

# RTE7701421CFK144T000R

R20UT3902EJ0100

Rev. 1.00

Nov. 25, 2016

## Exchange Adapter for Connecting RH850/D1x Series in 144-pin 0.5-mm-pitch LFQFP

### 1. Outline

The RTE7701421CFK144T000R is an exchange adapter (EA) for connecting the RTE7701460EPA00000R emulator pod for the RH850/D1x (subsequently referred to as the pod) to pad patterns for a 144-pin 0.5-mm-pitch LFQFP (PLQP0144KA-A).

### 2. Package Components

Check to see if the RTE7701421CFK144T000R package has all the following contents with reference to Contents of the Package included in the package after purchasing this product.

- (1) RTE7701421CFK144T000R exchange adapter 1 pc.
- (2) Table of Toxic and Hazardous Substance and Elements 1 sh.

### 3. Specifications

**Table 1 Specifications**

|   |  |
|---|--|
| Applicable package                        | PLQP0144KA-A<br>(144-pin 0.5-mm-pitch LFQFP) |
| Insertion/removal iterations of connector | 100 times guaranteed                         |

### 4. Usage (See Figure 2)

The RTE7701421CFK144T000R can be used for debugging and on-board evaluation in common by mounting the TC on the target system.

#### (1) For debugging

Mount the TC on the pad pattern for the MCU on the target system board and attach the EC above it. In addition, connect the RTE7701421CFK144T000R to the pod, and then attach the RTE7701421CFK144T000R above the EC. The height of the socket is adjustable by inserting the SA between the EC and RTE7701421CFK144T000R if this is desired. Before using the EC, be sure to read the precautions on page 4.

#### (2) For on-board evaluation

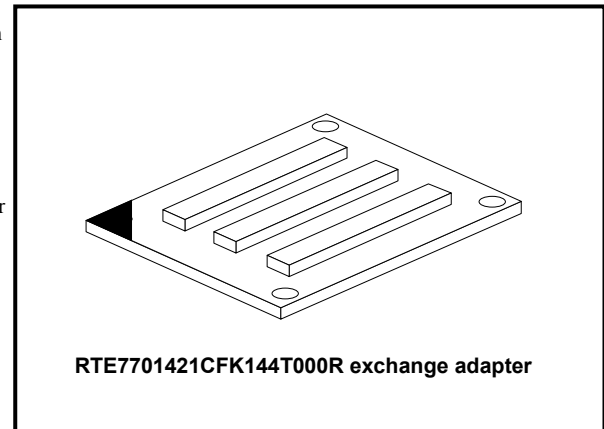
Mount the TC, an MCU with on-chip flash memory or one-time PROM, and the MA, in that order, on the target system.

SA: Space adapter (sold separately, product of Renesas Electronics Corporation)  
Model Name: QB-144GJ-YS-01T

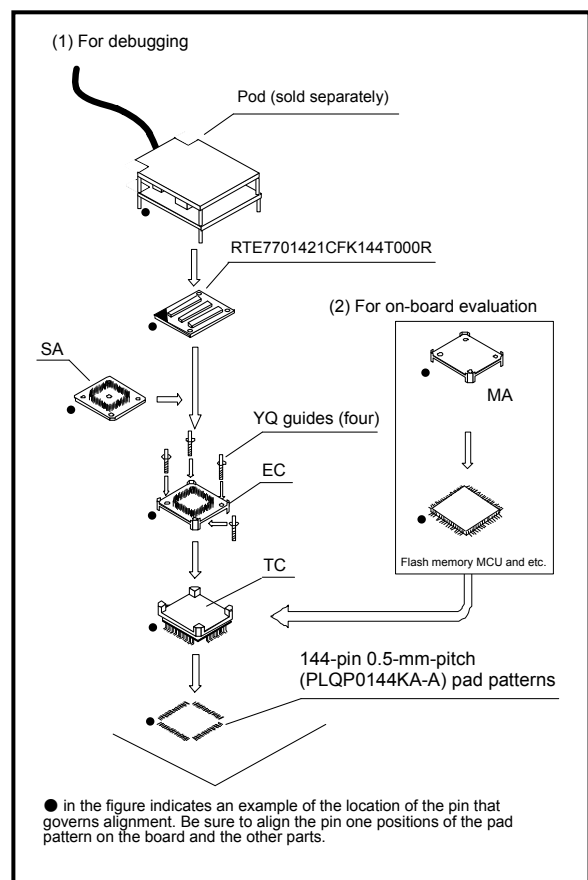
EC: Emulator connector (sold separately, product of Renesas Electronics Corporation)  
Model name: QB-144GJ-YQ-01T  
\*The QB-144GJ-YQ-01T package includes the YQ guides.

