

RA8D2 Group

Evaluation Kit for RA8D2 Microcontroller Group
EK-RA8D2 v1
Errata

Renesas RA Family
RA8 Series

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(Rev.5.0-1 October 2020)

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This Evaluation Kit is only intended for use in a laboratory environment under ambient temperature and humidity conditions. A safe separation distance should be used between this and any sensitive equipment. Its use outside the laboratory, classroom, study area, or similar such area invalidates conformity with the protection requirements of the Electromagnetic Compatibility Directive and could lead to prosecution.

The product generates, uses, and can radiate radio frequency energy and may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off or on, you are encouraged to try to correct the interference by one or more of the following measures:

- Ensure attached cables do not lie across the equipment.
- Reorient the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Power down the equipment when not in use.
- Consult the dealer or an experienced radio/TV technician for help.

Note: It is recommended that wherever possible shielded interface cables are used.

The product is potentially susceptible to certain EMC phenomena. To mitigate against them it is recommended that the following measures be undertaken:

- The user is advised that mobile phones should not be used within 10 m of the product when in use.
- The user is advised to take ESD precautions when handling the equipment.

The Evaluation Kit does not represent an ideal reference design for an end product and does not fulfill the regulatory standards for an end product.

Renesas RA Family

EK-RA8D2 v1

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1. Introduction

This Errata describes the known issues and exceptions to the functional specifications for the EK-RA8D2 v1, Evaluation Kit for the RA8D2 MCU Group. For additional information on the kit, see the EK-RA8D2 v1 User’s Manual.

2. Known Issues and Exceptions

2.1 I3C SCL Controlled PU (P013) Only Supports Low Drive Strength

2.1.1 Description

I3C can require the use of an active pull-up. This capability is provided on the current design using P013. This pin, used to pull up the SCL signal, supports Low Drive Strength only as shown in the table extract from the device hardware manual r01uh1065ej.

While this pin will work, it may not have the capability needed for the highest speed I3C communication.

A future revision of the board will move this connection to a pin capable of High drive strength.

Table 20.7 Register settings for input/output pin function (PORT0)

Pin	PSEL[4:0] settings	Function	Pin														
			P000	P001	P002	P003	P004	P005	P007	P008	P009	P010	P011	P012	P013	P014	P015
Hi-Z	00000b (value after reset)	Hi-Z/ JTAG/ SWD	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z
AN006/ IVCMP 2	ASEL bit		AN000/ IVCMP 2	AN001/ IVCMP 3	AN002/ IVCMP 2	AN003/ IVCMP 3	AN004/ IVCMP 2	AN005/ IVCMP 3	AN007/ IVCMP 3	AN008/ IVREF0	AN009/ IVREF1	AN010	AN011	AN012	AN013	AN014/ DA0/ IVCMP 0	AN015/ DA1/ IVCMP 0
IRQ11- DS	ISEL bit		IRQ6- DS	IRQ7- DS	IRQ8- DS	IRQ29	IRQ9- DS	IRQ10- DS	IRQ28	IRQ12- DS	IRQ13- DS	IRQ14	IRQ16	IRQ15	IRQ14	IRQ27	IRQ13
✓	PCR bit	Pull-up	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	NCODR bit	N-ch Open- drain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
L	DSCR[1:0] bit	Drive capability control ¹	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
✓	289 pins product		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	289 pins w/o MIPI product		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	224 pins product		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	224 pins w/o MIPI product		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓: Available
 -: Setting prohibited

Note 1. The drive strength of this port cannot be controlled by PmnPFS.DSCR[1:0] bits.

Figure 1. I/O Register Settings for PORT0

2.1.2 Corrective Action

[Affected Kits]

To address this the user can connect a resistor to the SCL line via the connections on Arduino, Mikrobus, Grove1 or QWIIC connectors and the other end of the resistor to a suitable high drive strength capable port pin that is not used for other functions.

We suggest using port P311 as this pin is capable and is otherwise unused. It is accessible on J17 Pin 3

When implementing this configuration ensure that P013 is set to high impedance.

