

Renesas Technology Releases Thinnest, Smallest Schottky Barrier Diodes in 1A Average Rectified Current Class

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Only 0.55 mm (max.) thick, for power supply circuits in digital still cameras, mobile phones, etc.

[Renesas Technology Corp.](#) today announced the HRV103A and HRV103B ultra-small Schottky barrier diodes for implementing small, thin power supply circuits in products such as digital still cameras and mobile phones. Sample shipments will begin in Japan in September, 2004.

These products offer the following features.

(1) Smallest, thinnest 1A rectified current class products, at 2.5 mm × 1.25 mm × 0.55 mm (max.)

The thickness of 0.55 mm (max.) is the smallest for Schottky barrier diodes performing rectification with a rectified current of 1A. The mounting area is also the same as for the smallest current products. These products are suitable for back current stopper and circuit protection in digital still cameras and mobile phones.

(2) Lead-free design

These products feature environment-friendly lead-free specifications.

Product Background

Schottky barrier diodes in the 1A rectified current class are used in back current stopper and circuit protection in Lithium Ion batteries and DC/DC converters for digital still cameras and mobile phones, and so need to be small and thin. In line with this, the size of these Schottky barrier diodes has shrunk from 5.0 mm × 2.5 mm × 2.0 mm to the currently widely-used dimensions of 3.8 mm × 1.6 mm × 1.1 mm. While even smaller and thinner devices are in demand, smaller package cubic capacities mean lower heat radiation capability, making it difficult to handle a 1A rectified current.

Renesas Technology has therefore developed a new ultra-small package with excellent heat radiation capability, and has used this package for the new HRV103A and HRV103B to provide smaller, thinner devices with no loss of performance.

Product Details

The smallest, thinnest dimensions for 1A rectified current class Schottky barrier diodes have been achieved through the use of a new TURP* package that offers improved heat radiation capability through employment of a new structure at the same time as small, thin dimensions, together with an improved chip structure.

Thickness has been halved, and mounting area approximately halved, compared with the 3.8 mm × 1.6 mm × 1.1 mm size currently becoming the norm. In addition, specifications that take lead-free design into consideration have been applied from the very start of development.

The HRV103A is a low-forward-voltage (low-VF) product achieving a figure of $V_F = 0.42\text{V}$ (typ.) with a 1A forward current (I_F), while the HRV103B is a low-reverse-current (low-IR) product achieving a figure of $I_R = 100\ \mu\text{A}$ (max.) with a 30 V reverse voltage (V_R). This two-product lineup offers a choice of devices to suit different applications.

Notes:. TURP: Thin-URP (Ultra Small Resin Package). A Renesas Technology package code.

* Product names, company names, or brands mentioned are the property of their respective owners.

Typical Applications

Digital still cameras, mobile phones, mobile phone rechargers, PC power supply circuits

The original press release can be found [here](#).

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