

RJK6022DJE

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1484-0600

Rev.6.00

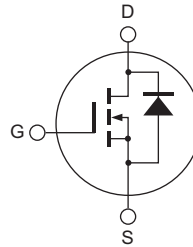
Nov 10, 2006

Features

- Low on-resistance
- Low drive current
- High density mounting

Outline

RENESAS Package code: PRSS0003DC-A
(Package name: TO-92 Mod)



1. Source
2. Drain
3. Gate

Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|---|----------------------------------|-------------|------|
| Drain to source voltage | V_{DSS} | 600 | V |
| Gate to source voltage | V_{GSS} | ±30 | V |
| Drain current | I_D | 0.2 | A |
| Drain peak current | $I_{D(pulse)}$ ^{Note1} | 0.8 | A |
| Body-drain diode reverse drain current | I_{DR} | 0.2 | A |
| Body-drain diode reverse drain peak current | $I_{DR(pulse)}$ ^{Note1} | 0.8 | A |
| Channel dissipation | Pch | 0.9 | W |
| Channel to ambient thermal impedance | θ_{ch-a} | 139 | °C/W |
| Channel temperature | Tch | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | °C |

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

Electrical Characteristics

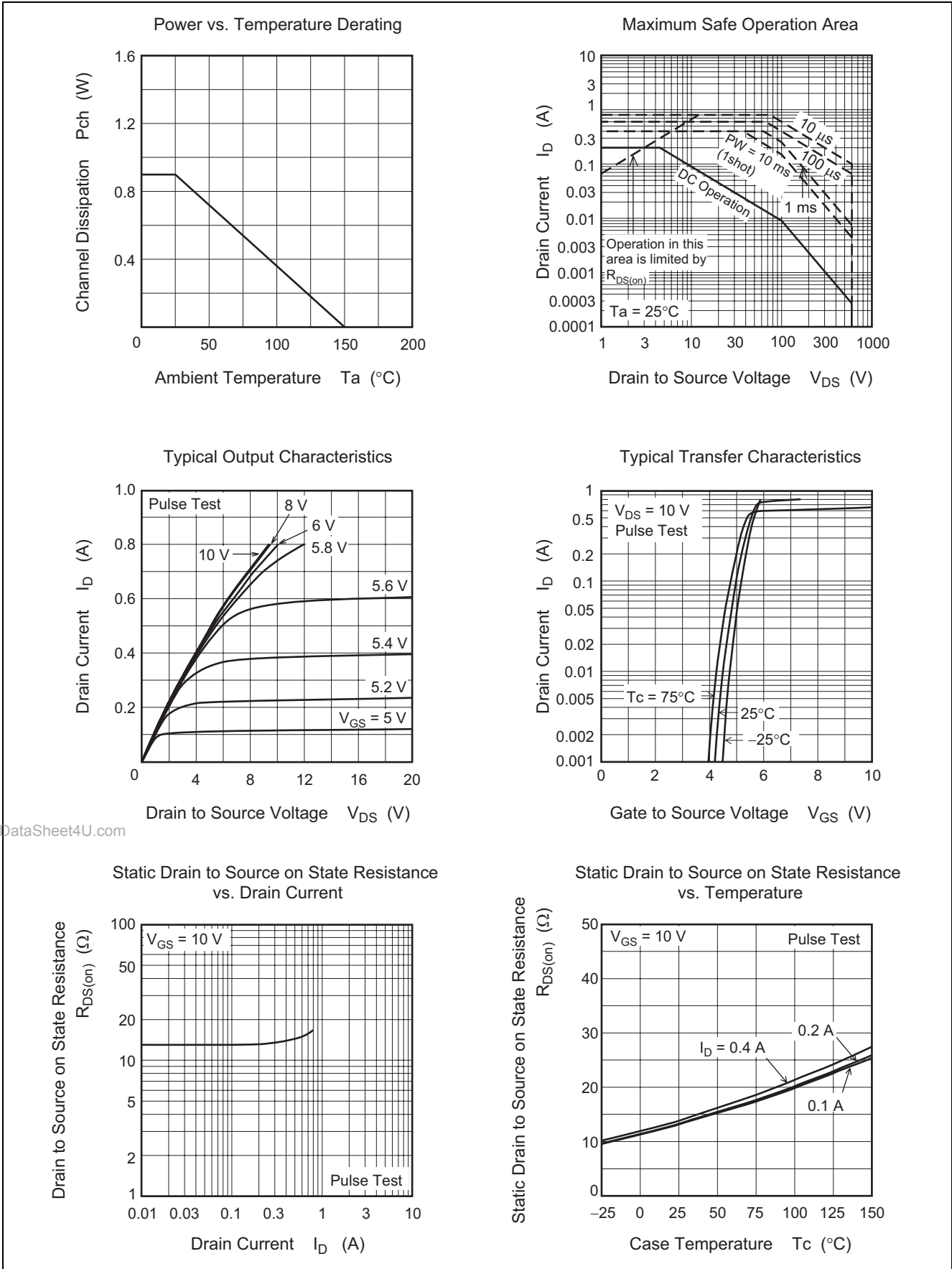
(Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|--|---------------|-----|------|-----------|---------------|--|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | 600 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Zero gate voltage drain current | I_{DSS} | — | — | 1 | μA | $V_{DS} = 600 \text{ V}$, $V_{GS} = 0$ |
| Gate to source leak current | I_{GSS} | — | — | ± 0.1 | μA | $V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$ |