TC: Target connector (sold separately, product of Renesas Electronics Corporation)  
Model name: QB-144GJ-NQ-01T

MA: Mounting adapter (sold separately, product of Renesas Electronics Corporation)  
Model name: QB-144GJ-HQ-01T



**Figure 1 External View of the RTE7701421CFK144T000R**



**Figure 2 Usage of the RTE7701421CFK144T000R**

5. Connection Procedure (See Figure 3)

The procedure for connecting the RTE7701421CFK144T000R is shown below.

- (1) Mount the TC on the target system.
  - (a) Thinly apply a two-part curing-type epoxy-based adhesive (with curing taking at least thirty minutes) to the tips of the four protrusions from the bottom surface of the TC to be bonded to the target system (before using the adhesive, use alcohol or another suitable solvent to clean the surface of the target system). If you have difficulty aligning the positions of the leads of the TC with the pads on the target system, adopt the method described in (b) below.
  - (b) Use guide pins (NQ guide) to align positions attached to the TC by inserting the pins into the sockets for this purpose on the top of the TC. These are two or three non-through holes with a diameter of 1.0 mm. Refer to the drawings of your TC for more information on the socket positions.
  - (c) Solder the TC to the target system. If an MA is to be included, attach the MA before soldering the TC. The MA is used to prevent scattered flux or solder creating problems by becoming attached to the contact pins of the TC.

■ Conditions for soldering  
 Reflow: within 10 seconds at 260°C  
 Manual soldering: within 5 seconds at 350°C (per pin)  
 Cautionary note: Do not wash the flux away by immersion or vapor treatment.

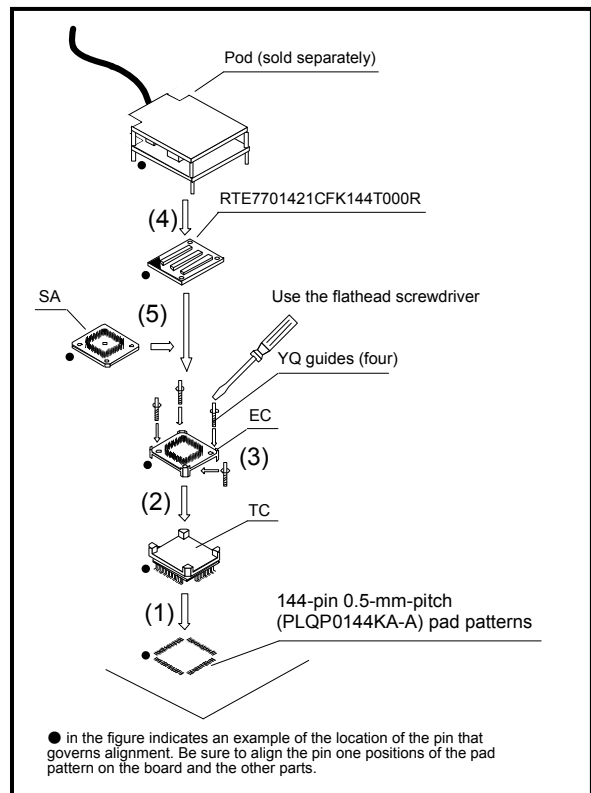


Figure 3 Procedure for Connecting the RTE7701421CFK144T000R

- (d) Remove the guide pins or MA if they were used.
- (2) Attach the EC to the TC.  
 Attach the EC above the TC after confirming there are neither cracks nor bends on the contact pins of the EC.
- (3) Secure the four corners of the EC with the YQ guide screws that came with the EC.

■ Screws supplied with the EC  
 Use the flathead screwdriver or torque driver supplied with the EC to secure, in order, the screws at the four corners. The tightening torque of a YQ guide should be no more than 0.054 Nm. Securing the screws too tightly will lead to faulty connections.

