

JODY-W1 series

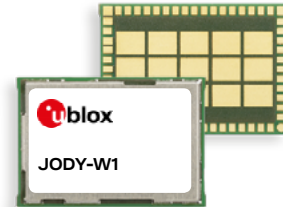


Host-based multiradio modules with Wi-Fi and Bluetooth



Smallest, most flexible automotive modules supporting Wi-Fi Real Simultaneous Dual Band (RSDB)

- Dual band Wi-Fi with 2x2 MIMO 802.11a/b/g/n/ac
- Real Simultaneous Dual Band (RSDB) Wi-Fi 2.4 GHz and 5 GHz
- Dual-mode Bluetooth® (Bluetooth/Bluetooth Low Energy) v4.2
- Simultaneous access point (AP), station (STA), or Wi-Fi Direct (P2P)
- Optimized for parallel operation of Wi-Fi and Bluetooth



13.8 × 19.8 × 2.5 mm

Product description

JODY-W1 compact modules are based on Cypress CYW88359 and CYW89359 AEC-Q100 compliant chipsets. They provide Wi-Fi and Bluetooth EDR/low energy communication, and are thus ideal for in-vehicle infotainment and telematics applications that require high data rates. Use cases include in-car hotspots, Wi-Fi display applications like Apple CarPlay, or video streaming across multiple clients. JODY-W1 can be operated in the following modes:

- Wi-Fi 2x2 MIMO 802.11ac in 2.4 GHz or 5 GHz
- Wi-Fi 1x1 802.11ac in 2.4 / 5 GHz real simultaneous dual band
- Dual-mode Bluetooth v4.2, including audio, can be operated fully simultaneous with both the Wi-Fi modes

JODY-W1 modules undergo extended automotive qualification according to ISO 16750-4 and are manufactured in line with ISO/TS 16949. They connect to a host processor through PCIe, SDIO, or High-Speed UART interfaces. Radio type approvals are pending for many countries, and more certifications are planned.

Key features

- Real simultaneous dual band - parallel operation of 2.4 GHz (802.11n) and 5 GHz (802.11ac) Wi-Fi
- 2x2 MIMO IEEE 802.11ac data rates up to 867 Mbit/s (PHY), beamforming
- TurboQAM high speed 802.11n for faster 2.4 GHz access point application
- Chipset is compliant with AEC-Q100
- Wi-Fi 20, 40, and 80 MHz channels
- Bluetooth and Bluetooth Low Energy v4.2
- PCIe high speed interface
- PCM and I²S interfaces for Bluetooth audio
- Access point mode for up to 10 stations
- Hardware encryption engines: AES and TKIP
- Security: WPA, WAPI, WPA2, and WPS
- Extended temperature range -40 °C to +85 °C
- Smallest possible form factor

Product selector

Model	Radio	Interfaces	Power	Features	Grade
	Wi-Fi 2.4 GHz channels 1-13 Wi-Fi 5 GHz channels 36-165 Wi-Fi IEEE 802.11 version Bluetooth® qualification Bluetooth profiles Max output power at antenna pin Antenna type Antenna pins required for RSDB LTE filter	PCIe ¹ SDIO v3.0 ² UART ³ PCM (Bluetooth audio) IIS (Bluetooth audio)	Power supply: 3.2 V - 4.8 V	Micro access point AES hardware support RF parameters in OTP memory MAC addresses in OTP memory	Standard Professional Automotive
JODY-W163	• • a/b/g/n/ac v4.2 H 18 dBm 2p 1 ○	• • • • •	•	• • • • •	•
JODY-W164	• • a/b/g/n/ac v4.2 H 18 dBm 2p 1 ○	• • • • •	•	• • • • •	•
JODY-W167	• • a/b/g/n/ac v4.2 H 18 dBm 3p ○	• • • • •	•	• • • • •	• •

1 For Wi-Fi only / 2 For Wi-Fi only and supported only in Automotive grade / 3 For Bluetooth only / 2p = Two pins for Wi-Fi and Bluetooth antennas / 3p = Three pins, 2 for Wi-Fi and 1 for Bluetooth antenna / H = HCl / ○ = On request





Features

Wi-Fi standards	IEEE 802.11a/b/g/n/ac 2x2 MIMO for 11ac IEEE 802.11d/e/h/i/w
Wi-Fi channels	2.4 GHz: 1-13 5 GHz: 36-165
Bluetooth	v4.2 (Bluetooth low energy and Bluetooth with EDR) Class 1 and 2 transmission
Antenna	JODY-W163 and JODY-W164: – Pin 1: 2.4 GHz and 5 GHz Wi-Fi - RSDB mode – Pin 2: 2.4 GHz Bluetooth JODY-W167: – Pin 1: 2.4 GHz and 5 GHz Wi-Fi - 2x2 MIMO – Pin 2: 2.4 GHz and 5 GHz Wi-Fi - 2x2 MIMO – Pin 3: 2.4 GHz Bluetooth
Output power	Wi-Fi IEEE 802.11b: 18 dBm Wi-Fi IEEE 802.11a/g/n/ac: 16.5 dBm Bluetooth BR: 10 dBm Bluetooth EDR: 8 dBm
Security	Hardware encryption engine: AES-CCMP, TKIP WPA/WPA2, WAPI, WEP

Software features

RF parameters	Available in on-board OTP memory
MAC addresses	Available in on-board OTP memory
Security	WEP WPA2 (CCMP, AES), WAPI 128-bit AES hardware support
Wi-Fi modes	Station (STA): Infrastructure & Direct mode AP: Supports up to 10 stations Wi-Fi direct One single firmware for Wi-Fi STA, AP and Bluetooth
Driver support	Free of charge drivers for Linux and Android Third party drivers for QNX

Interfaces

Wi-Fi	PCIe v3.0 SDIO v3.0 * (4-bit, 208 MHz)
Bluetooth	High-speed UART, 4-wire, up to 4 Mbit/s PCM audio, 8, 16 KHz sampling I ² S for audio
Other interfaces	GPIOs

* Supported only in Automotive grade

Package

Dimensions	13.8 × 19.8 × 2.5 mm
Mounting	Solder pins (LGA), 60 pins, additional large ground pins

Environmental data, quality & reliability

Operating temperature	-40 °C to +85 °C
Automotive qualification according to ISO 16750-4	

Electrical data

RF power supply	3.2 V – 4.8 VDC
I/O power supply	3.3 VDC or 1.8 VDC

Certifications and approvals¹

Europe (ETSI RED)	
USA (FCC CFR part 15)	
Canada (IC RSS)	

1 = Pending approval. Additional country certifications are planned.

Support products

EVK-JODY-W163	Evaluation kit for JODY-W163
EVK-JODY-W164	Evaluation kit for JODY-W164

Product variants

JODY-W163	Automotive I grade with 2 antenna pins, RSDB mode with a single antenna pin, SDIO interface
JODY-W164	Automotive I grade with 2 antenna pins, RSDB mode with a single antenna pin, PCIe interface
JODY-W167	Automotive and professional grades with 3 antenna pins, 2x2 MIMO mode, PCIe interface

Further information

For contact information, see www.u-blox.com/contact-us.

For more product details and ordering information, see the [product data sheet](#).

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