

RJU1CF04DWA / RJU1CF04DWS

1250V - 50A - Fast Recovery Diode

R07DS1476EJ0201

Rev.2.01

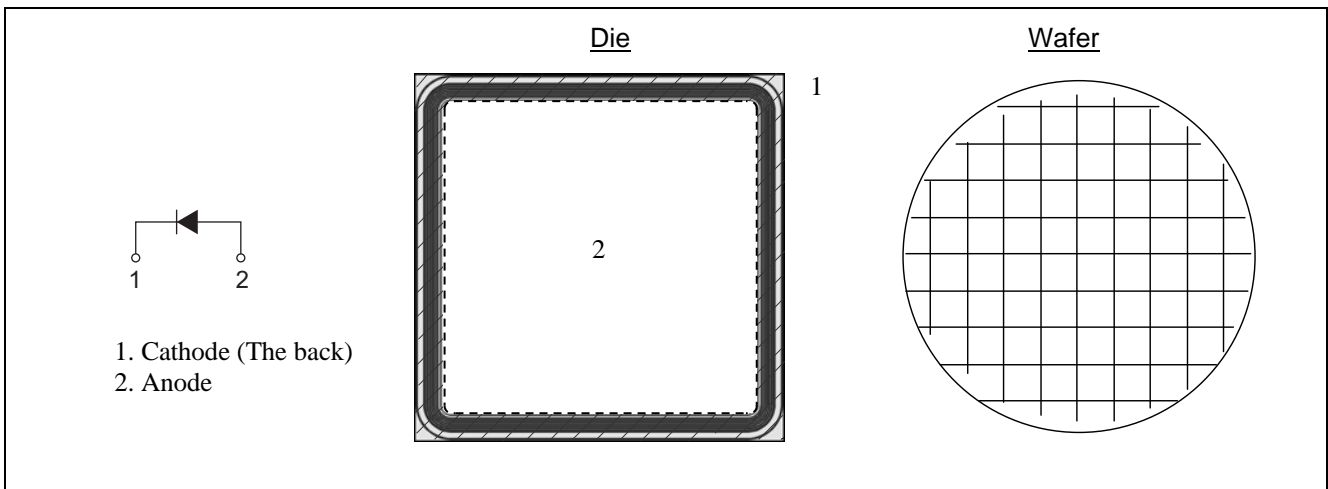
Application: Inverter

Apr.10.2020

Features

- Low forward voltage
 $V_F = 2.0 \text{ V typ. (at } I_F = 50 \text{ A, } T_c = 25^\circ\text{C)}$
- Fast Recovery (soft recovery)
 $t_{rr} = 90 \text{ ns typ. (at } I_F = 50 \text{ A, } di/dt = 1500 \text{ A}/\mu\text{s, } T_c = 25^\circ\text{C)}$

Outline



Absolute Maximum Ratings

($T_c = 25^\circ\text{C}$ unless otherwise noted)

| Item | Symbol | Ratings | Unit | |
|-------------------------|---------------------------|--------------|------------------|---|
| Maximum reverse voltage | V_{RM} | 1250 | V | |
| Forward current | $T_c = 25^\circ\text{C}$ | I_F Notes1 | 100 | A |
| | $T_c = 100^\circ\text{C}$ | I_F Notes1 | 50 | A |
| Junction temperature | T_j Notes2 | 175 | $^\circ\text{C}$ | |

- Notes:
1. Depends on thermal properties of assembly.
 2. Please use this device in the thermal condition which the junction temperature does not exceed 175°C . IGBT Application Note is disclosed about reliability test and application condition up to $T_j = 175^\circ\text{C}$.
 3. Continuous heavy condition (e.g. high temperature/voltage/current or high variation of temperature) may affect a reliability even if it is within the absolute maximum ratings. Please consider derating condition for appropriate reliability in reference Renesas Semiconductor Reliability Handbook (Recommendation for Handling and Usage of Semiconductor Devices) and individual reliability data.

Electrical Characteristics (These data are an actual measurement value in a package.)

(Tc = 25°C unless otherwise noted)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|-----------------------|----------|-----|-----|-----|---------------|-------------------------------------------------------------------------------|
| Forward Voltage | V_F | — | 2.0 | 2.7 | V | $I_F = 50 \text{ A}$ Notes4, Notes5 |
| Reverse current | I_R | — | — | 25 | μA | $V_R = 1250 \text{ V}$ Notes6 |
| Reverse recovery time | t_{rr} | — | 90 | — | ns | $I_F = 50 \text{ A}$, $di/dt = 1500 \text{ A}/\mu\text{s}$ Notes5, Notes7 |

