

R0E510Y47LVB00

R20UT2886EJ0100

Rev.1.00

Jan 20, 2014

Low voltage OCD Board for RL78/G10 Groups

1. Overview

R0E510Y47LVB00 is a debug board for R5F10Y47ASP, R5F10Y46ASP, R5F10Y44ASP, R5F10Y17ASP, R5F10Y16ASP, R5F10Y14ASP in RL78/G10 groups, which is enabled to effective debug of hardware and software on low voltage user system. This product is used with E1 emulator. And a box connector of 2.45mm pitch is needed to connecting user system. Also refer to E1/E20 Emulator Additional Document for User's Manual (Notes on Connecting RL78), when you use this product.

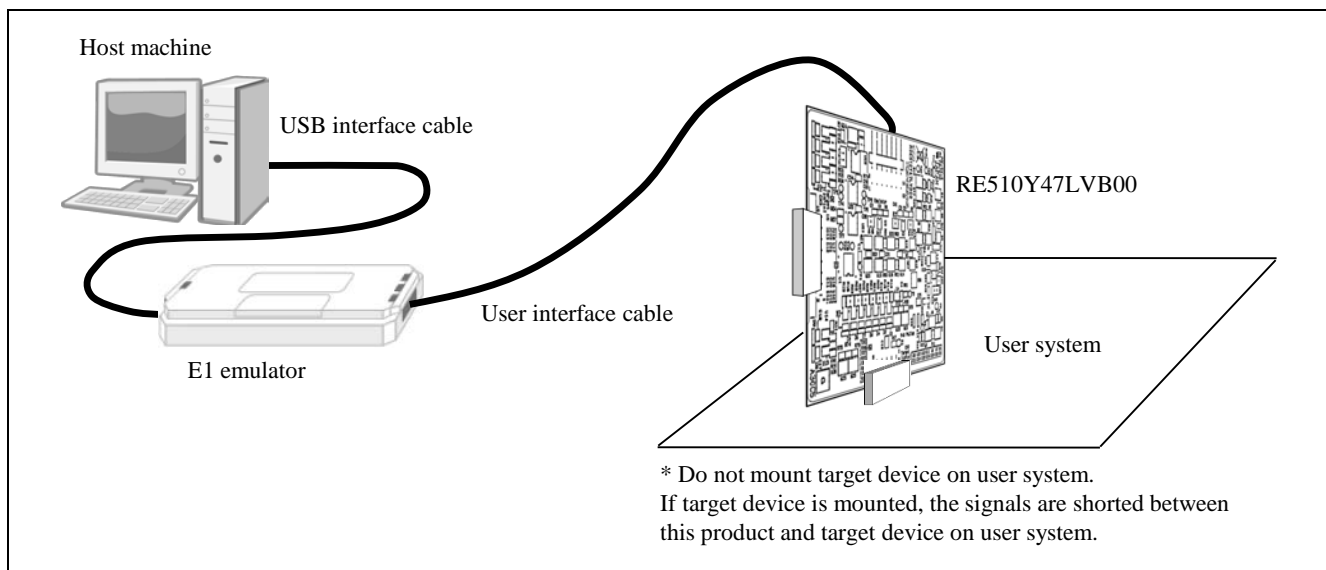


Figure 1 System Configuration

2. Specifications

Table 1 shows the functional specifications of this product.

Table 1 Specifications of this product

Item	Specification
Target MCU	R5F10Y17ASP, R5F10Y16ASP, R5F10Y14ASP (10pin SSOP) R5F10Y47ASP, R5F10Y46ASP, R5F10Y44ASP (16pin SSOP)
Support Emulator	E1 emulator (E20 emulator is not supported)
Target I/F	8510-4500 : 10-pin type connector, Sumitomo 3M Limited 8516-4500 : 16-pin type connector, Sumitomo 3M Limited
Power supply for this product	Emulator or Target system* ¹
Operating voltage	2.0V to 5.0V* ²
Operating temperature	5 to 35°C (No condensation)
Storage temperature	-15 to 60°C (No condensation)
Dimensions	65mm * 70mm (Does not include projection) Refer to figure2.
Weight	22g

Note*¹: If the user system power supply is turned on before starting debugger, this product uses 150mA current from user system.

Note*²: It is different from target devices. The operation voltage range of this product is 5.0V(max.)

