AP4 for RL78 V1.09.00

Release Note

R20UT3534EJ0100
Rev.1.00
Aug 28, 2015

Use AP4 for RL78 (The name was changed from Application Leading Tool for RL78. It's made Applilet for RL78 in the following by these whole sentences.), and thank you very much truly.

The restriction items for using this product, and notices, etc. are mentioned by these attached documents. Before using, I would like to ask you to read certainly.

Contents

Chapter 1. Introduction

AP4 for RL78 (Applilet for RL78) is a software tool to generate device driver code for on-chip peripherals. It generates device driver codes using user settings through GUI. Initialize code and API functions are provided.

Chapter 2. Target Devices

Below is a list of devices supported by the AP4 for RL78/L13 V1.03.02.01	
PIN	Device name
64pin	R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG
80pin	R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG

Following documents.	
Manual Name	Document Number
RL78/L13 User's Manual: Hardware	R01UH0382JJ0200 Rev.2.00
	R01UH0382EJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/G1E V1.03.02.01	
PIN	Device name
64pin	R5F10FLC, R5F10FLD, R5F10FLE
80pin	R5F10FMC, R5F10FMD, R5F10FME

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1E User's Manual: Hardware	R01UH0353JJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/G10 V1.04.02.01	
PIN	Device name
10pin	R5F10Y14, R5F10Y16, R5F10Y17
16pin	R5F10Y44, R5F10Y46, R5F10Y47

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G10 User's Manual: Hardware	R01UH0384JJ0200 Rev.2.00
	R01UH0384EJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/G1C V1.02.02.01	
PIN	Device name
32pin	R5F10JBC, R5F10KBC
48pin	R5F10JGC, R5F10KGC
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1C User's Manual: Hardware	R01UH0348JJ0100 Rev.1.00
	R01UH0348EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/L1C V1.02.02.01	
PIN	Device name
80pin	R5F110MJ, R5F110MH, R5F110MG, R5F110MF, R5F110ME, R5F111MJ, R5F111MH, R5F111MG, R5F111MF, R5F111ME
100pin	R5F110PJ, R5F110PH, R5F110PG, R5F110PF, R5F110PE, R5F111PJ, R5F111PH, R5F111PG, R5F111PF, R5F111PE
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/L1C User's Manual: Hardware	R01UH0409JJ0100 Rev.1.00
	R01UH0409EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/I1B V1.02.02.01	
PIN	Device name
80pin	R5F10MME, R5F10MPG
100pin	R5F10MPE, R5F10MPG
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/I1B User's Manual: Hardware	R01UH0407JJ0200 Rev.2.00
	R01UH0407EJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/I1D V1.00.03.01	
PIN	Device name
20pin	R5F11768, R5F1176A
24pin	R5F11778, R5F1177A
30pin	R5F117A8, R5F117AA, R5F117AC
32pin	R5F117BA, R5F117BC
48pin	R5F117GA, R5F117GC

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/I1D User's Manual: Hardware	R01UH0474JJ0100 Rev.1.00
	R01UH0474EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/G1G V1.00.02.02	
PIN	Device name
30pin	R5F11EA8, R5F11EAA
32pin	R5F11EB8, R5F11EBA
44pin	R5F11EF8, R5F11EFA

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1G User's Manual: Hardware	R01UH0499JJ0100 Rev.1.00
	R01UH0499EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/G1F V1.00.00.03	
PIN	Device name
24pin	R5F11B7C, R5F11B7E
32pin	R5F11BBC, R5F11BBE
36pin	R5F11BCC, R5F11BCE
48pin	R5F11BGC, R5F11BGE
64pin	R5F11BLC, R5F11BLE

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1F User's Manual: Hardware	R01UH0516JJ0100 Rev.1.00
	R01UH0516EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/G1D V1.00.00.02	
PIN	Device name
48pin	R5F11AGG, R5F11AGH, R5F11AGJ

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1D User's Manual: Hardware	R01UH0515JJ0100 Rev.1.00
	R01UH0515EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/I1E V1.02.00.06	
PIN	Device name
32pin	R5F11CBC
36pin	R5F11CCC

