

CS+ Integrated Development Environment Package V8.07.00

R20UT5062EJ0100
Rev.1.00
Dec 03, 2021

Release Note

Thank you for using the CS+ integrated development environment.

This document describes restrictions on and points for caution regarding the CS+ package. Read this document before using the package.

This document applies to the following products:

- CS+ V8.07.00
- CS+ for CC V8.07.00
- CS+ for CA, CX V4.07.00

The actual package version may be different from the version indicated by the version display facility of CS+.

Refer to Appendix Supported Devices and Tools, regarding the version indicated by the version display facility.

Contents

Chapter 1.	Operating Environment.....	2
Chapter 2.	Points for Caution	3
Chapter 3.	Points for Caution Regarding Installation and Uninstallation	4
Chapter 4.	Collection of User Information	9
Chapter 5.	Release Notes	10
Appendix	Supported Devices and Tools	11

Chapter 1. Operating Environment

The operating environment for use with CS+ is described below.

1.1 Hardware environment

The following hardware environments are supported.

- Processor: At least 1 GHz (support for hyper threading/multicore CPU)
- Main memory: 2 GB or higher recommended
- Display: Resolution at least 1,204 x 768; at least 65,536 colors
- Interface: USB 2.0

1.2 Software environment

The following software environments are supported.

- Windows 8.1 (64-bit editions)
- Windows 10 (64-bit editions)
- Microsoft .NET Framework 4.6.2
- Microsoft Visual C++ 2015 Update 3 runtime libraries (x86)
- Online help: Internet Explorer, Edge, Chrome, or Firefox (The latest version is recommended)

Remark For any of these, we recommend having the latest service pack installed.

Chapter 2. Points for Caution

This section states general points for caution.

2.1 Renesas Flash Programmer

The Renesas Flash Programmer included in the CS+ package is the free evaluation edition. Accordingly, please refrain from raising questions with our inquiry window.

Microcontrollers supported by the Renesas Flash Programmer are listed on the following Web site.

<https://www.renesas.com/rfp>

Windows administrator privileges are required to install the software.

2.2 “R8C” in User’s Manual and Online Help

Although the user’s manuals and the online help system include statements regarding the R8C Family, CS+ does not support that family.

Chapter 3. Points for Caution Regarding Installation and Uninstallation

This section provides points for caution regarding installation and uninstallation.

3.1 Points for caution regarding installation

3.1.1 Installation of the product version

Please be sure to register the license key by using the license management tool^{*1} after software installation.

*1 Node Locked License: License manager

Floating License: Floating License Server

3.1.2 Administrator privileges

Windows administrator privileges are required to install the software.

3.1.3 Execution environment

The Microsoft .NET Framework and the Microsoft Visual C++ runtime libraries are required to run the installer. If the Microsoft .NET Framework or the Microsoft Visual C++ runtime libraries are not installed, the CS+ IDE Package installer will install them.

3.1.4 Network drives

The software cannot be installed from a network drive.

It also cannot be installed on a network drive.

3.1.5 Installation folder name

The available characters for specifying the installation folder are the same as for Windows.

The 12 characters / * : < > ? | " \ ; , # and %nn (n: number of hexadecimal) cannot be used. Folder names also cannot start or end with a space.

3.1.6 Required files after installation

The following folder is created after installation. Do not delete it because it contains files that are necessary for the tools to run.

C:\Program Files (x86)\Common Files\Renesis Electronics CubeSuite+\

3.1.7 Modifying and repairing functions

To modify or repair the function of a tool that has already been installed, have the tool's installer package

on hand, and run the installation program. The program maintenance program will start; select **Modify** or **Repair**.

Clicking on [Apps & features] from [Settings] of Windows or [Programs and Features] of the control panel will cause an error.

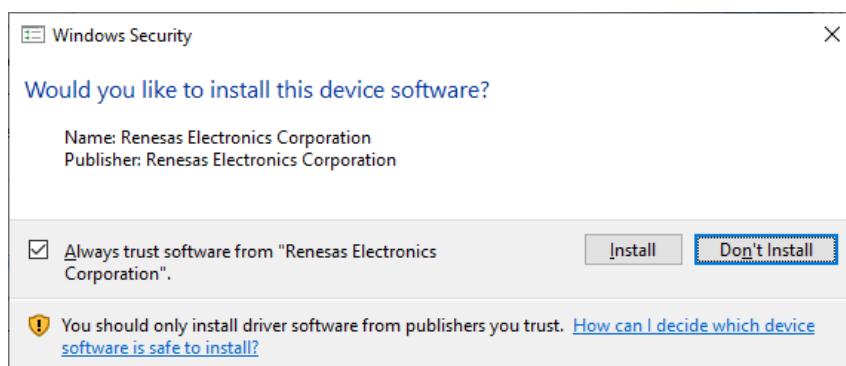
3.1.8 Changing the installation folder

To change the folder that tools are installed to, you must first uninstall all tools, and then perform installation again.