| Gate to source cutoff voltage | $V_{GS(off)}$ | 3 | — | 5 | V | $V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$ |
| Static drain to source on state resistance | $R_{DS(on)}$ | — | 13 | 15 | Ω | $I_D = 0.1 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note2} |
| Input capacitance | C_{iss} | — | 84 | — | pF | $V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$ |
| Output capacitance | C_{oss} | — | 11 | — | pF | |
| Reverse transfer capacitance | C_{rss} | — | 2 | — | pF | |
| Turn-on delay time | $t_{d(on)}$ | — | 31 | — | ns | $I_D = 0.1 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 3000 \Omega$ $R_g = 10 \Omega$ |
| Rise time | t_r | — | 14 | — | ns | |
| Turn-off delay time | $t_{d(off)}$ | — | 53 | — | ns | |
| Fall time | t_f | — | 173 | — | ns | |
| Total gate charge | Q_g | — | 4.5 | — | nC | $V_{DD} = 480 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 0.2 \text{ A}$ |
| Gate to source charge | Q_{gs} | — | 0.6 | — | nC | |
| Gate to drain charge | Q_{gd} | — | 2.6 | — | nC | |
| Body-drain diode forward voltage | V_{DF} | — | 0.77 | 1.25 | V | $I_F = 0.2 \text{ A}$, $V_{GS} = 0$ ^{Note2} |
| Body-drain diode reverse recovery time | t_{rr} | — | 150 | — | ns | $I_F = 0.2 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$ |

Notes: 2. Pulse test

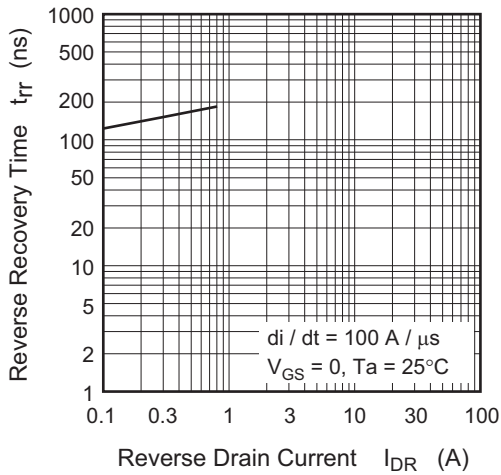
3. Since this device is equipped with high voltage FET chip ($V_{DSS} \geq 600 \text{ V}$), high voltage may be supplied. Therefore, please be sure to confirm about Electric discharge between Drain terminal and other terminal.