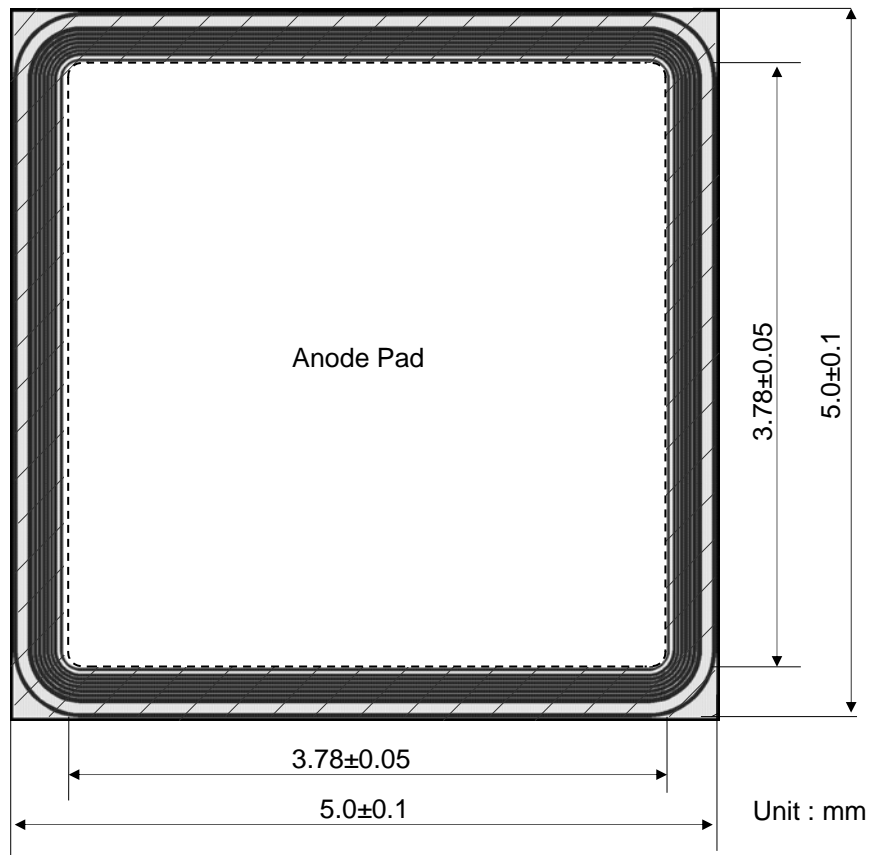
Notes: 4. Pulse test

5. Designed target value on Renesas measurement condition. (Not tested)

6. Tested on wafer

7. Tested to be mounted on Renesas single test vehicle.

Die Dimension



Note 1 :

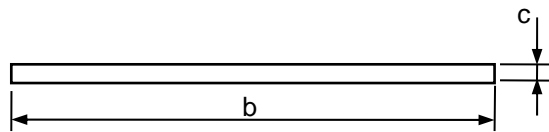
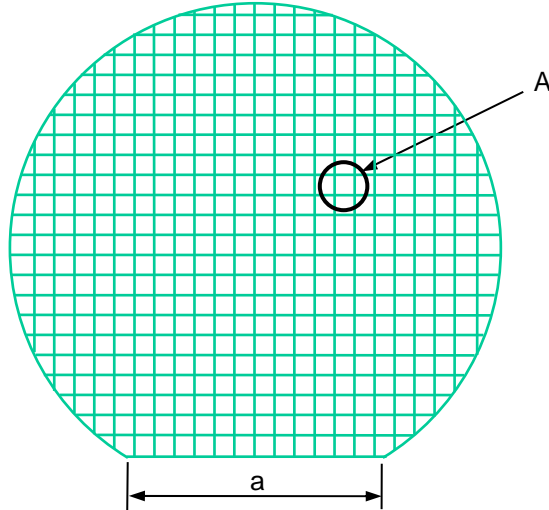
| Illustration | Definition |
|---------------------|-------------------|
| Part of white | Al pattern |
| Part of dotted line | Bonding area |
| Part of hatching | Final passivation |

Note 2 : The back of the chip is processed with Au evaporation.

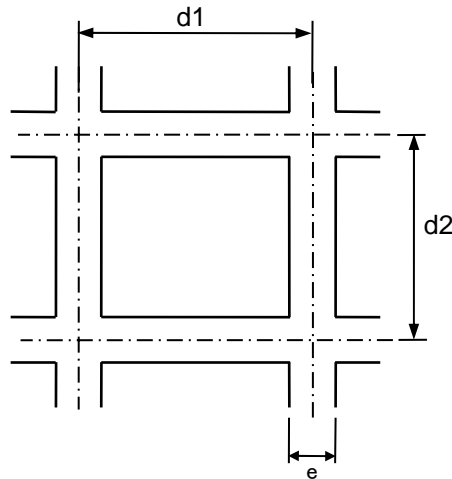
Note 3 : Recognition, target and any other patterns which are not related to FRD operation, may be changed without notice.

Wafer Dimension

Wafer dimension



A Enlargement



| Item | Symbol | Dimensions (mm) |
|------------------|--------|-----------------|
| Orientation flat | a | (47.5) |
| Wafer diameter | b | 150 |
| Wafer thickness | c | 0.14±0.02 |
| Chip pitch | d1 | 5.0±0.1 |
| | d2 | 5.0±0.1 |
| Scribe grid | e | 0.076 |

() : Reference

Ordering Information

| Orderable Part Number | Shipment form |
|-----------------------|---------------|
| RJU1CF04DWA-00#W0 | Unsaun wafer |
| RJU1CF04DWS-00#W0 | Sawn wafer |

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