

# ROE436049CFJ10

Converter Board for 80-pin 0.65-mm-pitch QFP for H8/36049 Group

## User's Manual

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### CAUTION

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Renesas Tools Homepage <http://www.renesas.com/en/tools>

## 1. Outline

The R0E436049CFJ10 is a converter board for connecting the compact emulator R0E436640CPE00 for H8/300H Tiny Series to a foot pattern for 80-pin 0.65-mm-pitch QFP (PRQP0080JB-A) of H8/36049 Group.

## 2. Package Components (See Figure 1)

| Item   | Quantity |
|--|----------|
| (1) R0E436049CFJ10<br>(150mm FFC cable and Base board R0E436049EPBS0 included) | 1 pc.    |
| (2) IC149-080-017-B5<br>(made by Yamaichi Electronics Co., Ltd)                | 1 pkg.   |
| Screws (M2 x 12mm)   | 4 pcs.   |
| Flat washers<br>(for fixing the converter board)                               | 4 pcs.   |
| IC socket  | 1 pc.    |
| Socket cover   | 1 pc.    |
| Screws (M2 x 8mm)  | 4 pcs.   |
| Flat washers (for on-board evaluation)   | 4 pcs.   |
| (3) R0E436049CFJ10 User's Manual<br>(This manual)                              | 1 pc.    |

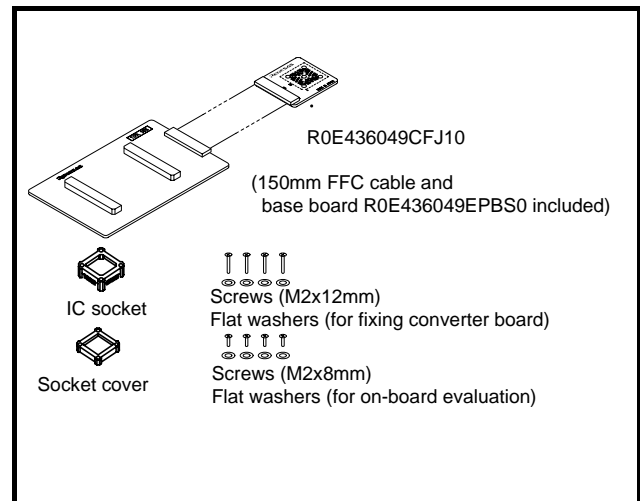


Figure 1 Package components of the R0E436049CFJ10

## 3. Specifications

Table 1 Specifications

|   |   |
|---|---|
| Applicable group                          | H8/36049 Group  |
| Applicable package                        | PRQP0080JB-A<br>*Previous Code FP-80A<br>(80-pin 0.65-mm-pitch QFP) |
| Insertion/removal iterations of connector | Between R0E436640CPE00 and R0E436049CFJ10:<br>50 times guaranteed   |

## 4. Usage (See Figure 2)

The R0E436049CFJ10 can be used for debugging and board mounted evaluation in common by mounting an IC socket on the user system.

### (1) For debugging

Mount the IC socket on the foot pattern of the user system in that order.

After connecting the R0E436640CPE00 and R0E436049EPBS0, connect the R0E436049CFJ10 to the IC socket. And fix them with the screws (M2 x 12mm) included with the R0E436049CFJ10.

Even if the H8/36049 Group MCU is emulated without connecting to the user system, the R0E436049CFJ10 needs to be connected to the R0E436640CPE00.

### (2) For onboard evaluation

Mount an H8/300H Tiny Series MCU in that order on the IC socket on the user system. And fix them with the screws (M2 x 8mm) included with the R0E436049CFJ10.

Before using the R0E436049CFJ10, be sure to read "7. Precautions" on page 4 and the R0E436640CPE00 User's Manual.