Main Characteristics

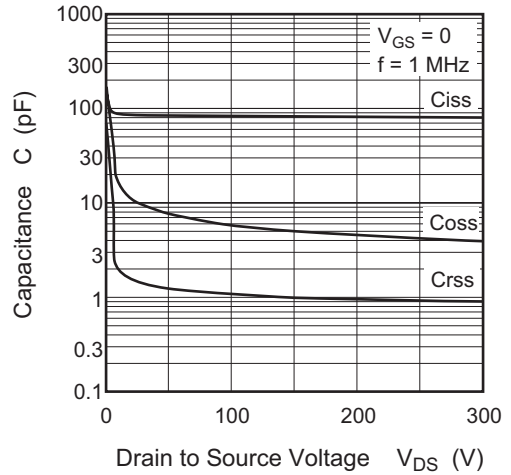


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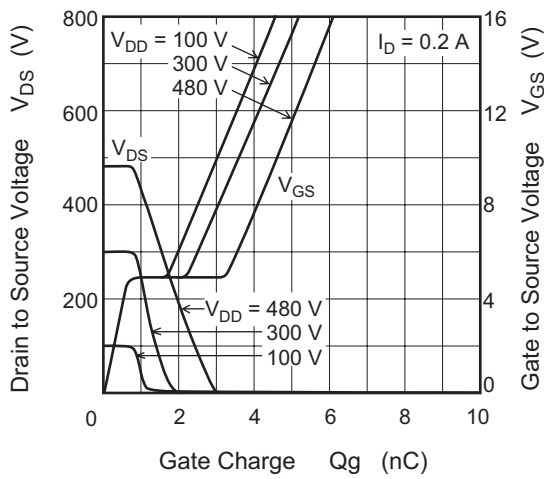
Body-Drain Diode Reverse Recovery Time



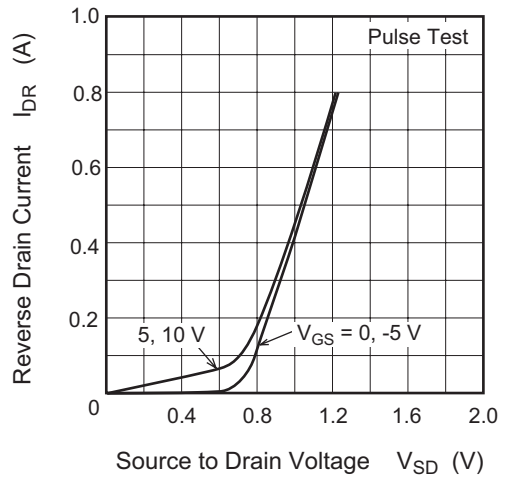
Typical Capacitance vs. Drain to Source Voltage