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/I1E User's Manual: Hardware	R01UH0524JJ0100 Rev.1.00
	R01UH0524EJ0100 Rev.1.00

Chapter 3. Operating Environment

- Host machine
  - IBM PC/AT compatibles (Windows® 8.1, Windows® 8, Windows® 7, Windows Vista®)
  - Processor: 1 GHz or higher (must support hyper-threading, multi-core CPUs)
  - Memory capacity: 2 GB or more recommended. Minimum requirement is 1 GB or more (64-bit Windows requires 2 G or more)
  - Hard disk capacity: 200 MB or more spare capacity
  - Display: 1024 x 768 or higher resolution, 65,536 or more colors
  - All other necessary software environments in addition to WindowsOS
    - .NET Framework version4.5
    - Microsoft Visual C++ 2010 SP1 runtime library

- Development Environments

Product Name	Version
IAR Embedded Workbench for Renesas RL78	V1.40.1 or later
	V2.10 or later (when RL78/F15,RL78/I1E used)
KPIT GNURL78	V14.03 or later
Renesas electronics Compiler for 78K0R [CA78K0R]	V1.70 or later
Renesas electronics Compiler for RL78 [CC-RL]	V1.01 or later

Chapter 4. Changes

This chapter describes change from V1.08.00 to V1.09.00.

No	Description	Corresponds of Applilet										
		RL78/I1E V1.02.00.06	RL78/G1D V1.00.00.02	RL78/G1F V1.00.00.03	RL78/G1G V1.00.02.02	RL78/I1D V1.00.03.01	RL78/I1B V1.02.02.01	RL78/L1C V1.02.02.01	RL78/G1C V1.02.02.01	RL78/G10 V1.04.02.01	RL78/G1E V1.03.02.01	RL78/L13 V1.03.02.01
1	It corresponds to renewal of device user's manual.	/	/	/	/	/	/	/	/	-	-	-
2	Changes the Timer KB20 is in Use.	/	/	/	/	/	/	/	/	/	/	-
3	Changes the watch error correction of real-time clock	/	/	/	/	/	/	-	-	/	/	-
4	Changes for Using the Remote Control Carrier Wave Mask Signal	/	/	/	/	/	/	/	/	/	/	-
5	Changes of the serial array unit1 for UART2	/	/	/	/	/	/	/	/	/	-	/
6	Changes Setting of P20 and P21 of Port2	/	/	/	/	/	/	-	/	/	/	/
7	Changes setting of PMC register	/	/	/	/	/	/	/	/	/	/	-
8	Changes setting of interval timer	/	/	/	/	/	/	-	-	/	/	-
9	Changes saving projects with setting for the A/D convertor	/	/	/	/	/	/	-	/	/	/	/
10	Changes indicate of TOOL-pin(Device Pin List)	-	-	-	-	-	-	-	-	-	-	-

○ : Correspondence, -: Not correspondence(finish of correction), /: Outside of function

4.1 Details of Changes

4.1.1 It corresponds to renewal of device user's manual

It corresponded to the renewal of revision of the device user's manual.

This issue has been corrected in Applilet for RL78 V1.03.00.

4.1.2 Changes the Timer KB20 is in Use

When the timer KB20 is in use, the settings for Standalone mode (period controlled by external trigger input) and Interleave PFC (power factor correction) output mode may prevent the correct output of the API functions.

This issue has been corrected in Applilet for RL78 V1.02.00.

4.1.3 Changes the watch error correction of real-time clock

The error correction of real-time clock function of the real-time clock was deleted.

This issue has been corrected in Applilet for RL78 V1.02.00.

4.1.4 Changes for Using the Remote Control Carrier Wave Mask Signal

Change an error in the R_TAU0_Channel2_Stop function for output when PWM output (remote control carrier wave mask signal) is selected in timer channel 2.