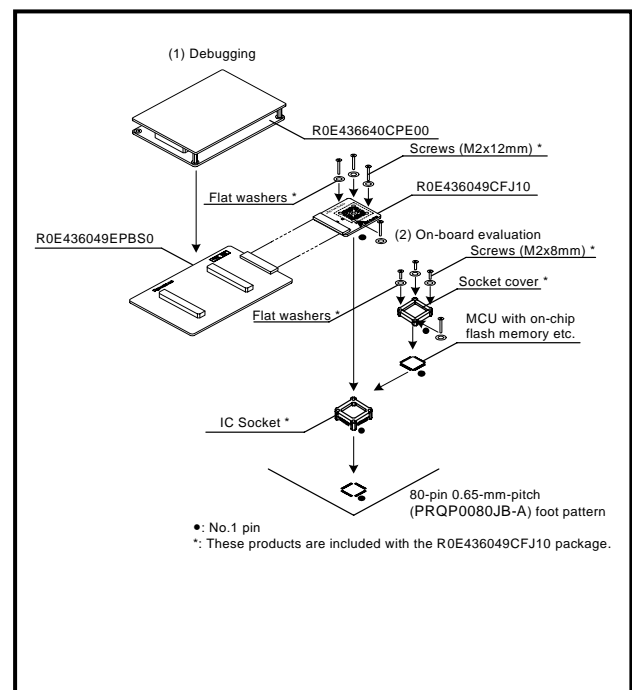


Figure 2 Usage of the R0E436049CFJ10

## 5. Connection Procedure (See Figure 3)

The procedure for connecting the R0E436049CFJ10 is shown below.

- (1) Mount the IC socket on the user system.
- (2) Connect the R0E436640CPE00 and R0E436049EPBS0.
- (3) Connect the R0E436049CFJ10 and IC socket.

Fasten the IC socket to the socket cover with the four screws (M2 x 12 mm) provided. Each screw should be tightened a little at a time, alternating between screws on opposing corners. Take special care, such as manually securing the IC socket soldered area, to prevent the soldered IC socket from being damaged by overtightening the screws or twisting the components.

- When connecting the IC socket and socket cover, use a Phillips-type screwdriver whose head matches the screw head.
- If the applied torque cannot be accurately measured, stop tightening when the force required to turn the screw becomes significantly greater than that needed when first tightening (The tightening torque must be 0.0785 N•m or less). If a screw is tightened too much, the screw head may break or an IC socket contact error may be caused by a crack in the IC socket solder.
- If the emulator does not operate correctly, cracks might have occurred in the solder. Check conduction with a tester and re-solder the IC socket if necessary.

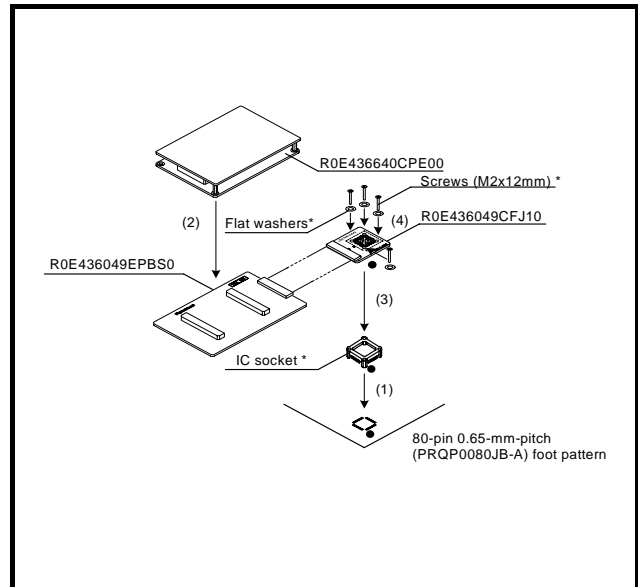


Figure 3 Connection procedure of the R0E436049CFJ10

## 6. External Dimensions and a Recommended Foot Pattern (See Figure 4)

Note that the dimensions of the recommended foot pattern in Figure 4 are somewhat different from those of the actual foot pattern.

