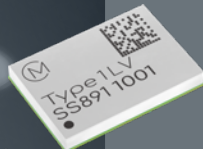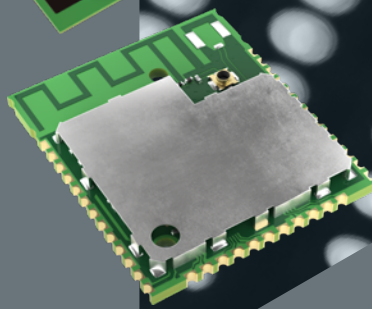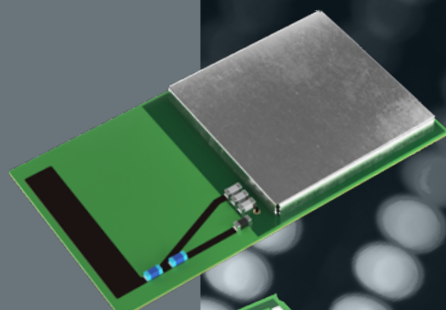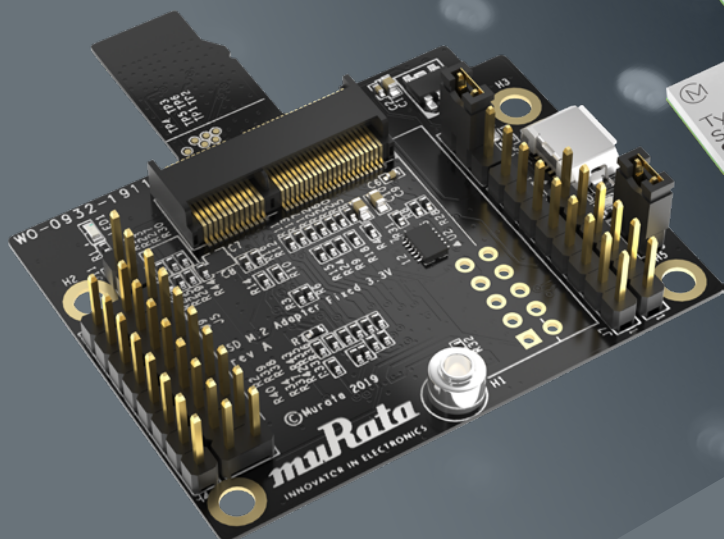# Murata wireless solutions for i.MX applications

Products

Type 2 DS module

Type ABR module

Type 1ZM module

Type 1YM module

Type 1DX module

Type 1MW module

Type 1LV module

µSD-M.2 adapter

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Wireless connectivity module

Shielded small Wi-Fi® 11b/g/n module

Features

- 2.4GHz Wi-Fi® module with integrated PCB antenna
- Network topology: uAP and STA dual mode
- Chipset: NXP (88W8801)
- Processor: No
- Modulation: DSSS / CCK / OFDM
- FCC/CE/IC/TELEC certified

Flexible solution for IoT

- For Industrial IoT, smart home, sensor network, gateway
- 802.11 b/g/n 72.2 Mbps
- NXP MCUXpresso