- (4) Attach the pod to the RTE7701421CFK144T000R.
- (5) Attach the RTE7701421CFK144T000R to the EC.

- Adjusting the height of the socket  
 The height of the socket is adjustable by inserting an SA between the EC and the RTE7701421CFK144T000R.

SA: Space adapter (sold separately, product of Renesas Electronics Corporation)  
 Model Name: QB-144GJ-YS-01T  
 EC: Emulator connector (sold separately, product of Renesas Electronics Corporation)  
 Model name: QB-144GJ-YQ-01T  
 \*The QB-144GJ-YQ-01T package includes the YQ guides.  
 TC: Target connector (sold separately, product of Renesas Electronics Corporation)  
 Model name: QB-144GJ-NQ-01T  
 MA: Mounting adapter (sold separately, product of Renesas Electronics Corporation)  
 Model name: QB-144GJ -HQ-01T

6. Drawing of the Socket Assembly, Drawing with Dimensions, and Pad Pattern for Reference

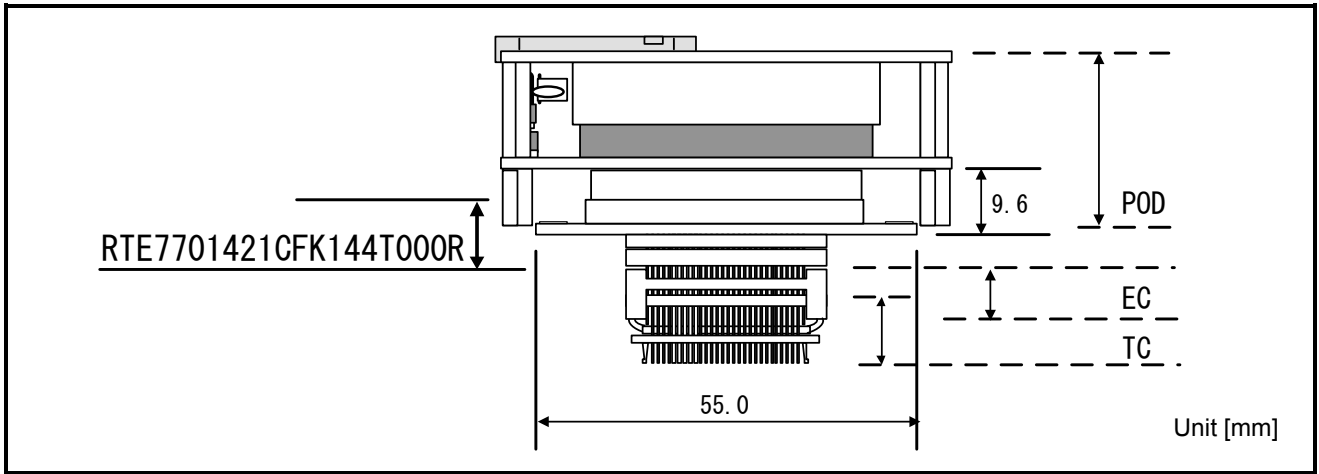


Figure 4 Drawing of the Socket Assembly

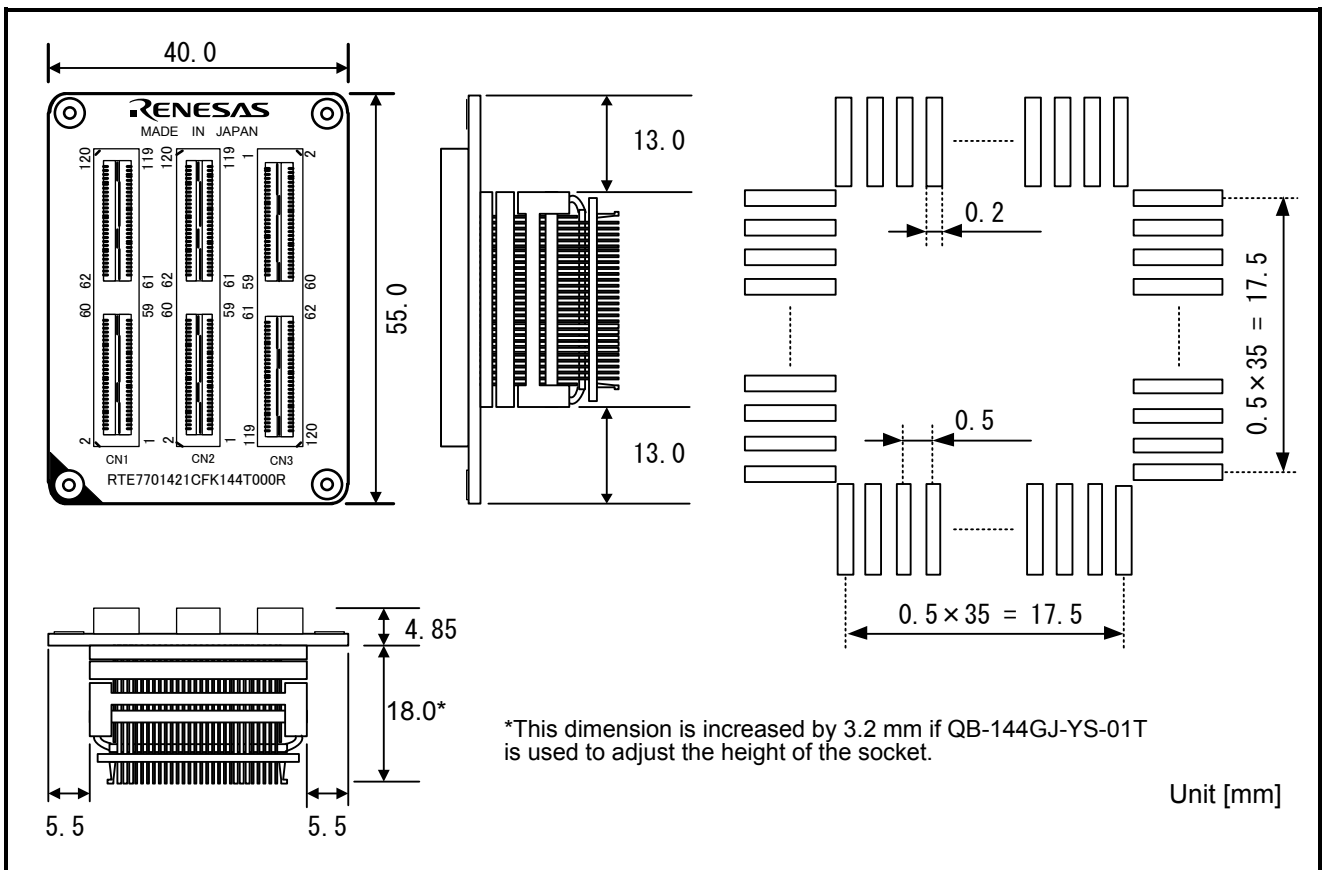


Figure 5 Drawing with Dimensions and a Pad Pattern for Reference

## 7. Precautions and WEEE Directive

**CAUTION**

If the requirements shown in the "CAUTION" sentences are ignored, the equipment may cause personal injury or damage to the products.

**⚠ CAUTION**

Cautions to be Taken for This Product:



- Use the YQ guides supplied with the EC to attach the QB-144GJ-YQ-01T.

**IMPORTANT**

Note on This Product:

- This product is not reparable.

Disposal Instruction (This is only valid in the European Union.):



Renesas development tools and products are directly covered by the European Union's Waste Electrical and Electronic Equipment, (WEEE), Directive 2002/96/EC. As a result, this equipment, including all accessories, must not be disposed of as household waste but through your locally recognised recycling or disposal schemes. As part of our commitment to environmental responsibility Renesas also offers to take back the equipment and has implemented a Tools Product Recycling Program for customers in Europe. This allows you to return equipment to Renesas for disposal through our approved Producer Compliance Scheme. To register for the program, click here "<http://www.renesas.com/weee>".

All trademarks and registered trademarks are the property of their respective owners.

