

Bluetooth 5.0 Low Energy Module

RENESAS RYZ012A1/B1

Smart Wireless Module for Global Deployment

The RYZ012x1 is a highly integrated wireless communication module that provides a pre-certified solution for Bluetooth 5.0 Low Energy. The network stack is executed inside the module, so there is no need for external stack operation.

The module is available in two configurations (RYZ012A1 and RYZ012B1) with or without a mounted antenna. This allows for implementation flexibility and the option for longer wireless range requirements.

Supported by the RA MCU family's Flexible Software Package (FSP) and the QE for BLE tool, customers can focus on application development without dealing with the details of Bluetooth LE.



Features

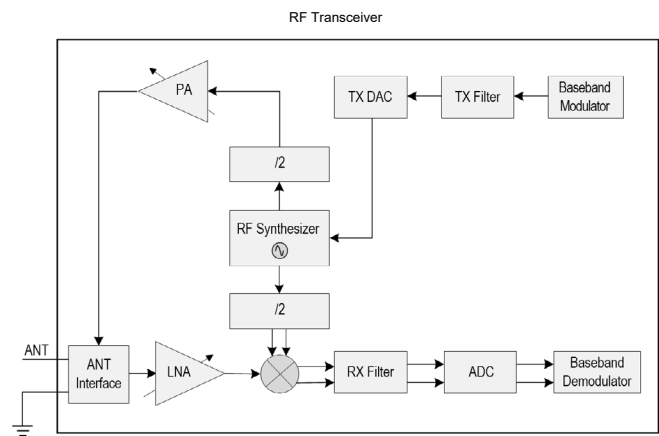
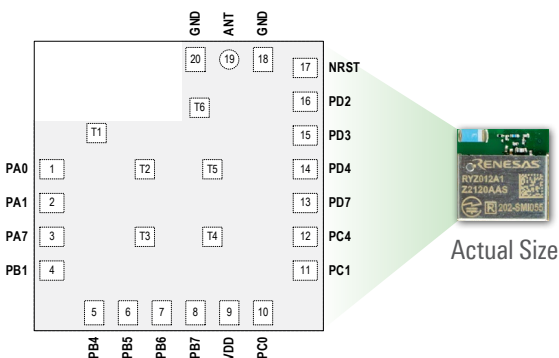
- Bluetooth LE ISM 2.4GHz RF transceiver embedded
- Bluetooth® 5 compliant (1Mbps, 2Mbps)
- Low power RF operation (TX:4.8 mA, RX:5.3 mA)
- Big link budget of 106dBm @ 1Mbps
- Available in two configurations:
 - RYZ012A1 with mounted antenna
 - RYZ012B1 with single pin antenna interface
- Global RF certification (FCC/ISED, CE, MIC)
- Bluetooth qualified (Declaration ID:D054228)

Applications

- Smart Home
- Wearables & Trackers
- Agriculture
- General phone connectivity
- Entry-level mass market products requiring basic Bluetooth LE functionality with minimum design and qualification effort

Package

- UART and SPI interface for communication via serial command interface to host MCU
- 26pin package, 12mm x 12mm, 2.31mm height



Block diagram of RF transceiver

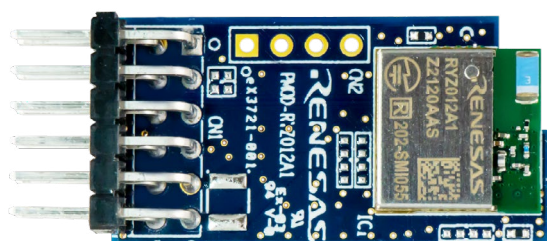
RENESAS RYZ012A1/B1

Benefits

- RYZ012A1/B1 provide entry-level Bluetooth 5 LE functionality
- Supports Bluetooth 5.0 LE features, such as 2Mbps high-speed mode
- RYZ012A1/B1 are fully integrated into the Renesas development environments
- Driver for RX MCUs available
- Integrated into the RA Flexible Software Package (FSP)
- QE tool for Bluetooth LE available to generate and download profiles
- RYZ012A1/B1 are easy to design into customer systems
- No need for complex RF design due to integrated antenna
- Pre-certified and Bluetooth qualified

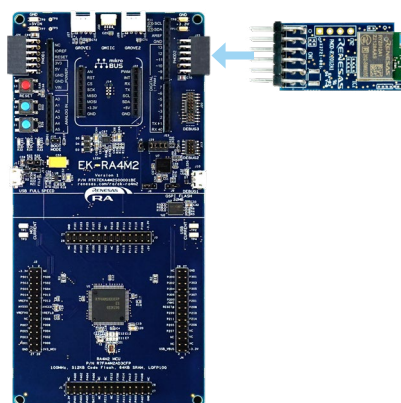
PMOD Evaluation Board

- Evaluation board for RYZ012A1 as PMOD expansion board



RTKY012A1B00000BE
PMOD Expansion Board for RYZ012A1

- Easy connection to Renesas MCU kits
- Driven through SPI or UART interface (pin selectable)



Ordering References

Part name	Description	MSL Rating	Shipping Packaging	Operating Temperature
RYZ012A100FZ00#HD0	Bluetooth module with integrated antenna	3	Tape&Reel	-40 to +85 degree
RYZ012A100FZ00#BD0			Tray	
RYZ012B100FZ00#HD0	Bluetooth module needing external antenna		Tape&Reel	
RYZ012B100FZ00#BD0			Tray	
RTKY012A1B00000BE	PMOD Expansion Board for RYZ012A1	-	-	-

For more details, please visit renesas.com/ryz012x1