3. Dimensions of This Product

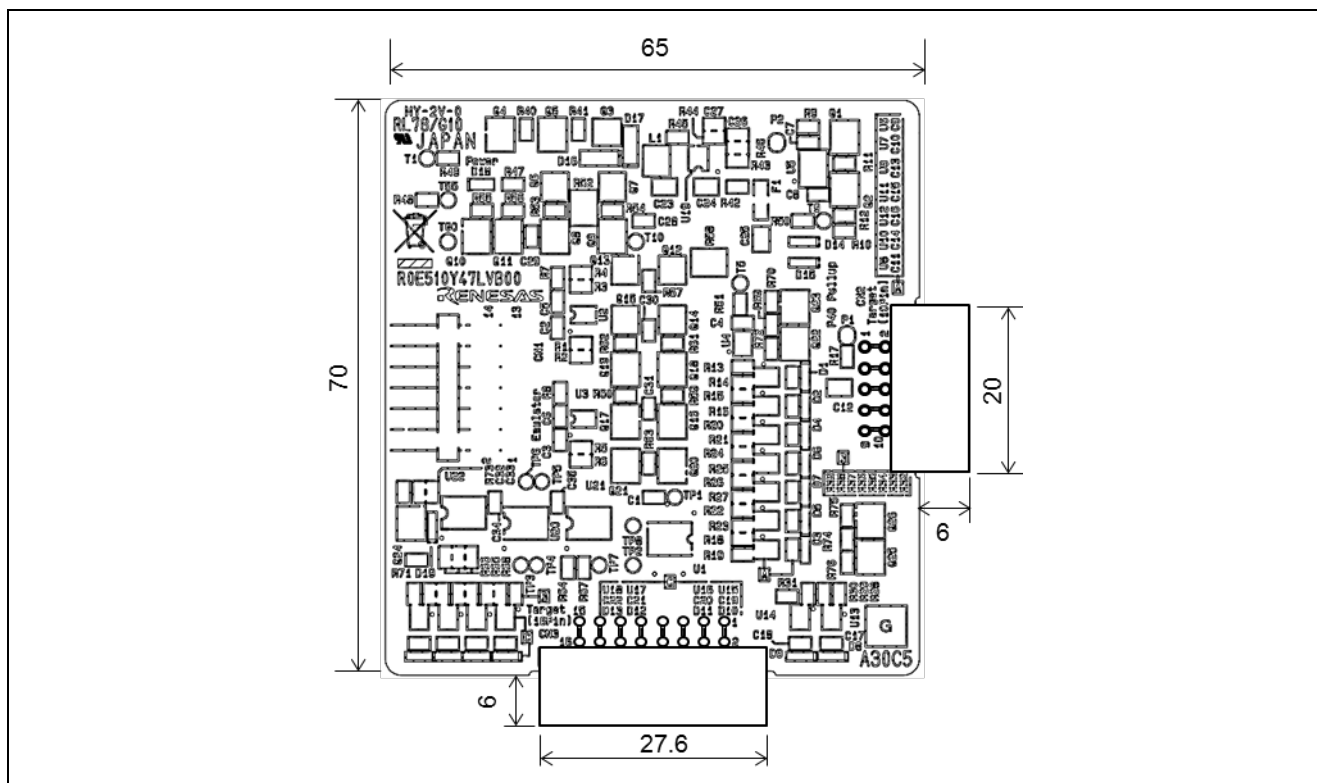


Figure 2 Dimensions of this product (R0E510Y47LVB00)

