

4V Drive Nch MOS FET

AEC-Q101 Qualified

RSQ035N03FRA

●Structure

Silicon N-channel MOS FET

●Features

- 1) Low On-resistance.
- 2) Space saving, small surface mount package (TSMT6).

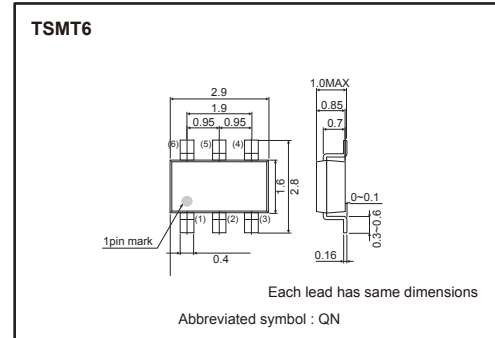
●Applications

Switching

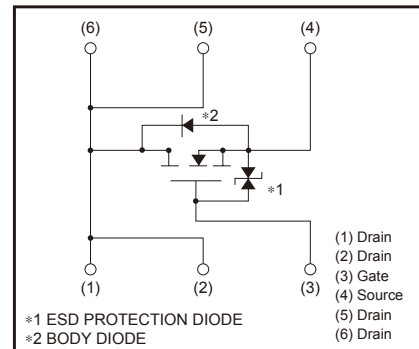
●Packaging specifications

| Type | Package | Taping |
|--------------|------------------------------|--------|
| | Code | TR |
| | Basic ordering unit (pieces) | 3000 |
| RSQ035N03FRA | | ○ |

●External dimensions (Unit : mm)



●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 | ± 3.5 | A |
| | Pulsed | I_{DP} *1 | ± 14 | A |
| Source current (Body diode) | Continuous | I_S | 1.0 | A |
| | Pulsed | I_{SP} *1 | 14 | A |
| Total power dissipation | P_D *2 | 1.25 | 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 Mounted on a ceramic board

●Thermal resistance

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

* Mounted on a 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 | $V_{(BR)DSS}$ | 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 | $R_{DS(on)}$ * | – | 44 | 62 | $m\Omega$ | $I_D=3.5A, V_{GS}=10V$ |
| | | – | 60 | 84 | $m\Omega$ | $I_D=3.5A, V_{GS}=4.5V$ |
| | | – | 67 | 94 | $m\Omega$ | $I_D=3.5A, V_{GS}=4V$ |
| Forward transfer admittance | $ Y_{fs} $ * | 2.0 | – | – | S | $V_{DS}=10V, I_D=3.5A$ |
| Input capacitance | C_{iss} | – | 290 | – | pF | $V_{DS}=10V$ |
| Output capacitance | C_{oss} | – | 85 | – | pF | $V_{GS}=0V$ |
| Reverse transfer capacitance | C_{rss} | – | 55 | – | pF | $f=1MHz$ |
| Turn-on delay time | $t_{d(on)}$ * | – | 7 | – | ns | $V_{DD}\doteq 15V$ |
| Rise time | t_r * | – | 9 | – | ns | $I_D=1.75A$ |
| Turn-off delay time | $t_{d(off)}$ * | – | 24 | – | ns | $V_{GS}=10V$ |
| Fall time | t_f * | – | 6 | – | ns | $R_L=8.57\Omega$ |
| Total gate charge | Q_g * | – | 5.3 | 7.4 | nC | $V_{DD}\doteq 15V, V_{GS}=5V$ |
| Gate-source charge | Q_{gs} * | – | 1.0 | – | nC | $I_D=3.5A$ |
| Gate-drain charge | Q_{gd} * | – | 1.4 | – | nC | $R_L=4.29\Omega, R_G=10\Omega$ |

*Pulsed

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|-----------------|----------|------|------|------|------|-----------------------|
| Forward voltage | V_{SD} | – | – | 1.2 | V | $I_S=1.0A, V_{GS}=0V$ |

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| JAPAN | USA | EU | CHINA |
|-----------|-----------|------------|-----------|
| CLASS III | CLASS III | CLASS II b | CLASS III |
| CLASS IV | | CLASS III | |

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 - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Sealing or coating our Products with resin or other coating materials
 - [g] Use of our Products without cleaning residue of flux (even if you use no-clean type fluxes, cleaning residue of flux is recommended); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - [h] Use of the Products in places subject to dew condensation
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7. De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta). When used in sealed area, confirm the actual ambient temperature.
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2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

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Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

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 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
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RSQ035N03FRA - Web Page

[Distribution Inventory](#)

| | |
|-----------------------------|--------------|
| Part Number | RSQ035N03FRA |
| Package | TSMT6 |
| Unit Quantity | 3000 |
| Minimum Package Quantity | 3000 |
| Packing Type | Taping |
| Constitution Materials List | inquiry |
| RoHS | Yes |

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