Raspberry Pi Radio Module 2

RMC20452T

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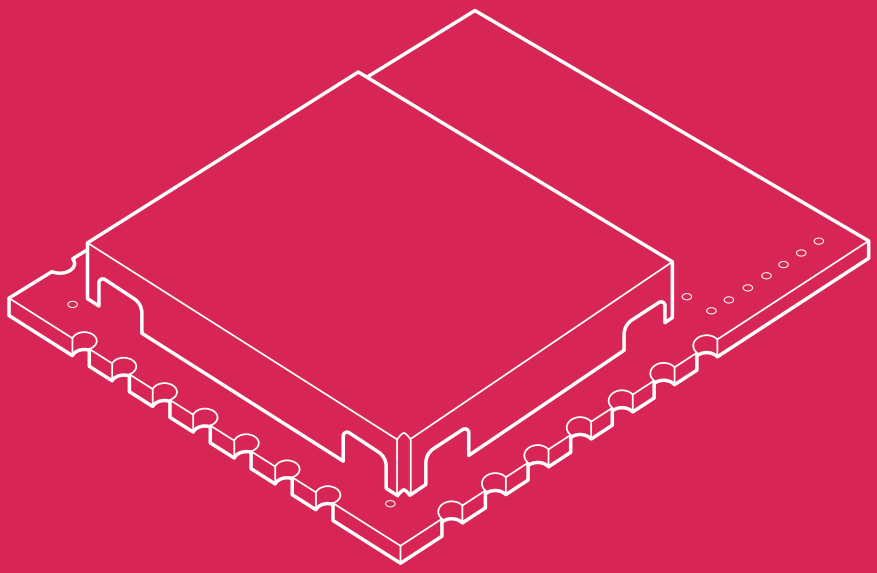
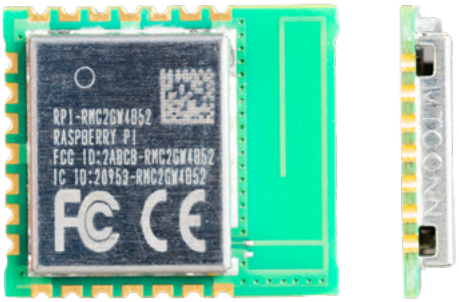


Raspberry Pi Ltd

Overview



Raspberry Pi Radio Module 2 is a cost-effective wireless module designed specifically for use with Raspberry Pi's low-cost, high-performance RP2040 and RP2350-series microcontrollers, providing a natural path to scale for customers who have prototyped with Raspberry Pi Pico products.

Radio Module 2 packages the same Infineon CYW43439 radio used on Raspberry Pi Pico W and Pico 2 W, featuring 1×1 single-band 2.4GHz Wi-Fi® 4 (802.11n) and Bluetooth® 5.2, with support for both Bluetooth Classic and Bluetooth Low Energy. Its integrated internal PA, LNA, and T/R switch deliver excellent wireless performance even when sharing a single antenna between Wi-Fi and Bluetooth.

Castellated edge pads and an on-board 2.4GHz antenna simplify design and assembly, while a low-pin-count SPI host interface makes efficient use of the host CPU's I/O budget. A compact 16.5mm × 14.5mm form factor and minimal external component requirements drive down production costs.

Radio Module 2 benefits from full modular certification, making it an ideal choice for designers who wish to ship connected products without navigating the complex and expensive radio certification process.

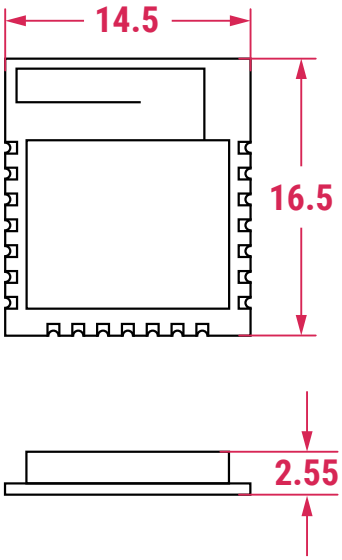
Specification

Wi-Fi® support:	Wi-Fi 4 (802.11n), single-band (2.4 GHz)
Bluetooth® support:	Bluetooth 5.2 Bluetooth Classic and Bluetooth Low Energy (LE)
Compatibility:	Full software compatibility with Raspberry Pi Pico W and Raspberry Pi Pico 2 W SDK
Simple GPIO expander:	Three host-controlled GPIOs for adde I/O capabilities
Minimal I/O overhead:	Low-pin-count gSPI host interface allows for simplified integration with minimal I/O requirements
Single-antenna design:	SISO[1] configuration supports efficient single-antenna wireless performance Wi-Fi and Bluetooth can coexist with a shared antenna
Connectivity:	Integrated internal PA and LNA for signal range and reliability
Speed:	Supports 20 MHz channels with data rates up to 96 Mbps (PHY rate)
Bluetooth range:	Supports up to 100 m (Class 1) and 10 m (Class 2)
Operating temperature:	−30°C to +70°C
Low power consumption:	IEEE Power Save PM1 DTIM1 average rate 1: 1.19 mA Receive active rate MCS7 (at −50 dBm): 43 mA Transmit active rate MCS7 (at 16 dBm): 271 mA
Mechanical characteristics:	21-pad castellated package 16.5 mm × 14.5 mm

[1] Single Input, Single Output

Datasheet:	For full product specifications, including footprint and reference schematics, please visit rpltd.co/rm2-datasheet
Part number:	RMC20452T
Production lifetime:	Raspberry Pi Radio Module 2 will remain in production until at least January 2036
Compliance:	For a full list of local and regional product approvals, please visit pip.raspberrypi.com
List price:	**$4**

Physical specification



Note:

All dimensions in mm

All dimensions are approximate and for reference purposes only

The dimensions shown should not be used for producing production data

The dimensions are subject to part and manufacturing tolerances

Dimensions may be subject to change

SAFETY INSTRUCTIONS

To avoid malfunction or damage to this product, please observe the following:

- Do not expose to water or moisture.
- Take care while handling to avoid mechanical or electrical damage.