## Notice

1. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation of these circuits, software, and information in the design of your equipment. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from the use of these circuits, software, or information.
2. Renesas Electronics has used reasonable care in preparing the information included in this document, but Renesas Electronics does not warrant that such information is error free. Renesas Electronics assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.
3. Renesas Electronics does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Renesas Electronics products or technical information described in this document. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
4. You should not alter, modify, copy, or otherwise misappropriate any Renesas Electronics product, whether in whole or in part. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from such alteration, modification, copy or otherwise misappropriation of Renesas Electronics product.
5. Renesas Electronics products are classified according to the following two quality grades: "Standard" and "High Quality". The recommended applications for each Renesas Electronics product depends on the product's quality grade, as indicated below.  
"Standard": Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; and industrial robots etc.  
"High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control systems; anti-disaster systems; anti-crime systems; and safety equipment etc.  
Renesas Electronics products are neither intended nor authorized for use in products or systems that may pose a direct threat to human life or bodily injury (artificial life support devices or systems, surgical implantations etc.), or may cause serious property damages (nuclear reactor control systems, military equipment etc.). You must check the quality grade of each Renesas Electronics product before using it in a particular application. You may not use any Renesas Electronics product for any application for which it is not intended. Renesas Electronics shall not be in any way liable for any damages or losses incurred by you or third parties arising from the use of any Renesas Electronics product for which the product is not intended by Renesas Electronics.
6. You should use the Renesas Electronics products described in this document within the range specified by Renesas Electronics, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas Electronics shall have no liability for malfunctions or damages arising out of the use of Renesas Electronics products beyond such specified ranges.
7. Although Renesas Electronics endeavors to improve the quality and reliability of its products, semiconductor products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Further, Renesas Electronics products are not subject to radiation resistance design. Please be sure to implement safety measures to guard them against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas Electronics product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or systems manufactured by you.
8. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. Please use Renesas Electronics products in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. Renesas Electronics assumes no liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
9. Renesas Electronics products and technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations. You should not use Renesas Electronics products or technology described in this document for any purpose relating to military applications or use by the military, including but not limited to the development of weapons of mass destruction. When exporting the Renesas Electronics products or technology described in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
10. It is the responsibility of the buyer or distributor of Renesas Electronics products, who distributes, disposes of, or otherwise places the product with a third party, to notify such third party in advance of the contents and conditions set forth in this document, Renesas Electronics assumes no responsibility for any losses incurred by you or third parties as a result of unauthorized use of Renesas Electronics products.
11. This document may not be reproduced or duplicated in any form, in whole or in part, without prior written consent of Renesas Electronics.
12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products, or if you have any other inquiries.

(Note 1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its majority-owned subsidiaries.

(Note 2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.



### SALES OFFICES

Renesas Electronics Corporation

<http://www.renesas.com>

Refer to "<http://www.renesas.com/>" for the latest and detailed information.

#### Renesas Electronics America Inc.

2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.  
Tel: +1-408-588-6000, Fax: +1-408-588-6130

#### Renesas Electronics Canada Limited

1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada  
Tel: +1-905-898-5441, Fax: +1-905-898-3220

#### Renesas Electronics Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.  
Tel: +44-1628-585-100, Fax: +44-1628-585-900

#### Renesas Electronics Europe GmbH

Arcadiastrasse 10, 40472 Düsseldorf, Germany  
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

#### Renesas Electronics (China) Co., Ltd.

Room 1709, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100191, P.R.China  
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

#### Renesas Electronics (Shanghai) Co., Ltd.

Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, P. R. China 200333  
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

#### Renesas Electronics Hong Kong Limited

Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong  
Tel: +852-2265-6688, Fax: +852-2886-9022/9044

#### Renesas Electronics Taiwan Co., Ltd.

13F., No. 363, Fu Shing North Road, Taipei 10543, Taiwan  
Tel: +886-2-8175-9600, Fax: +886-2-8175-9670

#### Renesas Electronics Singapore Pte. Ltd.

80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre, Singapore 339949  
Tel: +65-6213-0200, Fax: +65-6213-0300

#### Renesas Electronics Malaysia Sdn.Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jin Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia  
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

#### Renesas Electronics Korea Co., Ltd.

12F., 234 Teheran-ro, Gangnam-Ku, Seoul, 135-920, Korea  
Tel: +82-2-558-3737, Fax: +82-2-558-5141