------|--------|
| | Code | TR |
| | Basic ordering unit (pieces) | 3000 |
| TT8J2 | | ○ |

●Dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

<It is the same ratings for the Tr1 and Tr2.>

| Parameter | Symbol | Limits | Unit | |
|------------------------------|------------|-------------|-------------|---|
| Drain-source voltage | V_{DSS} | -30 | V | |
| Gate-source voltage | V_{GSS} | ±20 | V | |
| Drain current | Continuous | I_D | ±2.5 | A |
| | Pulsed | I_{DP} *1 | ±10 | A |
| Source current (Body diode) | Continuous | I_S | -0.8 | A |
| | Pulsed | I_{SP} *1 | -10 | A |
| Total power dissipation | P_D *2 | 1.25 | W / TOTAL | |
| | | 1.0 | W / ELEMENT | |
| 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 ceramic board

●Thermal resistance

| Parameter | Symbol | Limits | Unit |
|--------------------|------------------|--------|------------------|
| Channel to ambient | $R_{th(ch-a)}$ * | 100 | °C / W / TOTAL |
| | | 125 | °C / W / ELEMENT |

* Mounted on a ceramic board

●Electrical characteristics (Ta=25°C)

<It is the same characteristics for the Tr1 and Tr2.>

| 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)} * | - | 60 | 84 | mΩ | I _D = -2.5A, V _{GS} = -10V |
| | | - | 95 | 130 | mΩ | I _D = -1.2A, V _{GS} = -4.5V |
| | | - | 115 | 160 | mΩ | I _D = -1.2A, V _{GS} = -4V |
| Forward transfer admittance | Y _{fs} * | 1.8 | - | - | S | V _{DS} = -10V, I _D = -2.5A |
| Input capacitance | C _{iss} | - | 460 | - | pF | V _{DS} = -10V |
| Output capacitance | C _{oss} | - | 65 | - | pF | V _{GS} =0V |
| Reverse transfer capacitance | C _{rss} | - | 40 | - | pF | f=1MHz |
| Turn-on delay time | t _{d(on)} * | - | 7 | - | ns | V _{DD} ≐ -15V |
| Rise time | t _r * | - | 20 | - | ns | V _{GS} = -10V |
| Turn-off delay time | t _{d(off)} * | - | 35 | - | ns | I _D = -1.2A |
| Fall time | t _f * | - | 14 | - | ns | R _L ≐ 12.5Ω |
| Total gate charge | Q _g * | - | 4.8 | - | nC | V _{DD} ≐ -15V |
| Gate-source charge | Q _{gs} * | - | 1.8 | - | nC | V _{GS} = -5V |
| Gate-drain charge | Q _{gd} * | - | 1.2 | - | nC | I _D = -2.5A R _L ≐ 6Ω / R _G =10Ω |

*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 = -2.5A, V _{GS} =0V |

* Pulsed

●Electrical characteristic curves

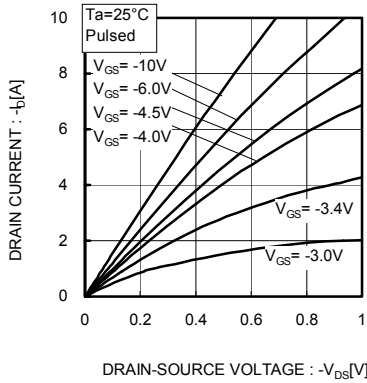


Fig.1 Typical Output Characteristics (I)

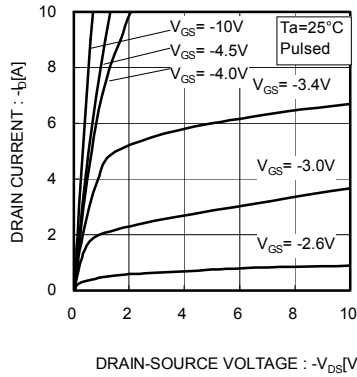


Fig.2 Typical Output Characteristics (II)

