

# RJU6832PJWS

750V - 300A - Diode Chip  
 Applications: Automotive

R07DS1578EJ0100  
 Rev.1.00  
 Nov.22nd.2024

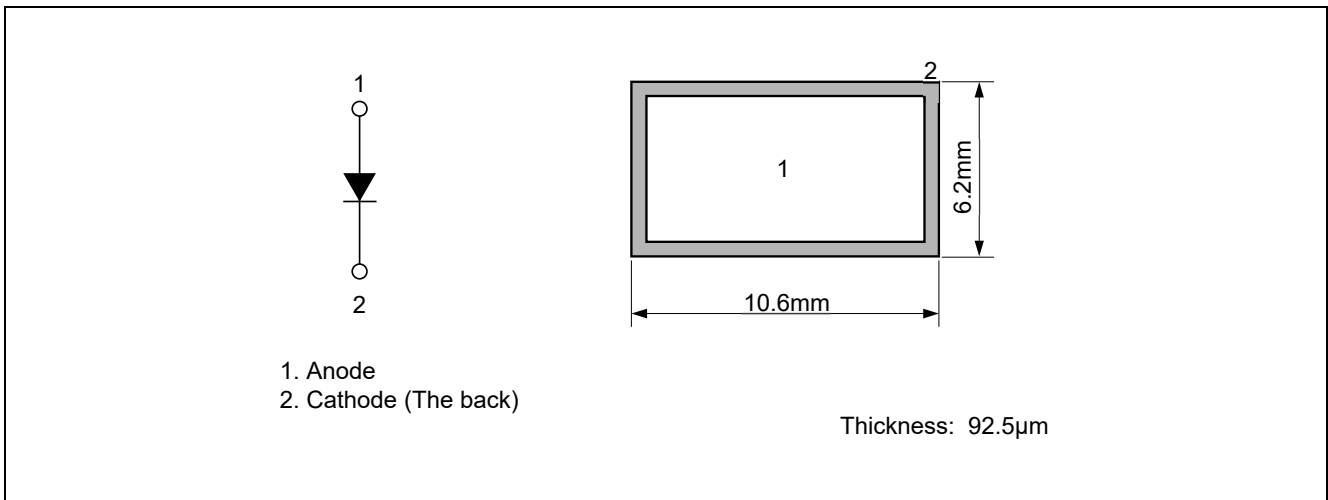
## Features

- Fast Recovery Diode technology
- Low Forward voltage  
 $V_F = 1.5\text{ V typ. (at } I_F = 300\text{ A, } T_j = 25\text{ °C)}$
- AEC Q101 (HTRB) qualified
- Applications: Hybrid and electric vehicle inverter

## Key performance

Product name	V <sub>CES</sub>	I <sub>c</sub>	Die size	Package
RJU6832PJWS	750 V	300 A	65.72 mm <sup>2</sup> (10.5 mm x 6.2 mm)	Sawn wafer

## Outline



## Mechanical Parameters

Parameter	value
Die size	65.72 mm <sup>2</sup> (10.6 mm x 6.2 mm)
Anode pad size	9.6 mm x 5.2 mm
Die thickness	92.5 µm
Passivation front side	Polyimide
Pad metallization	Ni / Au - 2.5 µm / 0.035 µm
Backside metallization	Ni / Au - 0.6 µm / 0.1 µm
Die attach recommendation	Solder
Wire bond recommendation	Al wire ≤ 500 µm
Recommended storage environment	Stored in original container, in dry air or nitrogen. 15 months after packing, at an ambient temperature of 20 to 30 °C, dew-point under -30 °C.