[Future Kits]

This issue will be corrected in later versions of the kit.

2.1.3 Kits Affected

Version:	1
Serial numbers:	301863 to 302162 and 32855 to 33354

2.2 Inaccuracy in RTC (Real Time Clock)

2.2.1 Description

Due to incorrectly specified crystal load capacitance and capacitors C22 and C23 the RTC can be inaccurate in the order of 10 seconds every 24 hours. This is because the fitted crystal ABS07-32.768KHZ-9-T requires a 9pF load capacitance C_L , given by the formula $C22=C23=2*(C_L-C_{stray})$, and so the load capacitors C22 and C23 should be significantly lower values than the fitted 27pF capacitors.

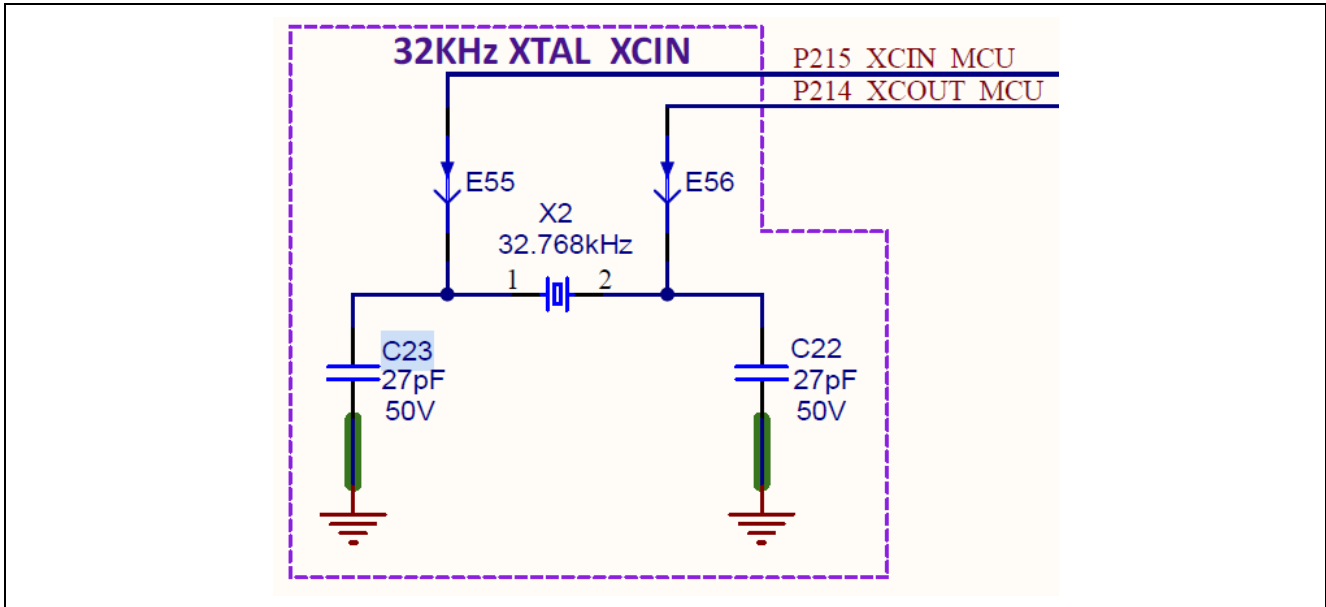


Figure 2. Crystal Oscillator with Incorrect Load Capacitance

2.2.2 Corrective Action

[Affected Kits]

To address this the user can replace the load capacitors, C22/C23, with 8.2pF parts, for example CC0402CRNPO9BN8R2. This value has been tested and found to be appropriate for the device and board configuration.

[Future Kits]

This issue will be corrected in later versions of the kit.

2.2.3 Kits Affected

Version:	1
Serial numbers:	301863 to 302162 and 32855 to 33354

2.3 Incorrectly Calibrated Touch Panel

2.3.1 Description

The Parallel Graphics Expansion Board screen has a resolution of 1024 x 600. The Touch Panel on a small number of kits may be incorrectly calibrated to 800 x 480 resolution. The user may find that touch position does not map to the correct position on the screen.