4. Internal Circuit

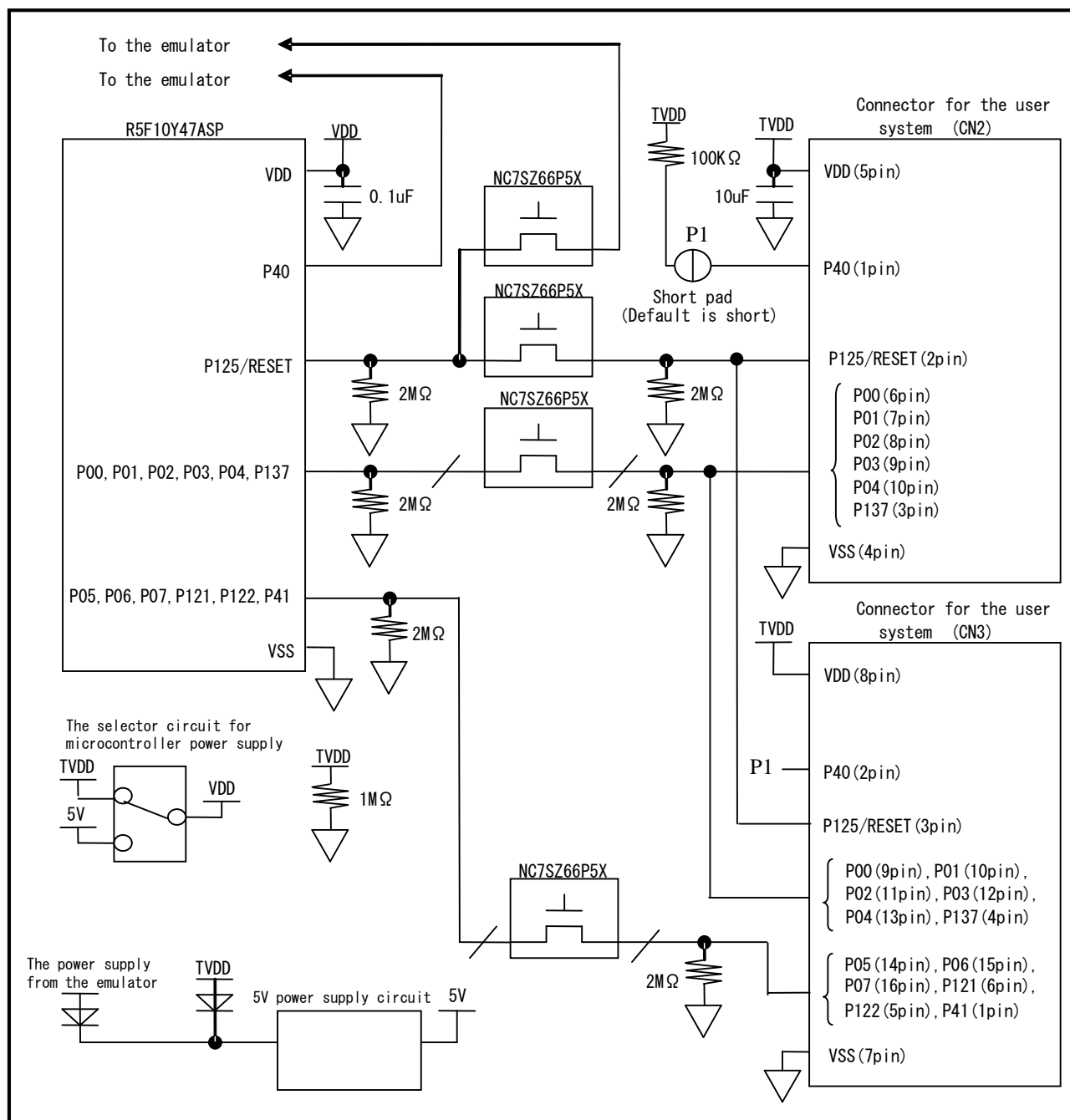


Figure 3 Internal circuit of this product (R0E510Y47LVB00)

5. Connecting Low voltage OCD board with user system

For connecting Low voltage OCD board with user system, need to mount a connector on user system. Refer to this chapter and user manual of devices, when you design your system.

