RENESAS

RX Bluetooth Solution – Wireless Communication with BT5.0
RX23W

Overview

Inter-Device connections are very common in both smart homes and open areas with automatic tracking system. With more devices connecting to each other, the Mesh topology becomes more popular in the IoT society. Renesas RX23W builds in Bluetooth Low Energy (BT5.0) and many other features like USB/CAN, Capacitive Touch Keys and Analog features. Equipped with Renesas Trusted Secure IP (TSIP-Lite), providing strong security encryption engine, key access management and realizing Secure Root of Trust in the IoT edge devices.

Features

- Powered by Renesas high performance RXv2 Core MCU (54MHz) with DSP function with low power consumption
- Full functionality of BT5.0 (2Mbps, long range and mesh network)
- Excellent receptions performance (peak current 3.0mA, reception sensitivity during long range - 105dBm @ 125kbps)
- Built-in many peripherals - Capacitive Touch Keys, USB, CAN, SDIO
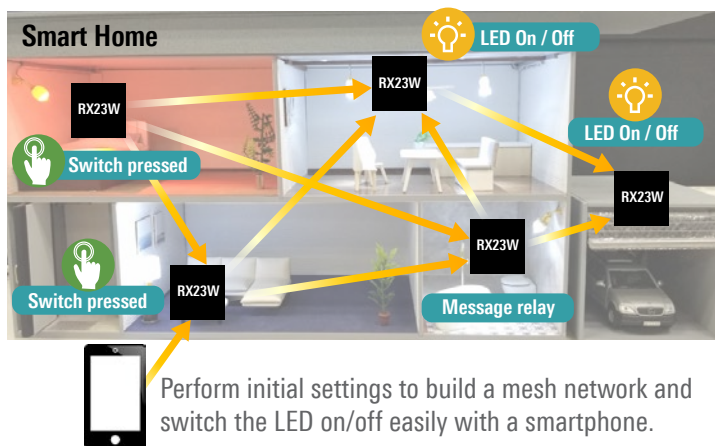- Excellent security features with Renesas Trusted Secure IP (TSIP-Lite)

Benefits

- High embedded memory with many integrated peripherals reduce overall BOM cost with a single MCU
- Easy development with Bluetooth Tool Test Suite (BTTS) GATT Browser, shorten development cycle
- Free Bluetooth Protocol and Mesh Network Stack
- Development kit and 3rd party module available for quick start evaluation

Target Applications

- Healthcare (BGM, BPM, Medical monitor)
- Activity Monitor
- Smart Home/Building (Appliances/Security/Lighting/Air-con etc.)
- Industrial Equipment
- Office Equipment (Printer etc.)
- Fleet/Logistic Management
- Agriculture
- Wearable Devices (Tracking/Fitness)
- All IoT Connected Application

Bluetooth Mesh Application Example

Perform initial settings to build a mesh network and switch the LED on/off easily with a smartphone.

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RX23W

Development Tools and Support

Development Tools	Benefits
BT Protocol Stack	■ Free of charge driver and protocol stack for download
Mesh Stack	■ Free of charge Mesh software library available for download
QE for BLE	■ Create custom profile with simple GUI operation
Target Board P/N: RTK5RX23W0C00000BJ	■ With built-in emulator circuit, the applications can be developed without the need of a separate emulator
Renesas Solution Starter Kit P/N: RTK5523W8AS00000BJ 　　　RTK5523W8BS00000BJ (with TSIP-Lite)	■ Immediate evaluation on various peripheral functionality (BT, Touch Keys) is possible ■ Jumpstart evaluation with the complete package consisting LCD display module, on-chip debugging emulator and integrated development environment
GATT Browser App For Android	For iOS	■ Communicate with smartphone to check the wireless connectivity response
Bluetooth Test Tool Suite (BTTS)	■ Easy evaluation of RX23W Bluetooth LE functions and performance. Simple and easy to use GUI tool to evaluate the Bluetooth equipment to be tested in compliant with the Radio Law Certification

Orderable Part Numbers

Flash: 512KB RAM: 64KB	R5F523W8ADNG#30	R5F523W8BDNG#30	R5F523W8ADBL#20	R5F523W8BDBL#20
Flash: 384KB RAM: 64KB	R5F523W7ADNG#30	R5F523W7BDNG#30	R5F523W7ADBL#20	R5F523W7BDBL#20
Pin Package	56 pin QFN		85 pin BGA	
Package Size	7 x 7mm		5.5 x 5.5mm	
Pin Pitch	0.4mm		0.5mm	
SDHI	No		Yes	
Security	No	Yes	No	Yes

For more information, visit us at
www.renesas.com/rxble

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