Product summary

JODY-W3 series

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Host-based modules with Wi-Fi 6 and Bluetooth 5.3

Standard

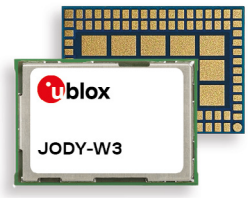
Professional

Automotive

Automotive and professional grade modules featuring Wi-Fi 802.11ax and Bluetooth LE 5.3

- Wi-Fi 6 (802.11ac/ax)
- Wi-Fi Concurrent dual-band (2.4 and 5 GHz), 2x2 MIMO
- Full-featured Bluetooth 5.3 BR/EDR and LE, including long range
- Simultaneous access point (AP), station (STA), Wi-Fi Direct (P2P)
- Optimized for parallel operation of Wi-Fi and Bluetooth

13.8 × 19.8 × 2.5 mm



Product description

JODY-W3 Wi-Fi/Bluetooth modules are intended for the most advanced in-car infotainment and connectivity systems. The modules deliver the highest data rates in Wi-Fi using the most advanced Wi-Fi 802.11ax technology. JODY-W3 can operate in concurrent dual-band Wi-Fi 2.4 and 5 GHz, dual-MAC, and in 2x2 MIMO. It supports Bluetooth 5.3 BR/EDR and LE features, such as a data rate of 2 Mbit/s (PHY), extended advertising, and long range.

JODY-W3 modules are based on the Automotive-qualified NXP Q9098 chip, undergo automotive qualification according to u-blox qualification policy based on AEC-Q104, and are manufactured in line with ISO/TS 16949. The JODY-W3 host-based modules require a host processor running a Linux or Android operating system. They connect to the host processor through various interfaces: PCIe or SDIO for Wi-Fi, high speed UART for Bluetooth, and PCM or I2S for Bluetooth audio.

Key features

- 2x2 MIMO or 1x1 SISO 802.11ax 5 GHz, beamforming
- Wi-Fi concurrent dual band 2.4 and 5 GHz
- Wi-Fi data rates (PHY): Up to 1.2 Gbit/s (5 GHz)
- Wi-Fi 20, 40, and 80 MHz channels
- DFS master zero-wait
- Multi-role operation: AP, STA, P2P
- Security: WPA3, all common methods of security and encryption
- Bluetooth LE physical layer (PHY) data rates up to 2 Mbit/s
- Bluetooth long range
- Advertising extension, high duty cycle directed advertising
- All standard pairing, authentication, link key, and encryption operation

	JODY-W354	JODY-W374	JODY-W377
Grade			
Automotive	•	•	•
Professional	•	•	•
Standard			
Radio			
Chip inside	NXP AW690	NXP Q9098	
Bluetooth qualification		v5.3	
Bluetooth profiles		HCI	
Bluetooth BR/EDR	•	•	•
Bluetooth Low Energy	•	•	•
Wi-Fi IEEE 802.11 standards		Wi-Fi 6 (802.11ax)	
Wi-Fi 2.4 / 5 [GHz]		2.4 and 5	
LTE filter	•	•	
Bluetooth output power conducted [dBm]	10	10	10
Wi-Fi output power conducted [dBm]	19	19	19
Antenna type	2p	2p	3p
OS support			
Android / Linux drivers (from u-blox)	•	•	•
Interfaces			
UART [B]	1	1	1
PCIe [W]	1	1	1
SDIO [version] [W]		v3 [W]	v3 [W]
PCM / I2S (Bluetooth audio)	1	1	1
Features			
Micro Access Point [max connects]	2 x 32	2 x 32	2 x 32
AES hardware support	•	•	•
Wi-Fi direct	•	•	•
RF parameters in OTP memory	•	•	•
MAC addresses in OTP memory	•	•	•
Simultaneous STA/AP roles	dual-MAC	dual-MAC	dual-MAC
Concurrent dual band	•	•	•

2p = 2 antenna pins, one each for Bluetooth and Wi-Fi
3p = 3 pins, 2 for Wi-Fi and 1 for Bluetooth antenna
DRCS = Dynamic Rapid Channel Switching

B = For Bluetooth only
W = For Wi-Fi only

JODY-W3 series

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Features

Wi-Fi standards	IEEE 802.11a/b/g/n/ac/ax IEEE 802.11d/e/h/i/k/r/u/v/w/mc
Wi-Fi channels	2.4 GHz: 1-13 5 GHz: 36-165
Bluetooth	v5.3 (Bluetooth Low Energy and Bluetooth with EDR) Class 1 and 2 transmission Bluetooth Low Energy long range
Antenna	JODY-W354 and JODY-W374: Pin 1: 2.4 GHz and 5 GHz Wi-Fi Pin 2: 2.4 GHz Wi-Fi and Bluetooth JODY-W377: Pin 1: 2.4 GHz and 5 GHz Wi-Fi Pin 2: 2.4 GHz and 5 GHz Wi-Fi Pin 3: Bluetooth
Output power	Wi-Fi IEEE 802.11b: 19 dBm Wi-Fi IEEE 802.11a/g: 17 dBm Wi-Fi IEEE 802.11n/ac/ax: 14-16 dBm Bluetooth BR/EDR: 10 dBm Bluetooth LE: 7 dBm
Security	Hardware encryption engine: AES-CCMP, AES-GCMP, TKIP WPA/WPA2/WPA3, WAPI, WEP 128-bit AES hardware support

Software features

RF parameters	Available in on-board OTP memory
MAC addresses	Available in on-board OTP memory
Operation modes	Station (STA) Access Point (AP) Wi-Fi Direct P2P Combinations of STA, AP, P2P
Driver support	Linux drivers in source code

Interfaces

Wi-Fi	PCIe SDIO v3.0 (JODY-W374 and JODY-W377 only)
Bluetooth	High-speed UART, 4-wire
Bluetooth audio	PCM audio, I2S
Other interfaces	GPIOs

Package

Dimensions	13.8 × 19.8 × 2.5 mm
Mounting	Solder pins (LGA), 94 pins, additional large ground pins

Environmental data, quality & reliability

Operating temperature −40 °C to +85 °C
Automotive qualification according to u-blox Qualification Policy based on AEC-Q104

Electrical data

Power supply	3.3 V and 1.8 V
I/O power supply	3.3 V or 1.8 V

Certifications and approvals

Type approvals	Europe (ETSI RED); US (FCC CFR part 15C and 15E); Canada (ISED)
Bluetooth qualification	v5.3 (Bluetooth BR/EDR and Bluetooth low energy)

Support products

EVK-JODY-W374	Evaluation kit for JODY-W374
EVK-JODY-W377	Evaluation kit for JODY-W377

Product variants

JODY-W354	2 antenna pins, 85 °C
JODY-W374	2 antenna pins, 85 °C
JODY-W377	3 antenna pins, 85 °C

Further information

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

For more product details and ordering information, see the product data sheet.