

RX140 handbook for engineers

The information/materials required at the time of product development summarized and listed for each development phase.

Please use it as a handbook when developing.

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Step1: MCU selection

	Item	Content	Link
1	Hardware information	Datasheet	Doc
2	Products & Solutions	Video	Web site
3		Blog	Web site
4		Reference designs (Winning combination)	Web site
5	Product longevity program (PLP)	Overview of product longevity program (PLP)	Web site
6		Product selection (product selector) Note: Refer to PLP column in the chart.	Web site
7	Replacement information	Differences of specification among RX products	Doc
8		[SH/H8/H8S/H8SX/M16C/V850] → RX microcontroller migration guide	Web site
9		Design guide for migration between RX family differences in package external form	Doc

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Step2: Designing and evaluating

Item		Content	Link
Common			
1	Hardware information	User's manual: Hardware	Doc
2		RX family hardware manual guidance (how to read user's manual: hardware)	Doc
3		Technical update (errata information)	Web site
4		Product change notice (PCN)	Web site
5		Part number guide for RX family product (the meaning of character in part number)	Doc
6		Semiconductor reliability handbook	Doc
7		RELIABILITY REPORT	Doc
8		RoHS Product Options → Part Number → Package information → RoHS Info	Web site
9		Security guide for MCUs with encryption functions	Web site
10	Software information	Instruction set for RXv2 core architecture (user's manual)	Doc
11	Evaluation board (for general purpose)	Target board for RX140 (low-cost version)	Web site
12		Renesas starter kit for RX140 (all functions could be evaluated)	Web site
13	Solution board	Capacitive touch evaluation system for RX140	Web site
14	Partner information	Partner products (system solutions provider)	Web site
15		Partner products (trusted technology partners that deliver commercial-grade building blocks)	Web site
Hardware design			
1	Design information	Hardware design guide	Web site
2		Design guide for main clock circuit and Sub-Clock circuit	Doc
3		Notes regarding high-temperature operation	Doc
4	Board simulates	ECAD, board simulation model (IBIS) Note: ECAD can be found by clicking on the respective part number of the product options. 	Web site
5	Other	Resonator and matching circuit information	Web site
6		Package information (package outline information, mount manual, etc.)	Web site
7	Development environment	Supplemental user's manual for E1/E20/E2 Lite/E2 emulator	Doc

Item		Content	Link	
Software design				
1	Software information	Getting started with the RX family development environment	Web site	
2		Development tools for RX family	Web site	
3		Software environment (OS, middleware, drivers)	Web site	
4		RX smart configurator user's guide (tools for code generation)	Doc	
5	Training information	Smart configurator tutorial - create a LED blinking program using RX family MCU	Web site	
6		How to use tools and solutions (video clips)	Web site	
7	System design	Examples of snooze mode usage	Doc Sample	
8		Examples of transitioning to low power consumption modes	Doc Sample	
Solution				
1	Capacitive touch	Portal page	Capacitive touch sensor solution Web site	
2		Design guide	First step guide (CTSU capacitive touch introduction guide)	Doc
3			The electrode design guide for capacitive touch (CSTU)	Doc
4			Capacitive touch noise immunity guide	Doc
5			The development guide for capacitive touch applications using QE and FIT	Doc
6			Application notes	The development guide for 3D gesture recognition application using QE for capacitive touch
7		How to use QE for capacitive touch for renesas RX family with IAR EWRX		Doc
8		QE for capacitive touch advanced mode parameter guide		Doc
9		The sample software for self-capacitance touch button with waterproof demonstration		Doc Sample
10		Smart wakeup solution		Doc Sample
11		Smart wakeup solution (touchless demo)		Doc
12		Touchless button demo solution sample software		Doc Sample
13		3D gesture electrode board sample software		Doc Sample

Item		Content		Link
Solution				
14	GUI	Portal page	Graphical user interface (GUI) solutions	Web site
15		Support information	RX family LCD-related FAQ list	Web site
16		Application notes	GUI development sample using QE for display [RX]	Doc Sample
17			QE for display [RX] user's manual	Doc Sample
18			WVGA display sample program using GLCDC	Doc Sample
19	Functional safety	Portal page	IEC61508 functional safety solutions for industry	Web site
20		Other information	Functional safety solution for Industrial automation	Doc
21		Introduction to Renesas functional safety (Video)	Web site	
Support				
1	Support information		FAQ (frequently asked inquiries)	Web site
2			RX forum (community)	Web site
3			Ask to technical support Note: Please click login in the upper right corner	Web site

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Step3: Mass production

Item		Content		Link
1	Writing a program	Programmer	PG-FP6	Web site
2		Writing tool	Renesas flash programmer (GUI tool for PC)	Web site
3	Firmware update	Application notes	Renesas MCU firmware update design policy	Doc
4			Firmware update module using firmware integration technology	Doc Sample
5			How to manage the access control for flash memory	Doc
6	Inspection	Design information	Boundary scan description language (BSDL) file	Not available

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