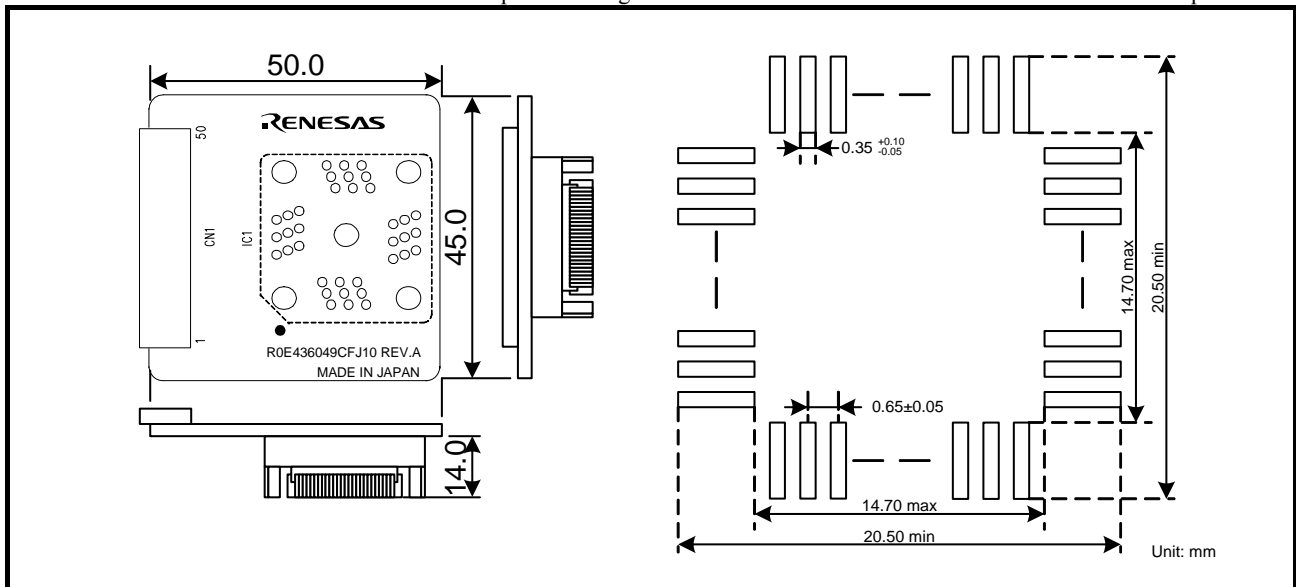


Figure 4 External dimensions and a recommended foot pattern of the R0E436049CFJ10



Table 2 Differences between the emulator and H8/36049 registers

|          | Address | Registers | Bit 7  | Bit 6  | Bit 5  | Bit 4 | Bit 3   | Bit 2  | Bit 1   | Bit 0   |
|----------|---------|-----------|--------|--------|--------|-------|---------|--------|---------|---------|
| Emulator | H'F608  | -         | -      | -      | -      | -     | ("1")*1 | NFEN_3 | TXD_3   | MSTS3_3 |
|          | H'F730  | -         | -      | -      | -      | -     | -       | -      | -       | -       |
|          | H'F731  | -         | -      | -      | -      | -     | -       | -      | -       | -       |
|          | H'FF90  | -         | -      | -      | -      | -     | -       | -      | -       | -       |
|          | H'FF91  | -         | -      | -      | -      | -     | -       | -      | -       | -       |
|          | H'FF92  | -         | -      | -      | -      | -     | -       | -      | -       | -       |
|          | H'FF93  | -         | -      | -      | -      | -     | -       | -      | -       | -       |
|          | H'FF9B  | -         | -      | -      | -      | -     | -       | -      | -       | -       |
|          | H'FFE0  | PMR1      | IRQ3   | IRQ2   | IRQ1   | IRQ0  | TXD2    | PWM    | TXD     | TMOW    |
|          | H'FFE1  | PMR5      | POF57  | POF56  | WKP5   | WKP4  | WKP3    | WKP2   | WKP1    | WKP0    |
|          | H'FFE2  | PMR3      | POF27  | POF26  | POF25  | POF24 | POF23   | -      | -       | -       |
|          | H'FFF1  | SYSCR2    | SMSSEL | LSON   | DTON   | MA2   | MA1     | MA0    | SA1     | SA0     |
|          | H'FFF2  | IEGR1     | NMIEG  | -      | -      | -     | IEG3    | IEG2   | IEG1    | IEG0    |
|          | H'FFF4  | IENR1     | IENDT  | IENTA  | IENWP  | -     | IEN3    | IEN2   | IEN1    | IEN0    |
|          | H'FFF5  | IENR2     | IENTB3 | IENTB2 | IENTB1 | -     | -       | -      | -       | -       |
|          | H'FFF9  | MSTCR1    | MSTS4  | MSTIIC | MSTS3  | MSTAD | MSTWD   | MSTTW  | MSTTV   | MSTTA   |
| H'FFFA   | MSTCR2  | MSTS3_2   | MSTTB3 | MSTTB2 | MSTTB1 | MSTTX | -       | MSTTZ  | MSTPWM  |         |
| H'FFFB   | MSTCR3  | -         | -      | -      | -      | -     | -       | -      | MSTS4_2 |         |

\*1 If using emulators, set the bit 3 of the address H'FFF608 (Serial mode control register) to "1".

