

RJU65F24DWA / RJU65F24DWS

650V - 50A - Fast Recovery Diode

Application: Inverter

R07DS1482EJ0300

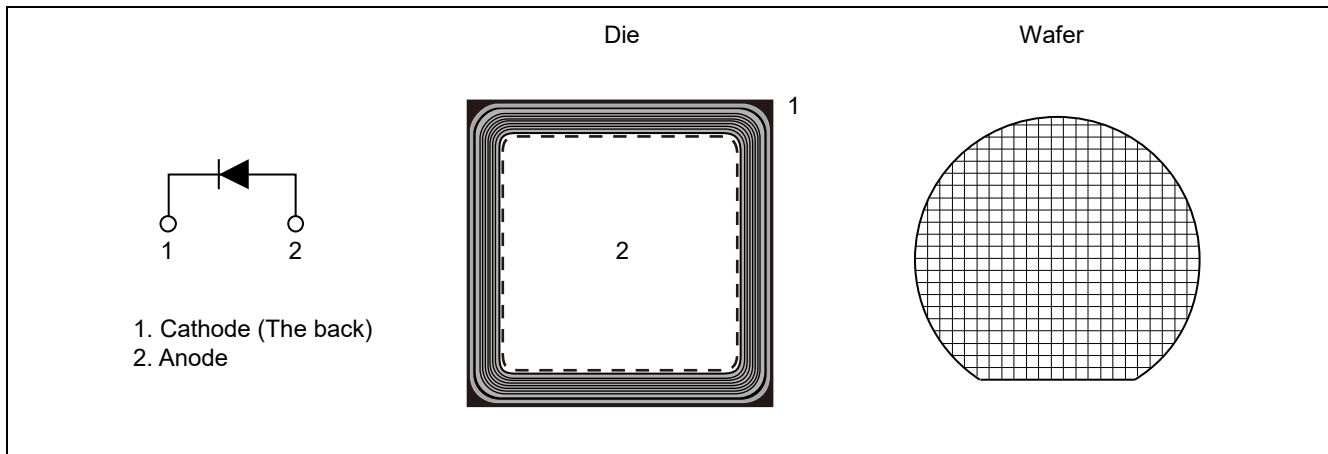
Rev.3.00

Jul.6.2023

Features

- Low forward voltage
 $V_F = 1.55 \text{ V typ. (at } I_F = 50 \text{ A, } T_c = 25 \text{ °C)}$
- Fast recovery (soft recovery)
 $t_{rr} = 70 \text{ ns typ. (at } I_F = 50 \text{ A, } di/dt = 100 \text{ A}/\mu\text{s, } T_c = 25 \text{ °C)}$
- Wafer size: 150 mm
- Quality grade: Standard

Outline



Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Maximum reverse voltage	V_{RM}	650	V
Forward current	$T_c = 25 \text{ °C}$	100 <small>Notes1</small>	A
	$T_c = 100 \text{ °C}$	50 <small>Notes1</small>	A
Junction temperature	T_j	175 <small>Notes2</small>	°C

- Notes:
1. Depends on thermal properties of assembly.
 2. Please use this device in the thermal conditions which the junction temperature does not exceed 175 °C. IGBT Application Note is disclosed about reliability test and application condition up to $T_j = 175 \text{ °C}$.
 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 (Data below are measured values on a package configuration.)

(Tc = 25 °C unless otherwise noted)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Forward voltage	V_F	—	1.55	2.0	V	$I_F = 50 \text{ A}$ Notes4, Notes5
Reverse current	I_R	—	—	2	μA	$V_R = 650 \text{ V}$ Notes6
Reverse recovery time	t_{rr}	—	70	—	ns	$I_F = 50 \text{ A}$, $di/dt = 100 \text{ A}/\mu\text{s}$ Notes5, Notes7