## Absolute Maximum Ratings

(T<sub>j</sub> = 25 °C unless otherwise noted)

Item	Symbol	Ratings	Unit	
Reverse Voltage	T <sub>j</sub> = -40 °C	V <sub>R</sub>	650 <sup>Notes1</sup>	V
	T <sub>j</sub> = 25 °C		750	V
	T <sub>j</sub> = 175 °C		750 <sup>Notes1</sup>	V
Forward current (DC)	I <sub>F</sub>	- <sup>Notes2</sup>	A	
Pulse forward current	I <sub>F(pulse)</sub>	900 <sup>Notes1, 4</sup>	A	
Junction temperature	T <sub>j</sub>	175 <sup>Notes3</sup>	°C	

- Notes: 1. Not subject to production test – verified by design/characterization.  
 2. Depending on thermal properties of assembly, T<sub>j</sub> ≤ 175 °C.  
 3. AEC-Q101 complaint. HTRB is carried out to determine.  
 4. PW = 10 μs, Duty < 1 %  
 5. Continuous heavy condition (e.g. high temperature/voltage/current or high variation of temperature) may affect 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 1

(Tested on wafer, T<sub>j</sub> = 25 °C unless otherwise noted)

Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Breakdown voltage	V <sub>(BR)R1</sub>	I <sub>R</sub> = 100 μA	750	—	—	V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> = 750 V	—	—	17	μA

- Notes: 6. The characteristic items specified in this table guarantee the electrical characteristics in the wafer state but do not the characteristic fluctuations or characteristic defects that occur in the processes after assembling.

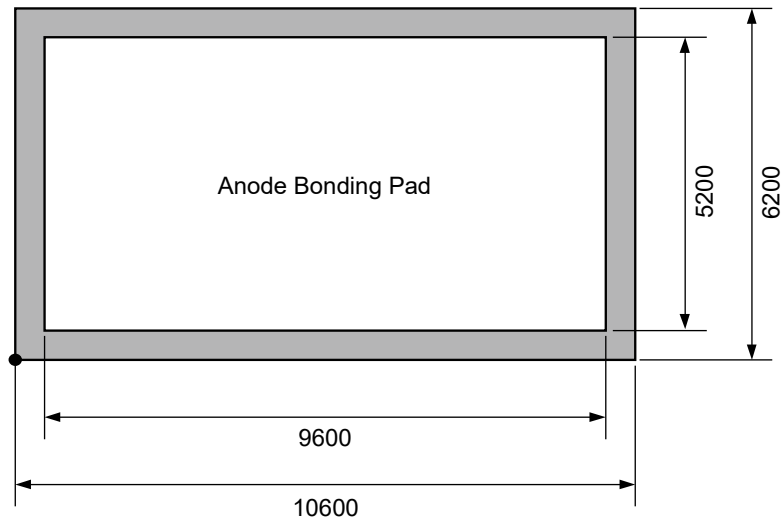
## Electrical Characteristics 2

(Not subject to production test, designed target value, T<sub>j</sub> = 25 °C unless otherwise noted)

Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Breakdown voltage	V <sub>(BR)R2</sub>	I <sub>R</sub> = 100 μA, T <sub>j</sub> = -40 °C Notes7	650	—	—	V
	V <sub>(BR)R3</sub>	I <sub>R</sub> = 10 mA, T <sub>j</sub> = 175 °C Notes7	750	—	—	V
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 300 A <sup>Notes7</sup>	—	1.50	1.85	V
Reverse recovery current	I <sub>rr</sub>	V <sub>CC</sub> = 475 V, I <sub>F</sub> = 300 A	—	218	—	A
Reverse recovery charge	Q <sub>rr</sub>	diF/dt = 8900 A/μs	—	19	—	μC
Reverse recovery energy	E <sub>rr</sub>	Inductive load <sup>Notes7, 8</sup>	—	4.5	—	mJ

- Notes: 7. Designed target value on Renesas measurement condition.  
 8. This value is influenced by parasitic inductance and assembly condition.

**Die Dimension**



Unit:  $\mu\text{m}$   
 Die thickness: 92.5  $\mu\text{m}$   
 Back side: Cathode

Notes 1:

Illustration	Definition
Part of gray	Final passivation (Polyimide)
Part of white	Bonding area (Ni/Au)

Notes 2: Recognition, target and any other patterns which are not related to FRD operation, may be changed without notice.

**Ordering Information**

Please contact your Renesas sales representative for sample requests.

Delivery Form	Ordering Part Number	Remark
Sawn wafer on foil	RJU6832PJWS-00#W0	

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