To uninstall all tools, start the Integrated Uninstaller, and delete all the tools that are displayed.

3.1.9 Warning message page when installing the USB driver

Windows 7, Windows 8.1 and Windows 10 will display a Windows security warning when installing the USB driver. Select "Install this driver" and continue with the installation.



3.1.10 Installing the USB driver

The USB drivers for the IE850, IECUBE, MINICUBE, MINICUBE2, E1, E20, E2 and E2 Lite will be installed via plug & play when a device is actually connected.

3.1.11 Updating the USB driver

If an IE850, IECUBE, MINICUBE, MINICUBE2, or E1, E20, E2 or E2 Lite is connected via USB, disconnect it before updating the USB driver.

3.1.12 USB driver of the E1 emulator

The selection for installing a USB driver for the E1 emulator is specified at the end of the integrated installer.

The update feature in the Update Manager is also not supported.

3.1.13 Version of installed tools

If a newer version of the tool is already installed, the older version tool may not be installed.

3.1.14 Starting the installer

If the installer is started on a non-Japanese version of Windows, then path names containing multi-byte

characters will cause an error, and the installer will not start.

3.1.15 Changing the structure of the installation folder

If you manually change the installation folder structure (e.g. delete one or more folders), then the Repair installer may start if you double click on a file with the .mtpj extension associated with CS+.

Either start CS+ and load a project without using the extension association feature, or reinstall CS+ completely.

3.1.16 Rapid Start Feature

CS+ is registered with the Startup menu of Windows during installation.

If a CS+ instance launched via Rapid Start is in the notification area (system tray) during installation, the following error message will appear. Exit the application and run the installer again.



3.1.17 Free Evaluation Version

If you install the free evaluation version downloaded from the Internet, make sure that your host machine is connected to the network before installing the program. If you wish to install the program on a host machine that is not connected to the network, first go to the Microsoft Download Center and install the Microsoft .NET Framework 4.6.2 or later before installing CS+.

3.2 Points for caution regarding uninstallation

3.2.1 Administrator privileges

Windows administrator privileges are required to uninstall the software.

3.2.2 Uninstallation folder name

Depending on the order in which tools are uninstalled, the folders may not be completely deleted. If this happens, remove any remaining folders via Explorer or the like.

3.2.3 Adding/repairing other than via the installer

If you added or modified files to the folders in which tools and release notes were installed using other means than the installers, they cannot be deleted during uninstallation.

3.2.4 Uninstalling the USB driver

If you uninstall the USB driver, you will be able to connect the emulator to ports to which connections have been made before the Uninstallation, but you will not be able to connect it to other ports to which connections have not been made.

3.2.5 Uninstalling the Renesas E-Series USB driver

The CS+ uninstaller cannot uninstall the Renesas E-Series USB driver.

When uninstalling the Renesas E-Series USB driver, please uninstall [Renesas E-Series USB Driver] and [(Windows Driver Package - Renesas Electronics Corporation E1USB) Renesas Emulator (xx/xx/xxxx.y.yy.yyy) ("x" for a date and "y" for a version number)] manually from the list of [Programs and Features] of the Control Panel.

The Renesas E-Series USB driver is a common USB driver for emulators which are used with the High-Performance Embedded Workshop (HEW) and Flash Development Toolkit (FDT) environments. If the Renesas E-Series USB driver is uninstalled in a PC environment in which CS+ and HEW or FDT are installed, emulators will no longer be connectable to the HEW and FDT environments. The relevant emulators are the following.

E1, E20, E10A-USB, E10T-USB, E30, E30A, E100, E200F, E7, E8

3.2.6 Rapid Start Feature

If a CS+ instance launched via Rapid Start is in the notification area (system tray) during uninstallation, the following error will appear. Exit the application and run the uninstaller again.



3.2.7 Microsoft Tools

The CS+ uninstaller will not uninstall the Microsoft .NET Framework or the Microsoft Visual C++ runtime library. If you wish to uninstall them, do so by opening [Apps & features] from [Settings] of Windows or [Programs and Features] of the control panel.

