

# 4V Drive Pch MOSFET

## RSU002P03

●Structure

Silicon P-channel MOSFET

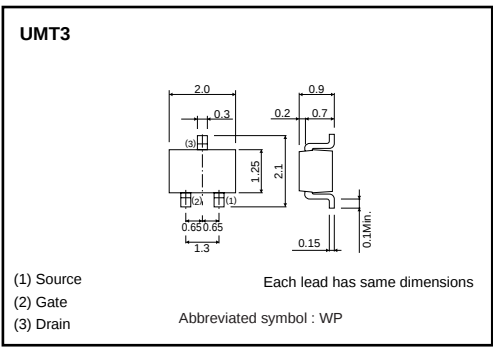
●Features

- 1) Low On-resistance
- 2) 4V drive

●Applications

Switching

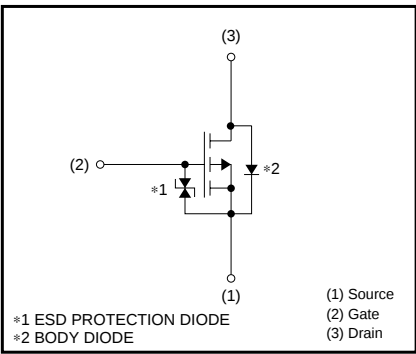
●Dimensions (Unit : mm)



●Packaging specifications

| Type      | Package                      | Taping |
|-----------|------------------------------|--------|
|           | Code                         | T106   |
|           | Basic ordering unit (pieces) | 3000   |
| RSU002P03 |                              | ○      |

●Inner circuit



●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 | $I_D$       | ±0.25       | A    |
|                              | Pulsed     | $I_{DP}$ *1 | ±0.5        | A    |
| Total power dissipation      |            | $P_D$ *2    | 0.2         | 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 Each terminal mounted on a recommended land

●Thermal resistance

| Parameter          | Symbol           | Limits | Unit |
|--------------------|------------------|--------|------|
| Channel to ambient | $R_{th(ch-a)}$ * | 625    | °C/W |

\* Each terminal mounted on a recommended land

## Transistors

## ●Electrical characteristics (Ta=25°C)

| Parameter                               | Symbol         | Min. | Typ. | Max.     | Unit     | Conditions                         |
|-----------------------------------------|----------------|------|------|----------|----------|------------------------------------|
| Gate-source leakage                     | $I_{GSS}$      | —    | —    | $\pm 10$ | $\mu A$  | $V_{GS} = \pm 20V$ , $V_{DS} = 0V$ |
| Drain-source breakdown voltage          | $V_{(BR) DSS}$ | −30  | —    | —        | V        | $I_D = -1mA$ , $V_{GS} = 0V$       |
| Zero gate voltage drain current         | $I_{DSS}$      | —    | —    | −1       | $\mu A$  | $V_{DS} = -30V$ , $V_{GS} = 0V$    |
| Gate threshold voltage                  | $V_{GS(th)}$   | −1.0 | —    | −2.5     | V        | $V_{DS} = -10V$ , $I_D = -1mA$     |
| Static drain-source on-state resistance | $R_{DS(on)}$ * | —    | 0.9  | 1.4      | $\Omega$ | $I_D = -0.25A$ , $V_{GS} = -10V$   |
|                                         |                | —    | 1.4  | 2.1      | $\Omega$ | $I_D = -0.15A$ , $V_{GS} = -4.5V$  |
|                                         |                | —    | 1.6  | 2.4      | $\Omega$ | $I_D = -0.15A$ , $V_{GS} = -4V$    |
| Forward transfer admittance             | $ Y_{fs} $ *   | 0.2  | —    | —        | S        | $V_{DS} = -10V$ , $I_D = -0.15A$   |
| Input capacitance                       | $C_{iss}$      | —    | 30   | —        | pF       | $V_{DS} = -10V$                    |
| Output capacitance                      | $C_{oss}$      | —    | 4    | —        | pF       | $V_{GS} = 0V$                      |
| Reverse transfer capacitance            | $C_{rss}$      | —    | 5    | —        | pF       | $f = 1MHz$                         |
| Turn-on delay time                      | $t_{d(on)}$ *  | —    | 8    | —        | ns       | $V_{DD} = -15V$                    |
| Rise time                               | $t_r$ *        | —    | 5    | —        | ns       | $I_D = -0.15A$                     |
| Turn-off delay time                     | $t_{d(off)}$ * | —    | 30   | —        | ns       | $V_{GS} = -10V$                    |
| Fall time                               | $t_f$ *        | —    | 40   | —        | ns       | $R_L = 100\Omega$                  |

\*Pulsed

## ●Body diode characteristics (Source-drain) (Ta=25°C)

| Parameter       | Symbol   | Min. | Typ. | Max. | Unit | Conditions                    |
|-----------------|----------|------|------|------|------|-------------------------------|
| Forward voltage | $V_{SD}$ | —    | —    | −1.2 | V    | $I_S = -0.1A$ , $V_{GS} = 0V$ |