5.1 The connector for connecting user system and mounting connector

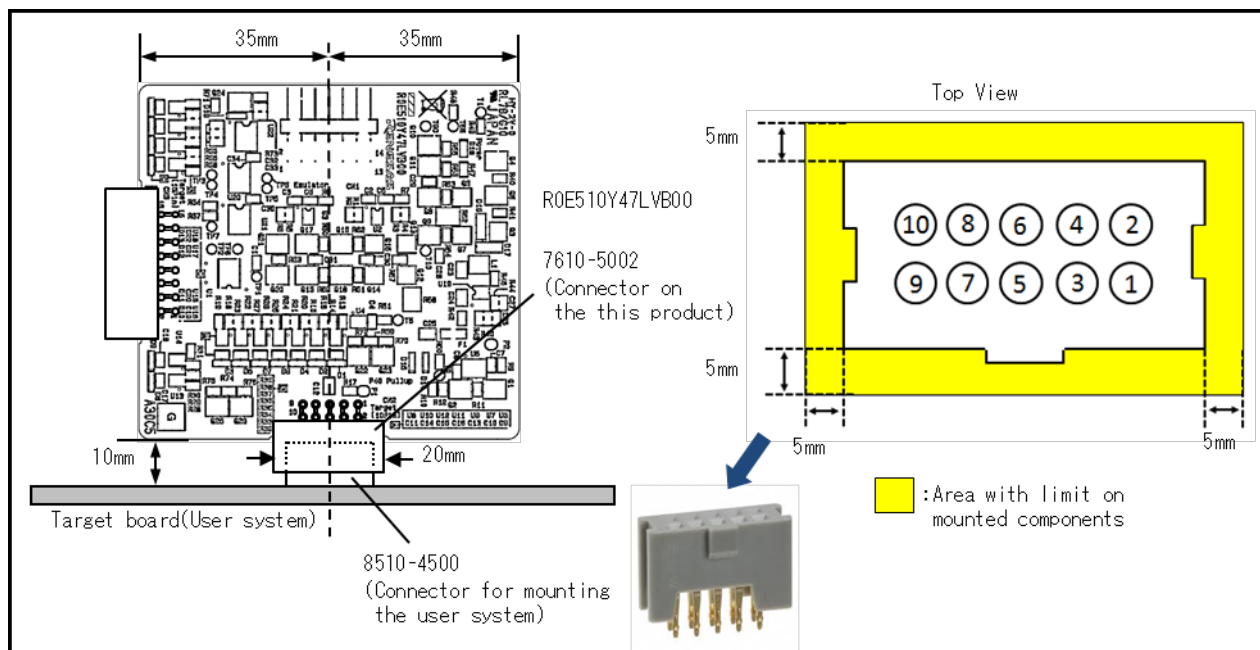


Figure 4 The connector for mounting user system and mounting connector

(Target MCU: R5F10Y17ASP, R5F10Y16ASP, R5F10Y14ASP)