Chapter 4. Collection of User Information

Applications included in this package may access the Renesas Web site. In such cases, the following information is collected and recorded as a log.

- Date and time of access
- Access to URLs and files
- Unique and random Globally Unique Identifier (GUID) associated with your PC
- Types and version numbers of Windows, CS+, and the Renesas compiler you are using
- Types of Renesas emulator and MCU you are using
- The unique certificate number linked to your account for MyRenesas (only when you log in to MyRenesas)
- The unique identification number linked to cookies for the Web browser (if you are in Europe, this is only the case when you opt-in to the use of cookies). For details on cookies, refer to the privacy policy page stated below.

Logs are managed based on our privacy policy.

Refer to our privacy policy on the following Web page.

Privacy Policy:

<https://www.renesas.com/privacy.html>

Chapter 5. Release Notes

Release notes contain notes, points for caution, and statements of restrictions on using the features of CS+.

Please read these documents before using CS+.

These documents can be accessed from the Windows Start menu after installation.

Renesas Electronics CS+ → README

Remark In Windows 8.1, click on the CS+ icon on the Apps screen.

Since this release note is not installed with the CS+ package, manually save the file on your host machine.

Appendix Supported Devices and Tools

This appendix gives a link to a page that includes descriptions of the supported devices and tools.

The latest information is available from our Web site.

Please see the following URL.

CS+ Product Page:

<https://www.renesas.com/cs+>

Functions Supported by CS+

This is information about the following version of CSEs (version), v10 (Rev. 3, 2022).

C: connected; *X*: not connected; *-*: removed and replaced. Note: Refer to the User's Manual of the target device.

Supported Functions
Default Link Directive Information (TRX)

Microcontroller	Nickname/Group	Product Name	Pack/Package type	Supported Functions										Solution										Additional information				
				Compiler				Emulator				Device Specification				Device Information File version				Verification of Safety		Network Verification		Verification Through Fault Injection		CAN Communication Time Measurement Solution		
				Smart Compiler	Code Generator	Pin Configuration	CA Compiler	CX Compiler	ECUBI	ECUBI_E800	MINICUBE	MINICUBE2	E1_E20	E2	E2_Lite	Memory location	ROM Start address	Other Memory Area Start address	Name, User Reference, Size	* Processor unit	* TRX or *000	*addr	Exclusive control checking tool	Debugging CAN bus reception procedures	Pseudo-error debugging	Measuring CAN bus reception processing times	Measuring current consumption	Measuring current consumption
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X	X	X	X	X	X	X	X	F11MAP	Note	X	0x070000	V1.21								
RL75	RL75A	RL75A	607S	X	X	X	X	X																				

Microcontroller	Nickname/Group	Product Name	Pack/Package type	Supported Functions								Default Link Directive Information (TRX)								Solution				Additional information				
				Compiler				Emulator				Device Specification				Device Information File version				Verification of Safety		Network Verification		Verification Through Fault Injection		CAN Communication Time Measurement Solution		
				Smart Compiler	Code Generator	Pin Configurator	CA Compiler	CX Compiler	ECU C	ECU C Compiler	ES301, ES303, MINICUBE2	MINICUBE2	E1/E20	E2	E2 Lite	Internal RAM	External RAM	Other Memory Area	Name, Start Address, Size	Production unit	1 TRx or 1000 * #dil	Exclusive control checking tool	Debugging CAN bus reception procedures	Protocol-error debugging	Measuring CAN bus reception processing times	Measuring current consumption	Measuring current consumption during operation	
RH770	-	RH770100KF	80pin LQFP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770104KF	80pin LQFP	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770105KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770106KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770107KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770108KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770109KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770110KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770111KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770112KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770113KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770114KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770115KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770116KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770117KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770118KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770119KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770120KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770121KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770122KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770123KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770124KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770125KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770126KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.40	X	-	-	-	-	-	-	
RH770	-	RH770127KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770128KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770129KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770130KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770131KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770132KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770133KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770134KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770135KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770136KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770137KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770138KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770139KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770140KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770141KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770142KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770143KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770144KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770145KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770146KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770147KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770148KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770149KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770150KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770151KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770152KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770153KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770154KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770155KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770156KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770157KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770158KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770159KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770160KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	RH770161KF	100pin QFN	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	V1.31	X	-	-	-	-	-	-	
RH770	-	R																										