Dynamic Input Characteristics

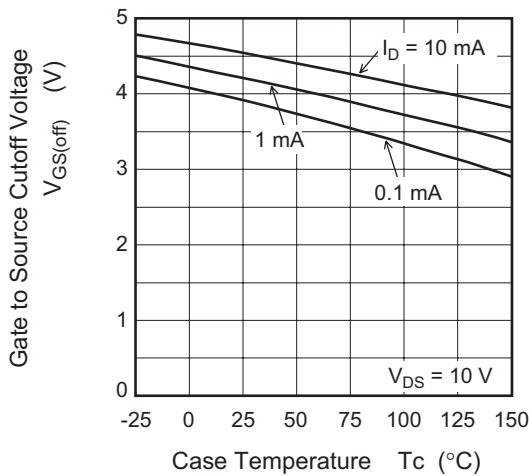


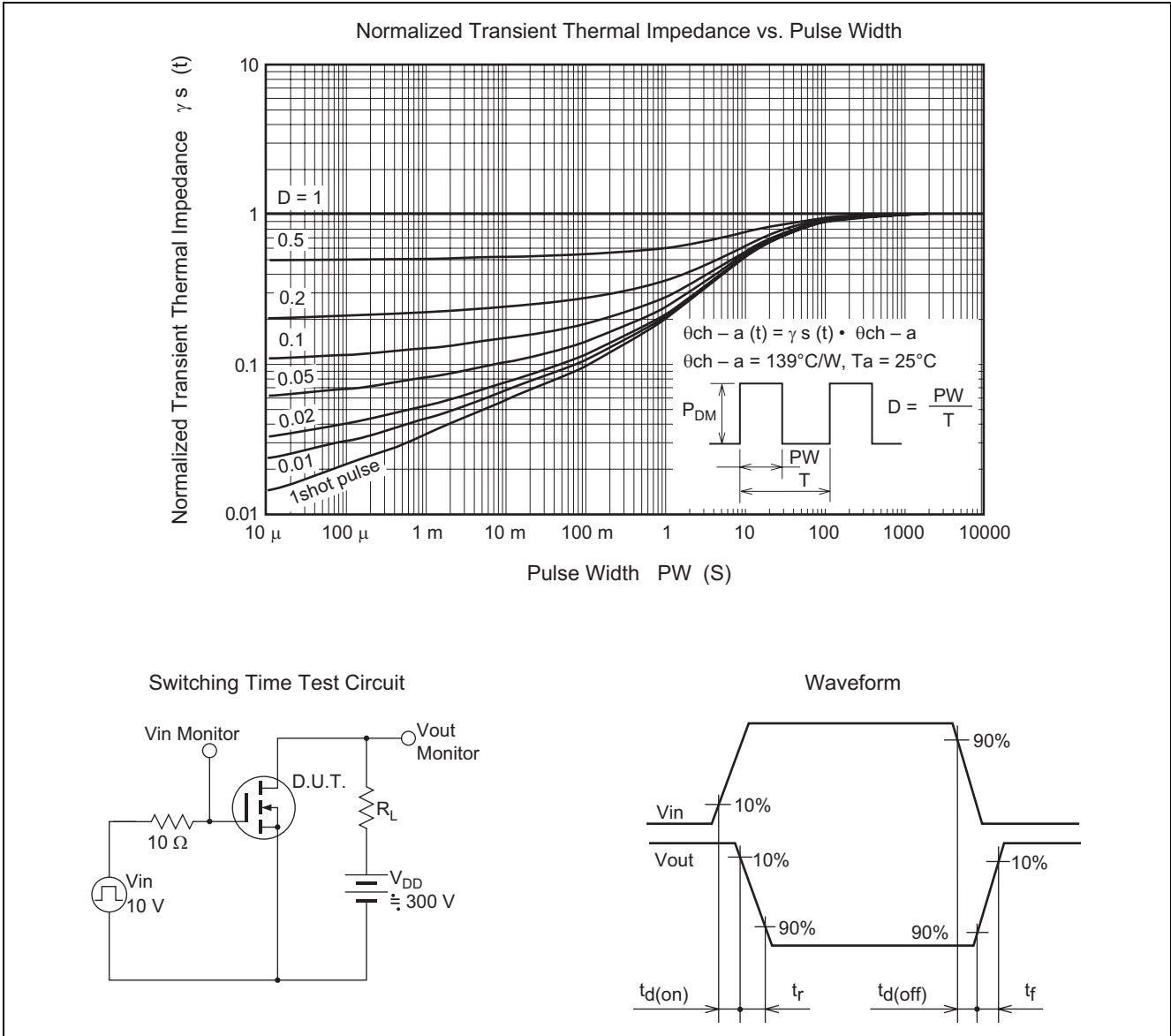
Reverse Drain Current vs. Source to Drain Voltage