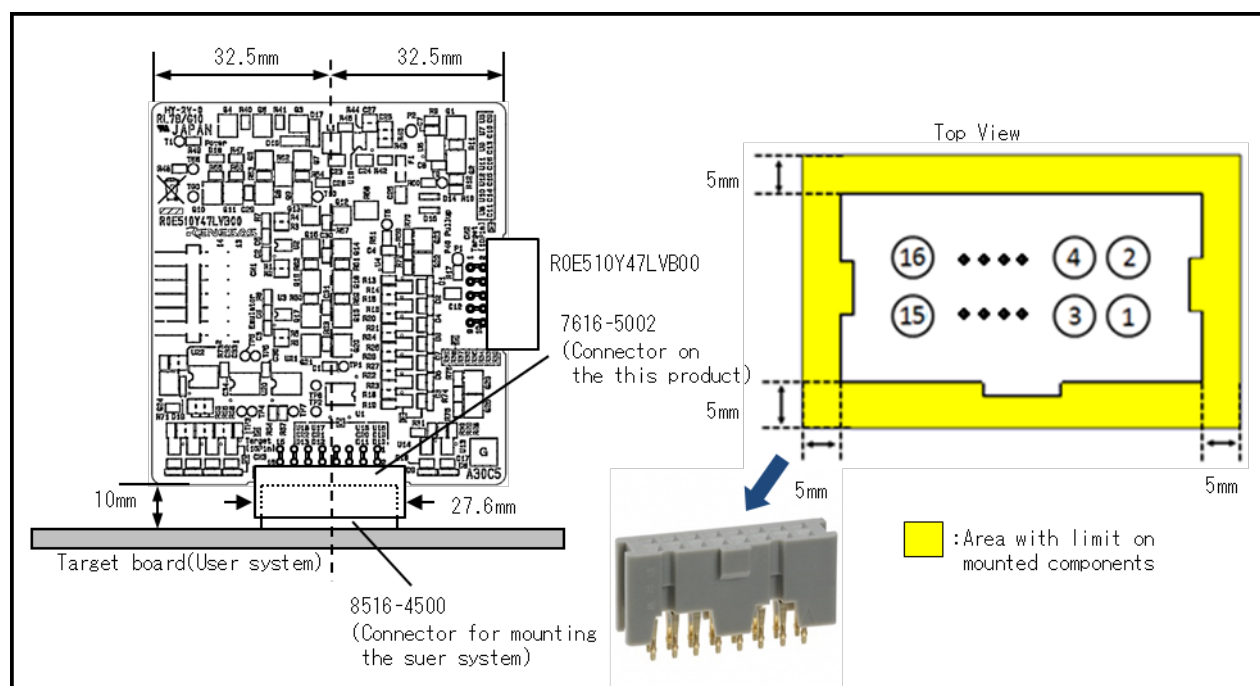


Figure 5 The connector for mounting user system and mounting connector

(Target MCU: R5F10Y47ASP, R5F10Y46ASP, R5F10Y44ASP)

5.2 Pin assignments of the connector on the user system

Table 2 Pin assignments of the connector (Target MCU: R5F10Y17ASP, R5F10Y16ASP, R5F10Y14ASP)

Pin No.	Pin Name	Input/Output*	Remarks
1	P40	-	P40 is connected with target power supply through 100k ohm.
2	P125/RESET	Output	-
3	P137	Output	-
4	VSS	-	-
5	VDD	-	-
6	P00	Input / Output	-
7	P01	Input / Output	-
8	P02	Input / Output	-
9	P03	Input / Output	-
10	P04	Input / Output	-

Note* As seen from this product (R0E510Y47LVB00)

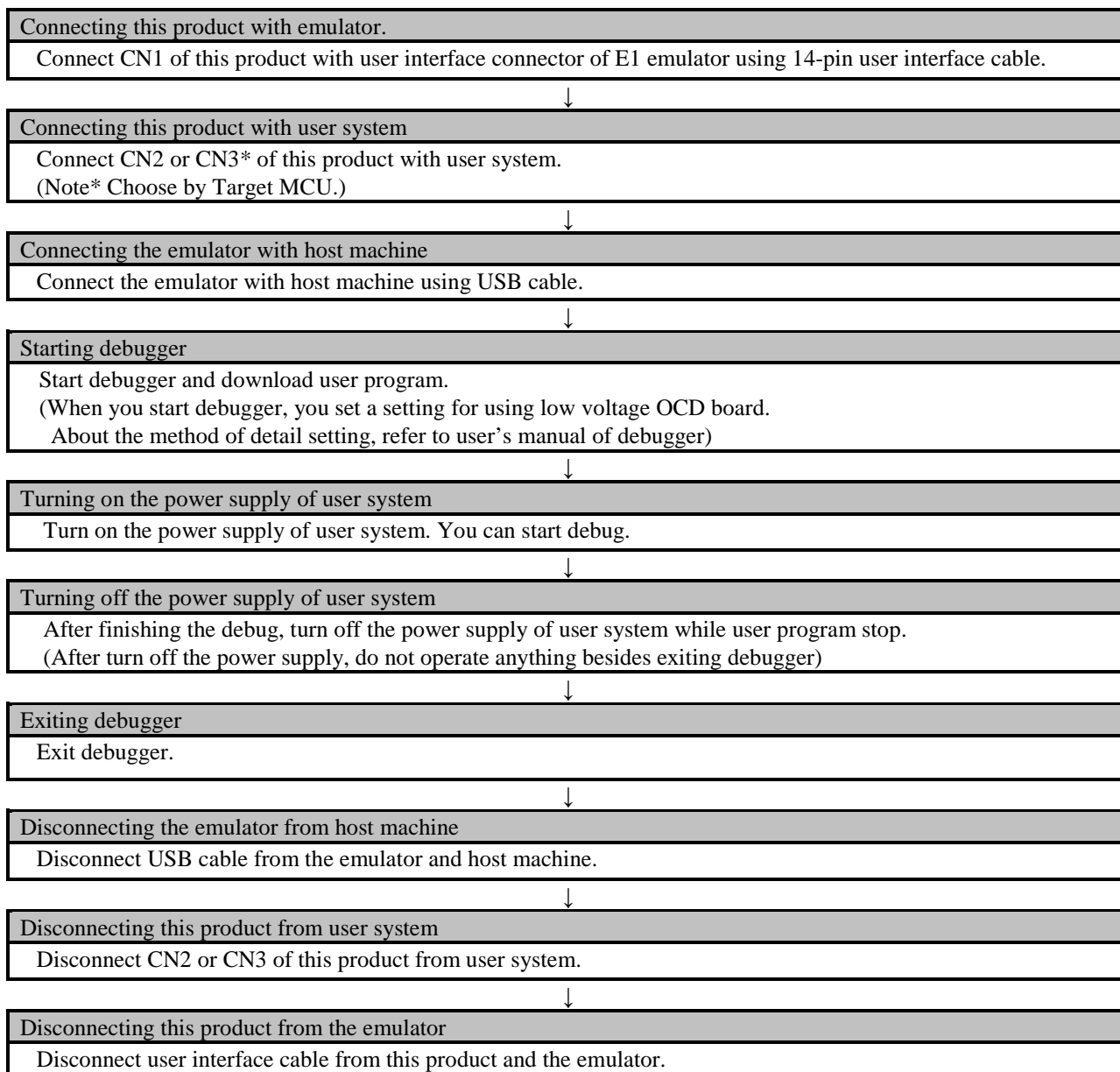
Table 3 Pin assignments of the connector (Target MCU: R5F10Y47ASP, R5F10Y46ASP, R5F10Y44ASP)