|          | Address | Registers | Bit 7   | Bit 6  | Bit 5  | Bit 4  | Bit 3  | Bit 2  | Bit 1 | Bit 0   |
|----------|---------|-----------|---------|--------|--------|--------|--------|--------|-------|---------|
| H8/36049 | H'F608  | -         | -       | -      | -      | -      | -      | NFEN_3 | TXD_3 | MSTS3_3 |
|          | H'F730  | LVDCR     | LVDE    | -      | -      | -      | LVDSEL | LVDRE  | LVDDE | LVDUE   |
|          | H'F731  | LVDSR     | -       | -      | -      | -      | -      | -      | LVDDF | LVDUF   |
|          | H'FF90  | FLMCR1    | -       | SWE    | ESU    | PSU    | EV     | PV     | E     | P       |
|          | H'FF91  | FLMCR2    | FLER    | -      | -      | -      | -      | -      | -     | -       |
|          | H'FF92  | FLPWCR    | PDWND   | -      | -      | -      | -      | -      | -     | -       |
|          | H'FF93  | EBR1      | EB7     | EB6    | EB5    | EB4    | EB3    | EB2    | EB1   | EB0     |
|          | H'FF9B  | FENR      | FLSHE   | -      | -      | -      | -      | -      | -     | -       |
|          | H'FFE0  | PMR1      | IRQ3    | IRQ2   | IRQ1   | IRQ0   | TXD2   | PWM    | TXD   | TMOW    |
|          | H'FFE1  | PMR5      | POF57   | POF56  | WKP5   | WKP4   | WKP3   | WKP2   | WKP1  | WKP0    |
|          | H'FFE2  | PMR3      | -       | -      | -      | POF24  | POF23  | -      | -     | -       |
|          | H'FFF1  | SYSCR2    | SMSSEL  | LSON   | DTON   | MA2    | MA1    | MA0    | SA1   | SA0     |
|          | H'FFF2  | IEGR1     | NMIEG   | -      | -      | -      | IEG3   | IEG2   | IEG1  | IEG0    |
|          | H'FFF4  | IENR1     | IENDT   | IENTA  | IENWP  | -      | IEN3   | IEN2   | IEN1  | IEN0    |
|          | H'FFF5  | IENR2     | -       | -      | IENTB1 | -      | -      | -      | -     | -       |
|          | H'FFF9  | MSTCR1    | -       | MSTIIC | MSTS3  | MSTAD  | MSTWD  | MSTTW  | MSTTV | MSTTA   |
|          | H'FFFA  | MSTCR2    | MSTS3_2 | -      | -      | MSTTB1 | -      | -      | MSTTZ | MSTPWM  |
|          | H'FFFB  | -         | -       | -      | -      | -      | -      | -      | -     | -       |

Note: The thick boxes indicate differences

## ⚠ CAUTION

### Cautions to Be Taken for This Product:



- Do not connect anything to the NC pins.
- Do not pull or excessively flex the cable. The cable may cause a break.
- When connecting the emulator and IC socket, be sure to use the included screws (M2 x 12mm).
- When connecting the IC socket and socket cover, be sure to use the included screws (M2 x 8mm).
- When connecting the IC socket and socket cover, use a Phillips-type screwdriver whose head matches the screw head.
- If the applied torque cannot be accurately measured, stop tightening when the force required to turn the screw becomes significantly greater than that needed when first tightening (The tightening torque must be 0.0785 N•m or less). If a screw is tightened too much, the screw head may break or an IC socket contact error may be caused by a crack in the IC socket solder.
- If the emulator does not operate correctly, cracks might have occurred in the solder. Check conduction with a tester and re-solder the IC socket if necessary.
- Fasten the IC socket to the socket cover with the four screws (M2 x 8 mm, with flat washers) provided. Each screw should be tightened a little at a time, alternating between screws on opposing corners. Take special care, such as manually securing the IC socket soldered area, to prevent the soldered IC socket from being damaged by overtightening the screws or twisting the components.
- After checking the location of pin 1 on the IC socket, apply epoxy resin adhesive to the bottom of the IC socket, and fasten it to the user system before soldering.
- Be sure to completely solder the leads so that the solder slopes gently over the leads and forms solder fillets. (Use slightly more solder than the MCU.)

## IMPORTANT

### Notes on This Product:

- We cannot accept any request for repair.
- For purchasing the IC149-080-017-B5, contact the following:  
Yamaichi Electronics Co., Ltd. <http://www.yamaichi.com/>
- For inquiries about the product or the contents of this manual, contact your local distributor.  
Renesas Tools Homepage <http://www.renesas.com/en/tools>

### 7.3 How to add the MCU and IO File

If there is no "h836049.mcu" in the file selection dialog box of the emulator debugger, it is necessary to add the information specific to the H8/36049 group MCU. Add the MCU and IO files following the procedure below.

(1) Please download the MCU and IO files installer from the web site below.

<http://tool-support.renesas.com/eng/toolnews/n060216/download.htm>

Files to be downloaded:      MCUIO\_Files\_install\_cpe\_h8tiny\_060202.exe

(2) Execute the downloaded installer to add the MCU and IO files to the emulator debugger.

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