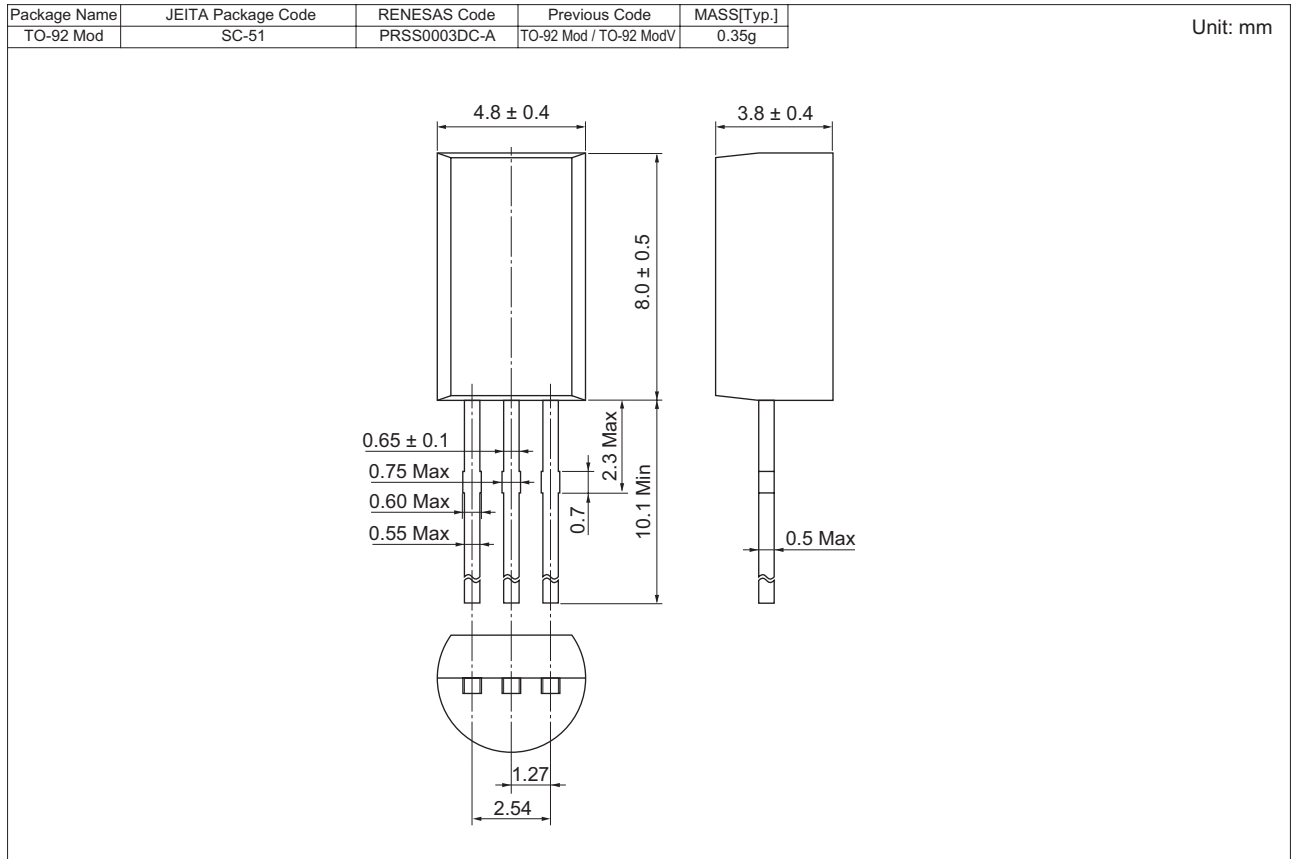
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Gate to Source Cutoff Voltage vs. Case Temperature





Package Dimensions



Since RJK6022DJE is equipped with high voltage FET chip ($V_{DSS} \geq 600$ V), high voltage may be supplied. Therefore, please be sure to confirm about Electric discharge between Drain terminal and other terminal.

Ordering Information

| Part Name | Quantity | Shipping Container |
|------------------|----------|-------------------------|
| RJK6022DJE-00-Z0 | 2500 pcs | Hold Box, Radial Taping |

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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