Pin No.	Pin Name	Input/Output*	Remarks
1	P41	Input / Output	-
2	P40	-	P40 is connected with target power supply through 100k ohm.
3	P125/RESET	Output	-
4	P137	Output	-
5	P122/X2/EXCLK	Input	-
6	P121/X1	Input	-
7	VSS	-	-
8	VDD	-	-
9	P01	Input / Output	-
10	P02	Input / Output	-
11	P03	Input / Output	-
12	P04	Input / Output	-
13	P05	Input / Output	-
14	P06	Input / Output	-
15	P07	Input / Output	-

Note* As seen from this product (R0E510Y47LVB00)

6. Use procedure

Use this product (R0E510Y47LVB00) by the following procedure.



7. Notes on Usage

Read the following notes before using this product. Incorrect operation will damage this product, the user system and the user program.

Note on the operation voltage:

- The operation voltage range is different from target devices.
The operation voltage range of this product is 5.0V(max.).

Notes on Connecting the Low voltage OCD board:

- Cables must not be connected or disconnected while the user system power is on.
- Before connecting this product with the user system, check that the pin 1 locations on both sides.

Note on Rewriting the Flash Memory:

- The number of MCU's flash memory rewriting on this product is limited.
If an erasing error occurs during debugging, replace this product.

Notes on Debugging:

- P40 is not connected microcontroller for debug on this product.
It is not possible to debug of P40 port function in this product.

Note on the Flash Programming Software Products (Renesas Flash Programmer, etc.):

- Do not use the flash programming software products for this product.

Note on the RESET:

- After resetting, It occurs the break of hundreds msec for internal debugger process

Note on the data retention power supply voltage:

- Minimum value of the data retention power supply voltage differs from target devices.
The data retention power supply voltage of this product is 1.8V(typ.) / 2.0V(max.).

Note on the A/D Converter:

- The characteristic of the A/D converter differs from target devices because there are some analog selectors and other devices between the MCU and the user system.
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Appendix Compliance Sheet

CAUTION

This is a Test- and Measurement equipment with possibility to be significantly altered by user through hardware enhancements/modifications and/or test or application software. Thus, with respect to Council Directive 2004/108/EC (Directive on compliance with the EMC protection requirements), this equipment has no autonomous function. Consequently this equipment is not marked by the CE-symbol.

EEDT-ST-005-20

CAUTION

This equipment should be handled like a CMOS semiconductor device. The user must take all precautions to avoid build-up of static electricity while working with this equipment. All test and measurement tool including the workbench must be grounded. The user/operator must be grounded using the wrist strap. The connectors and/or device pins should not be touched with bare hands.

EEDT-ST-004-10

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Device files and sample code download(*1)

For target boards the device files and ready-to-use sample Application(s) are available for download from the Renesas TOOLWEB, www.renesas.eu/update.

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Renesas Electronics America Inc.

2880 Scott Boulevard Santa Clara, CA 95050-2554, 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: +44-1628-651-700, Fax: +44-1628-651-804

Renesas Electronics Europe GmbH

Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.

7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, 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 Rd., Putuo District, Shanghai, China
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: +852-2886-9318, Fax: +852 2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.

13F., No. 363, Fu Shing North Road, Taipei, 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, Jln 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-Gu, Seoul, 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141



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