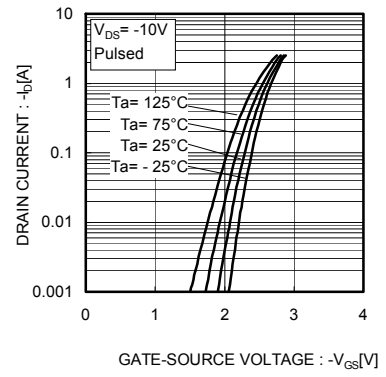


Fig.3 Typical Transfer Characteristics

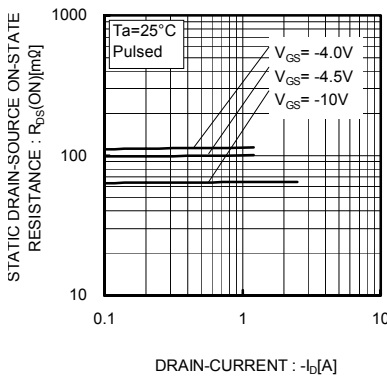


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (I)

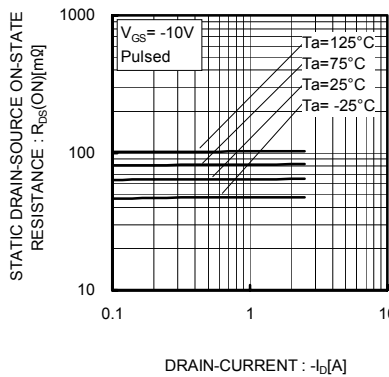


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current (II)

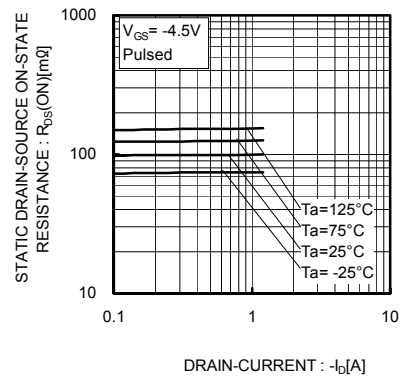


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current (III)

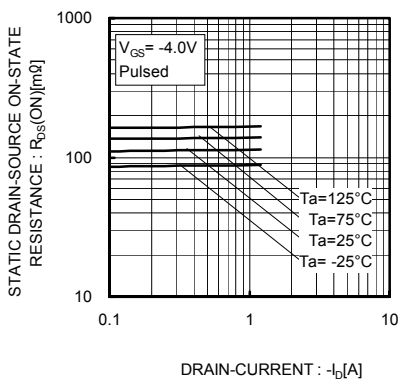


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current (IV)