Example:Source code before modified

```
TO0 &= ~_0004_TAU_CH2_OUTPUT_VALUE_1 | ~_0008_TAU_CH3_OUTPUT_VALUE_1 |
 ~_0010_TAU_CH4_OUTPUT_VALUE_1 | ~_0020_TAU_CH5_OUTPUT_VALUE_1;
```

Source code after modified

```
TO0 &= ~_0004_TAU_CH2_OUTPUT_VALUE_1 & ~_0008_TAU_CH3_OUTPUT_VALUE_1 &
 ~_0010_TAU_CH4_OUTPUT_VALUE_1 & ~_0020_TAU_CH5_OUTPUT_VALUE_1;
```

This issue has been corrected in Applilet for RL78 V1.03.00.

4.1.5 Changes of the serial array unit1 for UART2

A register setup at the time of use was corrected for UART2 of the serial array unit 1 by the "transmit" or "transmit/recive"

Example:Source code before modified

```
void R_UART2_Create(void)
{
    . . . . . .
      /* Set TxD2 pin */
      PMC1 |= 0xF7U;
      P1 |= 0x08U;
      PM1 |= 0xF7U;
    . . . . . .
}
```

Source code after modified

```
void R_UART2_Create(void)
{
    . . . . . .
      /* Set TxD2 pin */
      PMC1 &= 0xF7U;
      P1 |= 0x08U;
      PM1 &= 0xF7U;
    . . . . . .
}
```

This issue has been corrected in Applilet for RL78 V1.03.00.

4.1.6 Changes Setting of P20 and P21 of Port2

For port 2, even if input to or output port pins P20 and P21, which are multiplexed with analog pin functions, is selected, the generated code will not reflect the settings of the port mode control register (PMC register).

This issue has been corrected in Applilet for RL78 V1.04.00.

4.1.7 Changes setting of PMC register

For port 2, even if input to or output from port pins P20 to P27, which are multiplexed with analog pin functions, is selected, the generated code will not reflect the settings of the port mode control register (PMC register).(RL78/L1C)

This issue has been corrected in AP4 for RL78 V1.06.00.

4.1.8 Changes setting of interval timer

On the Channel 1 and Channel 3 tabbed pages when "Timer" is selected in the tree view, selecting "Higher and lower 8 bits" under "Interval mode setting" leads to "Generates INTTM01 when counting is started" being grayed out to indicate that it has become non-selectable.

This issue has been corrected in AP4 for RL78 V1.06.00.

4.1.9 Changes saving projects with setting for the A/D convertor

When a project configured with the below settings for the A/D convertor is read, the "A fatal error occurred" dialog box is displayed, after which CS+ operation is terminated.

- Selection of analog input pins from among ANI0-ANI2, ANI5, and ANI6:
  ANI0-ANI1
- VREF(+) setting:
  AVREFP
- VREF(-) setting:
  AVREFM

This issue has been corrected in AP4 for RL78 V1.06.00.

4.1.10 Changes indicate of TOOL-pin(Device Pin List)

Even if it's made the setting for which on chip debugging is used, indication of P40/TOOL0 won't be TOOL0 at “Device Pin List”.

This issue has been corrected in AP4 for RL78 V1.06.00.

Chapter 5. Cautions

This section describes cautions for using AP4 for RL78.

5.1 Cautions List

No	Description	Corresponds of Applilet										
		RL78/I1E V1.02.00.06	RL78/G1D V1.00.00.02	RL78/G1F V1.00.00.03	RL78/G1G V1.00.02.02	RL78/I1D V1.00.03.01	RL78/I1B V1.02.02.01	RL78/L1C V1.02.02.01	RL78/G1C V1.02.02.01	RL78/G10 V1.04.02.01	RL78/G1E V1.03.02.01	RL78/L13 V1.03.02.01
1	Cautions of online Help	○	○	○	○	○	○	○	○	○	○	○
2	Restrictions of High-speed on-chip oscillator frequency select register	○	○	○	○	○	○	○	○	○	○	○
3	Restriction of standby function	○	○	○	○	○	○	○	○	○	○	○
4	Cautions of the LIN-bus function of UART	○	○	○	○	○	○	○	/	/	○	○
5	Restriction of SNOOZE mode use	○	○	○	○	○	○	○	○	/	○	○
6	Restriction of IICA function	○	○	○	○	○	○	○	○	○	○	○
7	Restriction of the input switch control register (ISC)	○	○	○	○	○	○	○	/	/	○	○
8	Restriction of USB	/	/	/	/	/	/	○	○	/	/	/

○ : Correspondence, /: Not correspondence

5.2 Cautions Details

5.2.1 Cautions of online Help

Applilet is not supporting online help.
[Workaround] There is no workaround.