Notes: 4. Pulse test

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

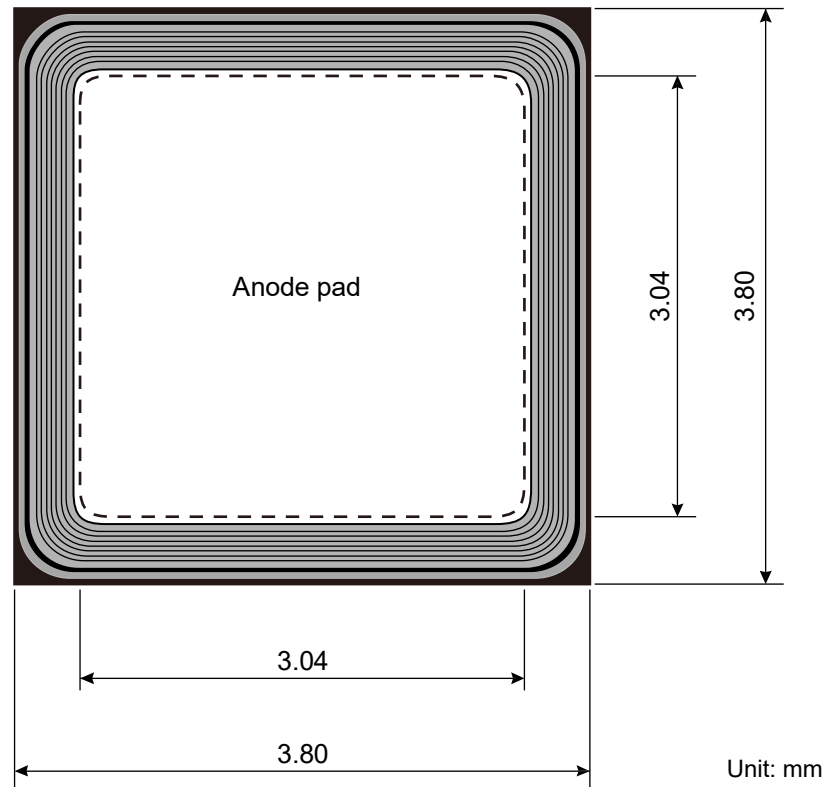
6. Tested on wafer

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

8. Characteristic items prescribed in this document will guarantee the electrical characteristics in chip state but not the characteristic fluctuations or characteristic defects that occur in the processes after assembling.

9. Switching characteristics is depending strongly on module design and mounting technology.

Die Dimension



Note 1.

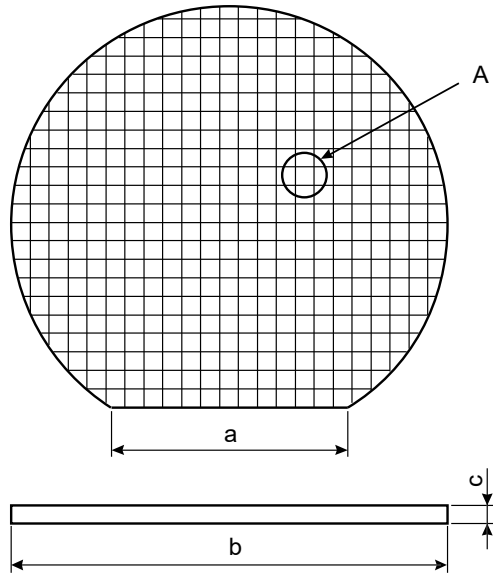
Illustration	Definition
Part of white	Al pattern
Part of dotted line	Bonding area
Part of gray	Final passivation

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

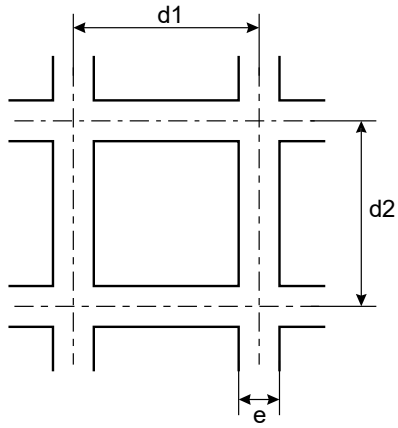
Note 3. Recognition, target and any other patterns which are not related to FRD operation, may be changed without notice.

Wafer Dimension

Wafer dimension



A Enlargement



Item	Symbol	Dimensions (mm)
Orientation flat	a	(47.5)
Wafer diameter	b	150
Wafer thickness	c	0.07
Chip pitch	d1	3.80
	d2	3.80
Scribe grid	e	0.076

(): Reference

Ordering Information

Please contact your Renesas sales representative for sample requests.

Delivery form	Ordering Part Number	Ordering quantity unit	Remark
Unsawn wafer	RJU65F24DWA-03#W0	3027 (3 wafers)	-
Unsawn wafer	RJU65F24DWA-0F#W0	13117 (13 wafers)	-
Sawn wafer	RJU65F24DWS-03#W0	3027 (3 wafers)	Under Development
Sawn wafer	RJU65F24DWS-0F#W0	13117 (13 wafers)	Under Development

Note. The order quantities indicate the maximum quantity of chips for each part number, and the actual quantity of chips shipped will be reduced due to yield. There is also a possibility that the number of wafers may decrease during the manufacturing process. The quantity shipped will be indicated on the label as the number of good chips.

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