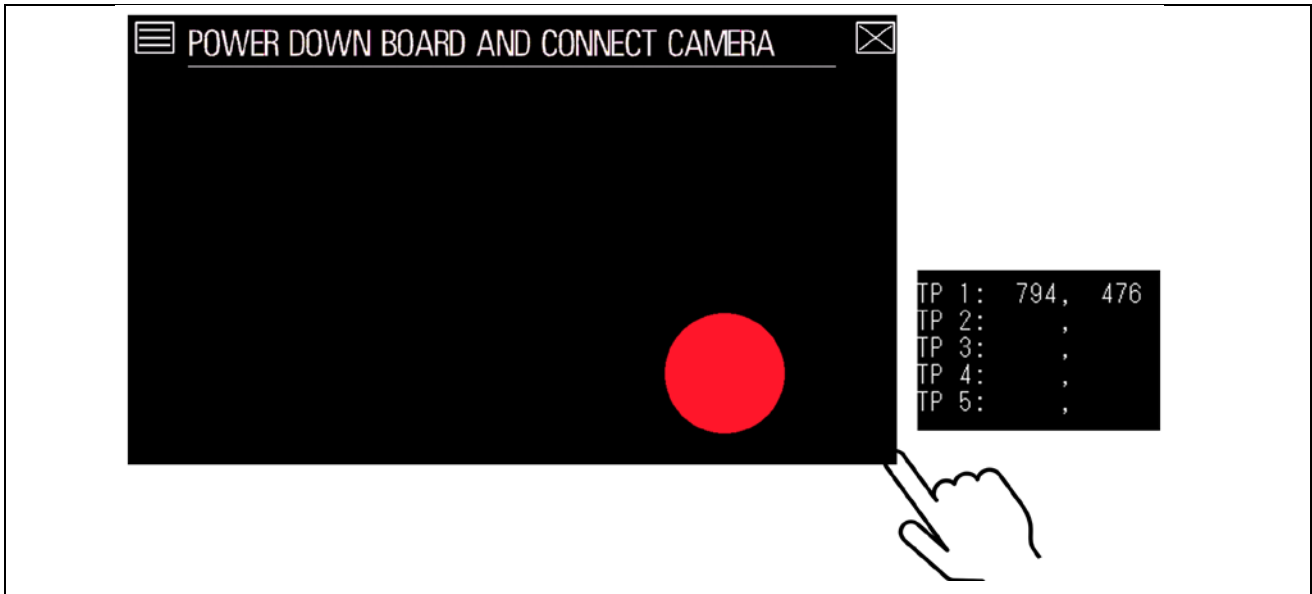


Figure 3. Touch Position Mapping Error

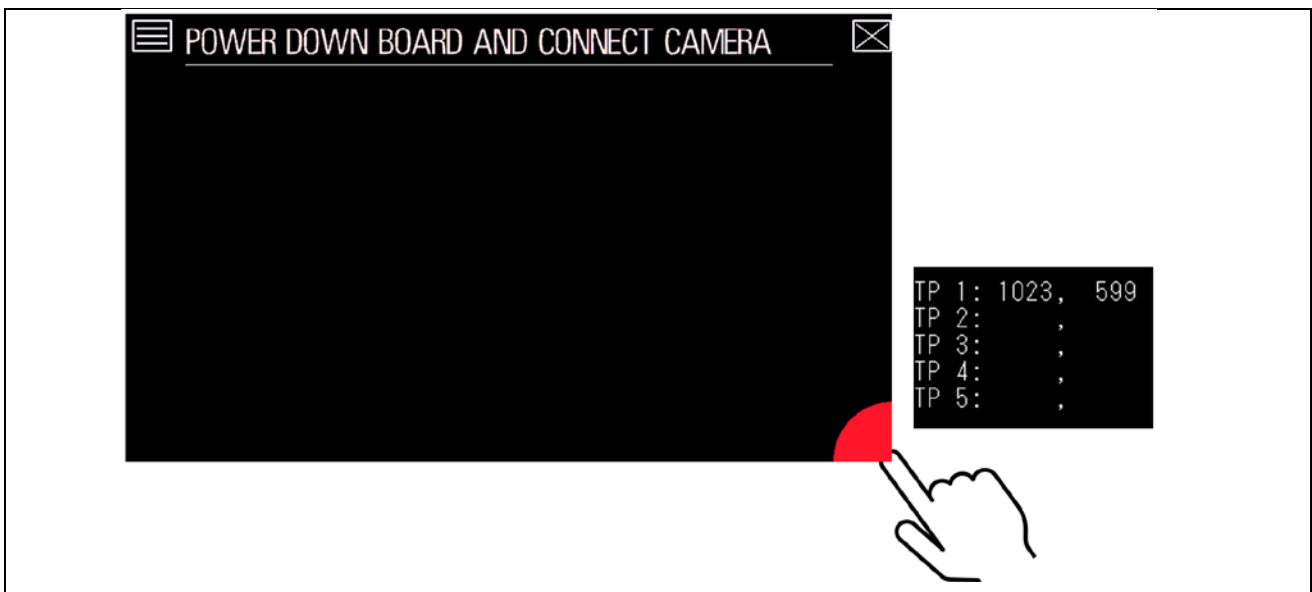


Figure 4. Touch Position Mapping Correct

2.3.2 Corrective Action

This process must only be completed on products using the RTKLCDPAR1S00001BE Display board that demonstrates this issue.

[Affected Kits]

Please follow the steps below to address the issue.

1. Download the associated update package from our website. (r20zz0247eg0200-errata-ek-ra8d2-touchpanel_fix.zip) and extract the contents.
2. Download the latest version of Renesas Flash Programmer (RFP) from our website. (v3.21 or any later version).

3. Start RFP and open the project configuration file from the downloaded and extracted package. (ek-ra8d2_app_lcd_ek_par_1_touchpanel_fix.rpj)
4. Connect the EK-RA8D2 and the APP_LCD_EK_PAR_1 screen.
5. Connect the USB cable between the EK-RA8D2 Debug USB connector (J10) and your computer.
6. Press Start on the RFP dialog.