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 or any other use of the circuits, software, and information in the design of your product or system. Renesas Electronics disclaims any and all liability for any losses and damages incurred by you or third parties arising from the use of these circuits, software, or information.
 2. Renesas Electronics hereby expressly disclaims any warranties against and liability for infringement or any other claims involving 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, including but not limited to, the product data, drawings, charts, programs, algorithms, and application examples.
 3. 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 shall be responsible for determining what licenses are required from any third parties, and obtaining such licenses for the lawful import, export, manufacture, sales, utilization, distribution or other disposal of any products incorporating Renesas Electronics products, if required.
 5. You shall not alter, modify, copy, or reverse engineer any Renesas Electronics product, whether in whole or in part. Renesas Electronics disclaims any and all liability for any losses or damages incurred by you or third parties arising from such alteration, modification, copying or reverse engineering.
 6. Renesas Electronics products are classified according to the following two quality grades: "Standard" and "High Quality". The intended 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; industrial robots; etc.
 - "High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control (traffic lights); large-scale communication equipment; key financial terminal systems; safety control equipment; etc.
- Unless expressly designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not intended or 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 damage (space system; undersea repeaters; nuclear power control systems; aircraft control systems; key plant systems; military equipment; etc.). Renesas Electronics disclaims any and all liability for any damages or losses incurred by you or any third parties arising from the use of any Renesas Electronics product that is inconsistent with any Renesas Electronics data sheet, user's manual or other Renesas Electronics document.
7. No semiconductor product is absolutely secure. Notwithstanding any security measures or features that may be implemented in Renesas Electronics hardware or software products, Renesas Electronics shall have absolutely no liability arising out of any vulnerability or security breach, including but not limited to any unauthorized access to or use of a Renesas Electronics product or a system that uses a Renesas Electronics product. **RENESAS ELECTRONICS DOES NOT WARRANT OR GUARANTEE THAT RENESAS ELECTRONICS PRODUCTS, OR ANY SYSTEMS CREATED USING RENESAS ELECTRONICS PRODUCTS WILL BE INVULNERABLE OR FREE FROM CORRUPTION, ATTACK, VIRUSES, INTERFERENCE, HACKING, DATA LOSS OR THEFT, OR OTHER SECURITY INTRUSION ("Vulnerability Issues"). RENESAS ELECTRONICS DISCLAIMS ANY AND ALL RESPONSIBILITY OR LIABILITY ARISING FROM OR RELATED TO ANY VULNERABILITY ISSUES. FURTHERMORE, TO THE EXTENT PERMITTED BY APPLICABLE LAW, RENESAS ELECTRONICS DISCLAIMS ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THIS DOCUMENT AND ANY RELATED OR ACCOMPANYING SOFTWARE OR HARDWARE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.**
 8. When using Renesas Electronics products, refer to the latest product information (data sheets, user's manuals, application notes, "General Notes for Handling and Using Semiconductor Devices" in the reliability handbook, etc.), and ensure that usage conditions are within the ranges specified by Renesas Electronics with respect to maximum ratings, operating power supply voltage range, heat dissipation characteristics, installation, etc. Renesas Electronics disclaims any and all liability for any malfunctions, failure or accident arising out of the use of Renesas Electronics products outside of such specified ranges.
 9. Although Renesas Electronics endeavors to improve the quality and reliability of Renesas Electronics products, semiconductor products have specific characteristics, such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Unless designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not subject to radiation resistance design. You are responsible for implementing safety measures to guard against the possibility of bodily injury, injury or damage caused by fire, and/or danger to the public in the event of a failure or malfunction of Renesas Electronics products, 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 and impractical, you are responsible for evaluating the safety of the final products or systems manufactured by you.
 10. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. You are responsible for carefully and sufficiently investigating applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive, and using Renesas Electronics products in compliance with all these applicable laws and regulations. Renesas Electronics disclaims any and all liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
 11. Renesas Electronics products and technologies shall 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 shall comply with any applicable export control laws and regulations promulgated and administered by the governments of any countries asserting jurisdiction over the parties or transactions.
 12. It is the responsibility of the buyer or distributor of Renesas Electronics products, or any other party who distributes, disposes of, or otherwise sells or transfers the product to a third party, to notify such third party in advance of the contents and conditions set forth in this document.
 13. This document shall not be reprinted, reproduced or duplicated in any form, in whole or in part, without prior written consent of Renesas Electronics.
 14. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products.

(Note1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its directly or indirectly controlled subsidiaries.

(Note2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

(Rev.5.0-1 October 2020)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.

Contact information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:
www.renesas.com/contact/