5.2.2 Restrictions of High-speed on-chip oscillator frequency select register

Applilet is not equivalent to a setup of high-speed on-chip oscillator frequency select register
[Workaround] There is no workaround.

5.2.3 Restriction of standby function

Applilet is not supporting the HALT and STOP mode of a standby function.
[Workaround] There is no workaround.

5.2.4 Cautions of the LIN-bus function of UART

Applilet is not supporting the LIN-Bus function of UART. Moreover, detection of the LIN communication Wakeup signal of INTP0 is not been supported.
[Workaround] There is no workaround.

5.2.5 Restriction of SNOOZE mode use

Applilet is not supporting the interruption classification setup at the time of SNOOZE mode use of UART or CSI.
[Workaround] There is no workaround.

5.2.6 Restriction of IICA function

Applilet is not supporting the extension code and multi-master function of IICA.
[Workaround] There is no workaround.

5.2.7 Restriction of the input switch control register (ISC)

Applilet is not supporting the input change to the timer array unit and external interrupt by an input change control register (ISC). is not supported the extension code and multi-master function of IICA.
[Workaround] There is no workaround.

5.2.8 Restriction of USB

Applilet is not supporting USB host/function.
[Workaround] There is no workaround.

Chapter 6. About API added and changed

6.1 About API added for RL78/G1F

The following is the list of files added with RL78/G1F product and API function names. In addition, please refer to User Manual for the function of other API.

Peripheral Function	File name	API name
TimerRX	r_cg_tmrx.c	R_TMRX_Create R_TMRX_Start R_TMRX_Stop R_TMRX_Get_BufferValue R_TMRX_Set_PowerOff
	r_cg_tmrx_user.c	R_TMRX_Create_UserInit r_tmrx_interrupt
	r_cg_tmrx.h	－

Timer RX(TMRX)

R_TMRX_Create

Performs initialization necessary to control the 16-bit timer RX.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Create ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Start

Starts the count for 16-bit timer RX.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Start ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Stop

Ends the count for 16-bit timer RX.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Stop ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Get_BufferValue

Reads the buffer register of TRX register.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Get_BufferValue(uint32_t * const value)
```

[Argument(s)]

I/O	Argument	Description
O	uint32_t * const *value*;	Pointer to an area storing the value that was read from the buffer register of TRX register.

None.

[Return value]

None.

R_TMRX_Set_PowerOff

Halts the clock supplied to the 16-bit timer RX. Calling this API function changes the 16-bit timer RX to reset status. For this reason, writes to the control registers after this API function is called are ignored.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Set_PowerOff ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Create_UserInit

Performs user-defined initialization relating to the 16-bit timer RX. This API function is called as the R_TMRX_Create callback routine.

[File Name]

r_cg_tmrx_user.c

[Syntax]

```
void R_TMRX_Create_UserInit ( void );
```

[Argument(s)]

None.

[Return value]

None.

r_tmrx_tmrx_interrupt

Performs processing in response to the timer interrupt. This API function is called as the interrupt process corresponding to the timer interrupt.

[File Name]

r_cg_tmrx_user.c

[Syntax]

CA78K0R Compiler

```
__interrupt static void r_tmrx_interrupt ( void );
```

CC-RL Compiler

```
static void r_tmrx_interrupt ( void );
```

[Argument(s)]

None.

[Return value]

None

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.

RENESAS

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
9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

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 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-6688, Fax: +852 2886-9022

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 1207, 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 India Pvt. Ltd.
No.777C, 100 Feet Road, HALII Stage, Indiranagar, Bangalore, India
Tel: +91-80-67208700, Fax: +91-80-67208777

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

© 2015 Renesas Electronics Corporation. All rights reserved.

Colophon 5.0