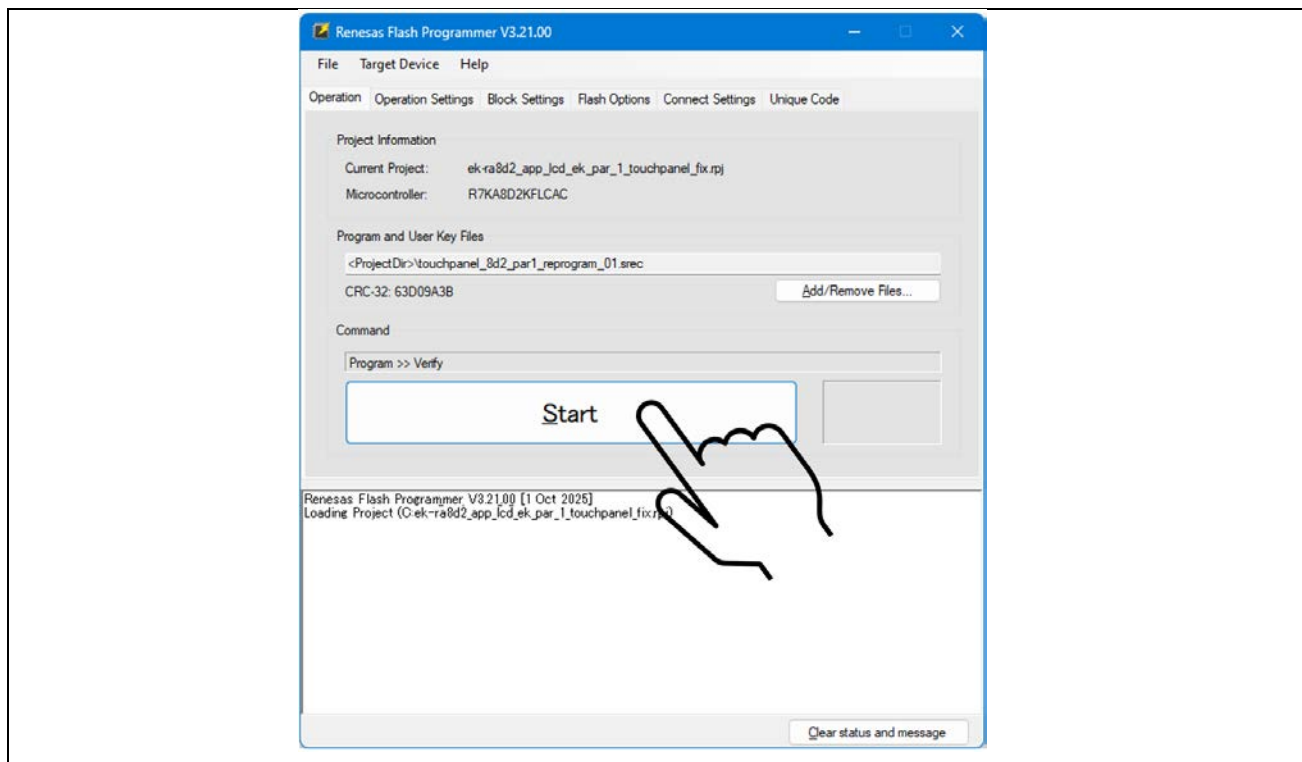


Figure 5. Renesas Flash Programmer Operation

7. The Blue LED will flash several times and then go out. Please wait for about 10 seconds.
8. If the Green LED does not illuminate and the Red LED Flashes constantly – the programming has failed. In this case, please press the reset button on the EK-RA8D2 and try again ensuring the display is connected correctly.
9. When completed successfully, the Green LED will Flash and the Red LED will provide a short flash (to indicate the programming should be checked using the published Quick Start Example Project (QSEP)).
10. The Display Panel has now been re-programmed and will work correctly.
11. In RFP choose the “Target Device” menu and then “Initialize Device” to reset the MCU to a blank state and prevent the code from re-executing.
12. To verify the reprogramming has succeeded, re-program the Quick Start Program by opening the downloaded folder and running the “_run_me_last.bat” file. This will re-program the QSEP project.
13. When complete, the Quick Start Program will run. Press any key to exit the batch file.
14. Choose Option 4 from the serial terminal or the Display Icon from the GUI and verify the circles draw accurately at each touch point.

[Future Kits]

This has been corrected on later versions of the kit.

2.3.3 Kits Affected

Version:	1
Serial numbers:	301863 to 302162 and 32855 to 33354

3. Appendix – Kit Identification

3.1 Kit Version

The kit version is identified on the board above the Renesas RA logo as shown in Figure 6.



Figure 6. Identification of the Kit Version Number on the EK-RA8D2 Board

3.2 Parallel Graphics Expansion Board Version

Please refer to Figure 7 and check the board version highlighted in the red square.