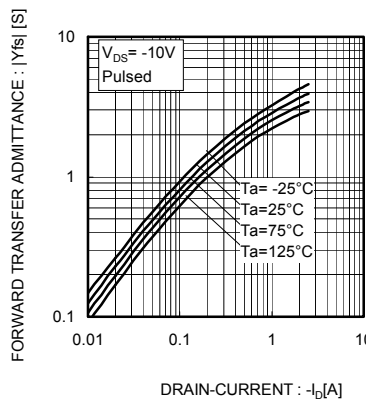


Fig.8 Forward Transfer Admittance vs. Drain Current

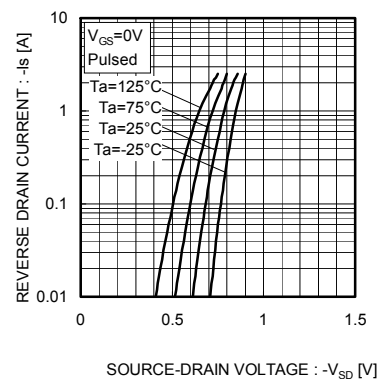


Fig.9 Reverse Drain Current vs. Source-Drain Voltage

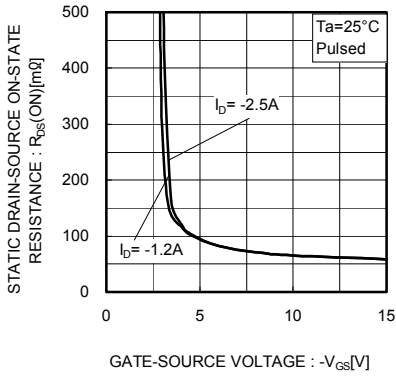


Fig.10 Static Drain-Source On-State Resistance vs. Gate Source Voltage

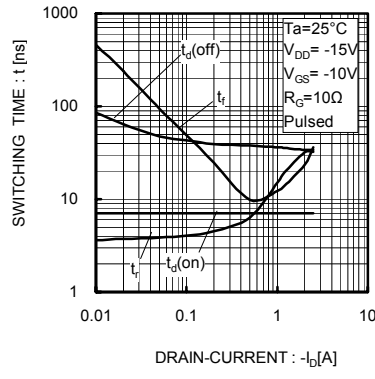


Fig.11 Switching Characteristics

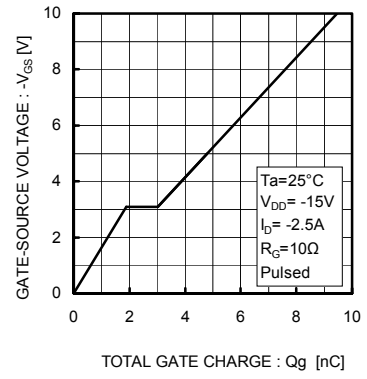


Fig.12 Dynamic Input Characteristics

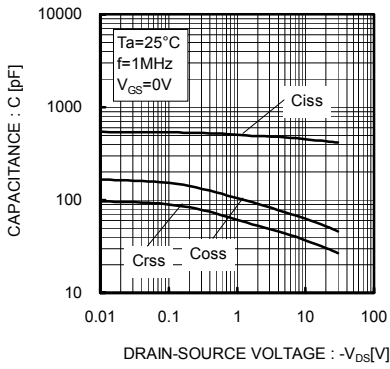


Fig.13 Typical Capacitance vs. Drain-Source Voltage

●Measurement circuits

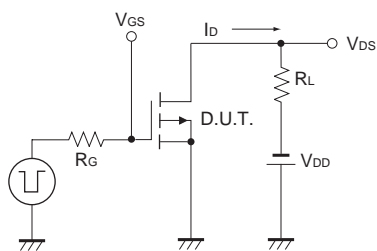


Fig.1-1 Switching Time Measurement Circuit

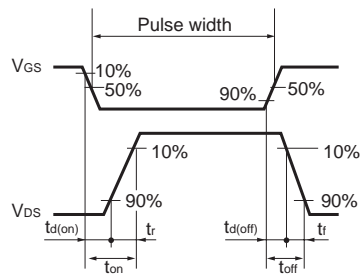


Fig.1-2 Switching Waveforms

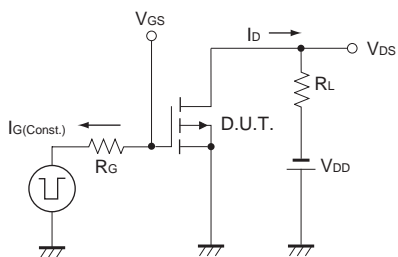


Fig.2-1 Gate Charge Measurement Circuit

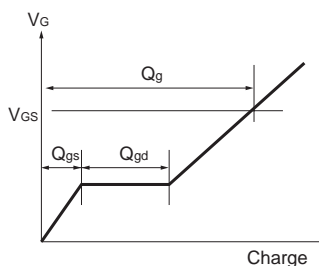


Fig.2-2 Gate Charge Waveform

●Notice

This product might cause chip aging and breakdown under the large electrified environment. Please consider to design ESD protection circuit.

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