## Transistors

## ●Electrical characteristics curves

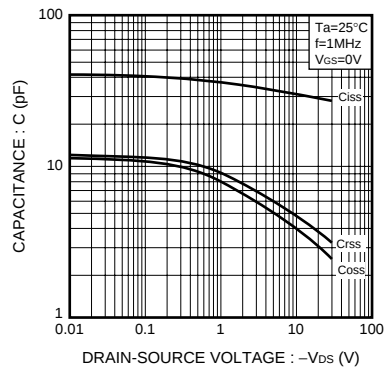


Fig.1 Typical Capacitance vs. Drain-Source Voltage

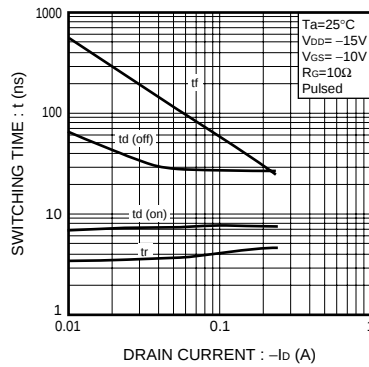


Fig.2 Switching Characteristics

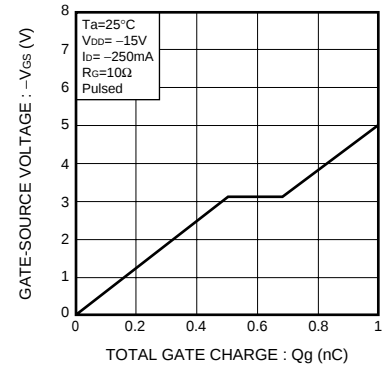


Fig.3 Dynamic Input Characteristics

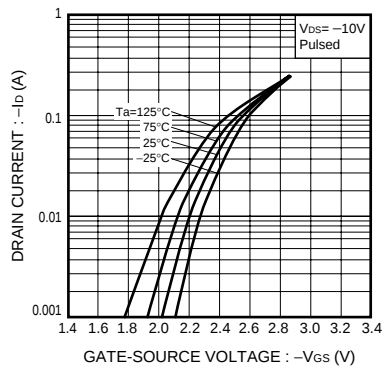


Fig.4 Typical Transfer Characteristics

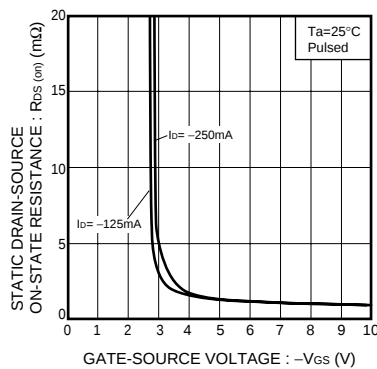


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

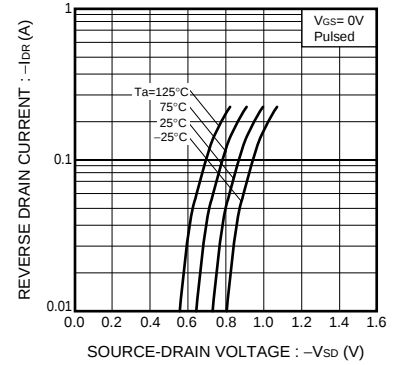


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

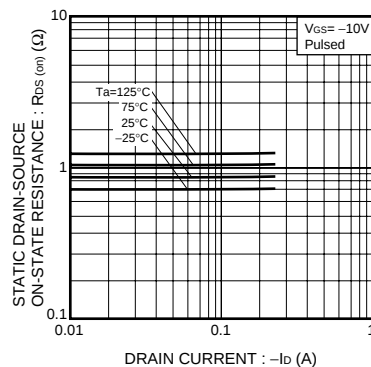


Fig.7 Static Drain-Source On-State Resistance vs. Drain current ( I )

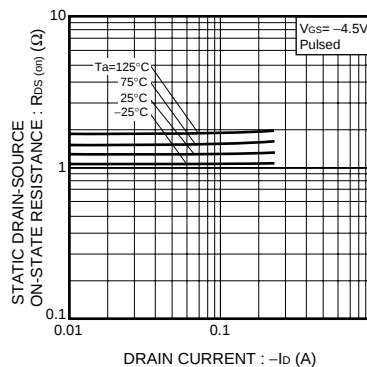


Fig.8 Static Drain-Source On-State Resistance vs. Drain current ( II )

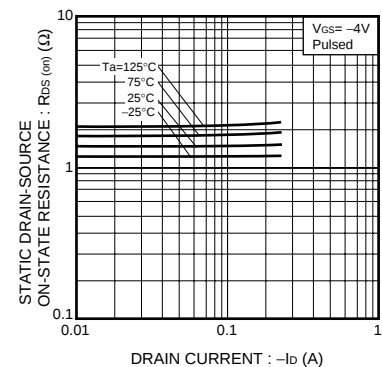


Fig.9 Static Drain-Source On-State Resistance vs. Drain current ( III )

Transistors

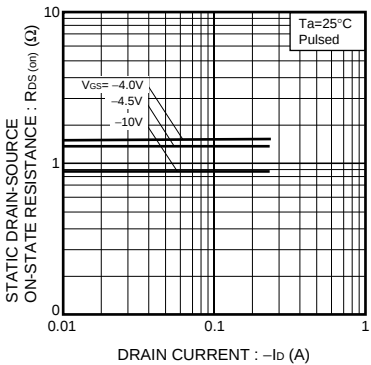


Fig.10 Static Drain-Source  
On-State Resistance vs.  
Drain current (  $I_D$  )

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