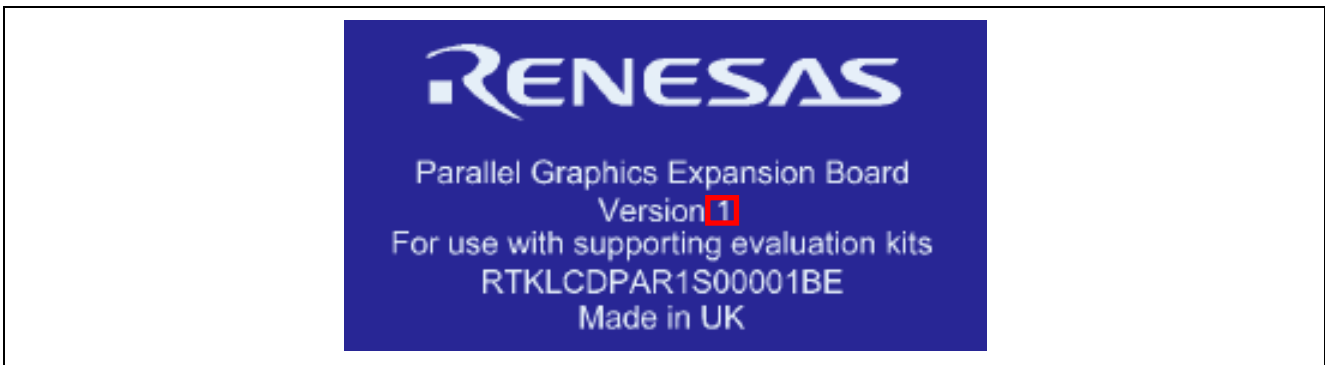


Figure 7. Identification of the Kit Version Number on the Parallel Graphics Expansion Board.

3.3 Serial Number

In addition to the kit version number, the kit serial number is used to uniquely identify a kit.

The serial numbers are located on the bar code stickers on the back/bottom side of EK-RA8D2 and Parallel Graphics Expansion boards. In the example in Figure 8, the serial number is “295672”.

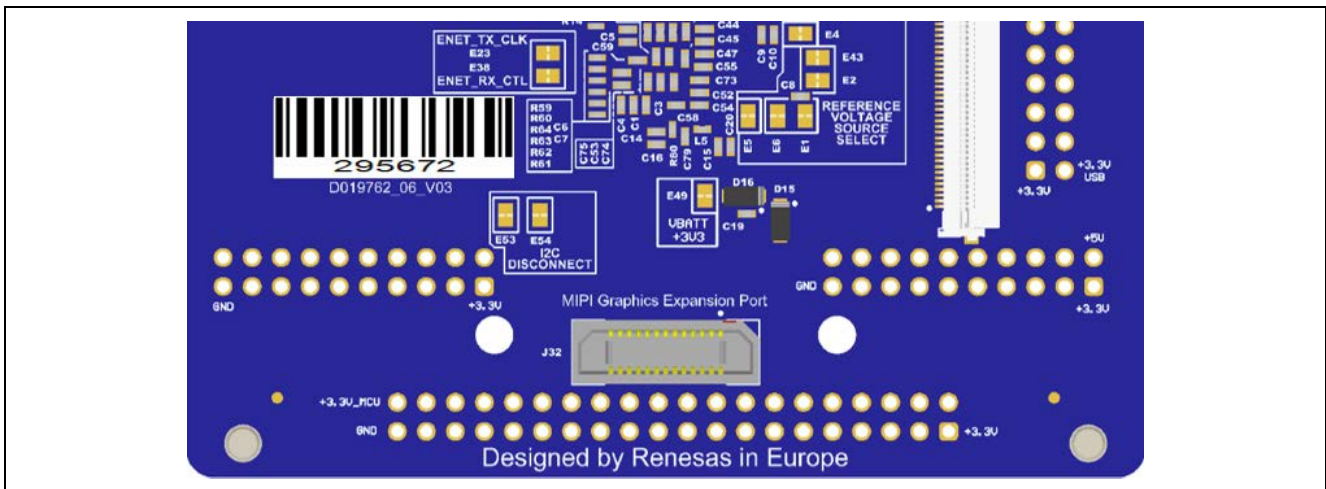


Figure 8. Identification of the Serial Number on the EK-RA8D2 Board

4. Website and Support

Visit the following URLs to learn about the kit and the RA family of microcontrollers, download tools and documentation, and get support.

EK-RA8D2 Resources	renesas.com/ek-ra8d2
RA Kits Information	renesas.com/ra/kits
RA Product Information	renesas.com/ra
RA Product Support Forum	renesas.com/ra/forum
RA Videos	renesas.com/ra/videos
Renesas Support	renesas.com/support
RA Flexible Software Package (FSP)	renesas.com/fsp

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Oct.24.25	—	Initial release.
2.00	Dec.10.25	5-9	Added section 2.1 and 2.3

EK-RA8D2 v1 – Errata

Publication Date: Dec.10.25

Published by: Renesas Electronics Corporation

EK-RA8D2 v1 – Errata