Description

Type 2DS is a small high-performance module (integrated PCB antenna) based on NXP88W8801 chipset which supports Wi-Fi® 802.11b/g/n up to 72.2 Mbps PHY data rate. The WLANinterfaces toboth SDIOv2.0 and USB 2.0, providing customers flexible design options.Type 2DS is supported on NXP's powerful MCUXpresso IDE platform with SDK support for i.MX RT crossover MCUs. Type 2DS Wi-Fi® module provides device manufacturers with an easy-to-design solution for data acquisition, device management, and industrial control applications. RF matching, Antenna design and Regulatory certification are already taken care of and tested.The versatile Type 2DS module is packaged in a small form factor that facilitates integration into size- and power-sensitive applications.
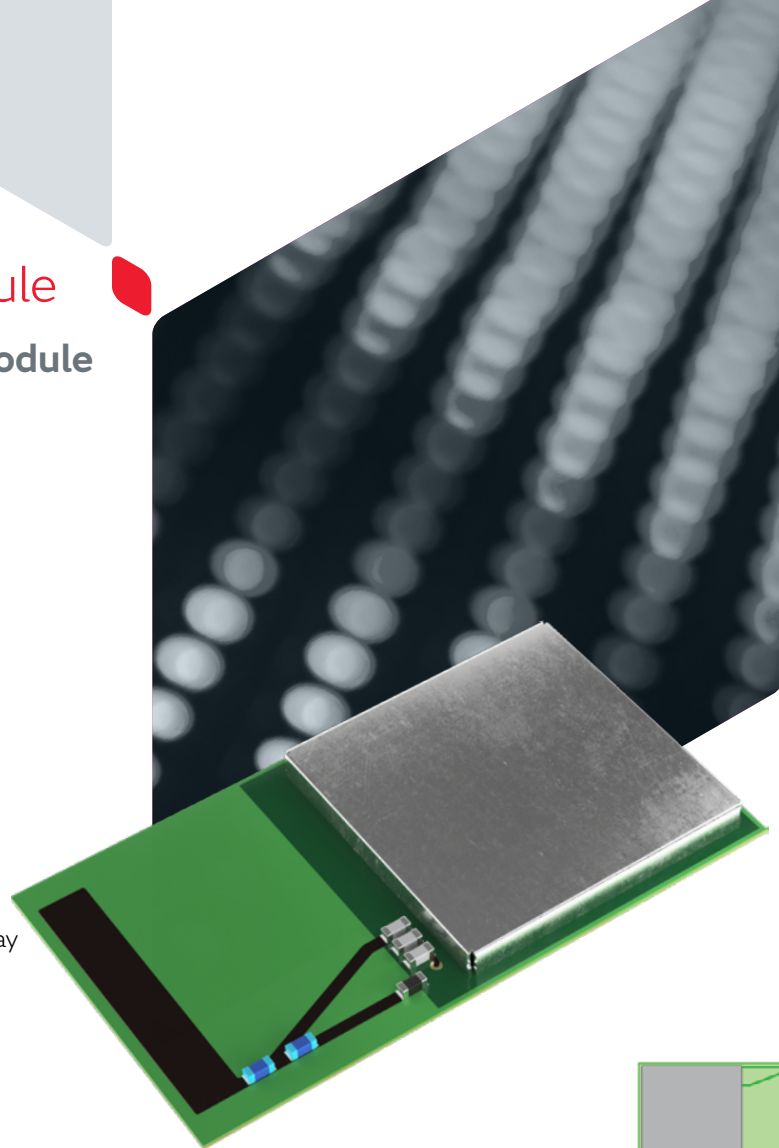
- Size: 25.0 x 14.0 x 2.4mm

Actual size

Type 2DS Specifications

Murata part number	LBWAZZ2DS-688
Embedded Artists M.2 module P/N	N/A
Technology	Wi-Fi
Chipset	NXP 88W8801
Wi-Fi specification	802.11b/g/n
Bluetooth specification	N/A
Frequency (GHz)	2.4 & 5
Hosted/Hostless architecture	Hosted
Software	MCUXpresso
Wi-Fi interface	SDIO 2.0
Bluetooth interface	N/A
MAX data rate - Wi-Fi (Mbps)	72.2
MAX data rate - Bluetooth (Mbps)	N/A
Interface voltage (V)	3.3
Operating temp. Range (°C)	-40 to +85
Antenna configuration	PCB trace antenna
Regulatory certification	FCC/IC, CE, MIC (Planned)

Note: CE marking and declaration should be done by customer as a final product

More details:

- https://wireless.murata.com/type-2ds.html

Contents are subject to change without notice.

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Type ABR module

Network controller module

Shielded small Wi-Fi® 11b/g/n + MCU module

Features

- 2.4GHz Wi-Fi®+MCU module with integrated PCB antenna
- Network topology: uAP and STA dual mode
- Chipset: NXP (88MW320) wireless microcontroller
- Processor: ARM Cortex-M4F
- Modulation: DSSS / CCK / OFDM
- FCC/CE/IC certified

Feature rich software hosted on module

- For Industrial IoT, smart home, sensor network, gateway
- 802.11 b/g/n 72.2 Mbps, Wi-Fi® Stack runs inside, 512KB SRAM, 128KB mask ROM, and 2MB SPI Flash on module
- NXP WMSDK tool provides comprehensive support

Description

Type ABR is a small module (integrated PCB antenna) based on NXP 88MW320 (wireless microcontroller), supporting Wi-Fi® 802.11 b/g/n up to 72.2 Mbps PHY data rate; with an integrated 200MHz ARM Cortex-M4F MCU for host-side applications.

Type ABR easily enables stand-alone consumer applications with its integrated ARM Cortex-M4F MCU. NXP's powerful WMSDK tool allows customers to quickly and easily customize their solution.

Type ABR network controller module provides device manufacturers with an easy-to-design solution for data acquisition, device management, and industrial control applications.

RF matching, Antenna design and Regulatory certification are already taken care of and tested. Each module offers a complete network controller solution via a simple UART interface. The Wi-Fi®, TCP/IP, security supplicant and other network application features are hosted directly on the module. Amazon Alexa Voice Service (AVS) is also supported.

The feature-rich Type ABR module is packaged in a small form factor that facilitates integration into size- and power-sensitive applications.

More details:

- https://wireless.murata.com/type-abr.html
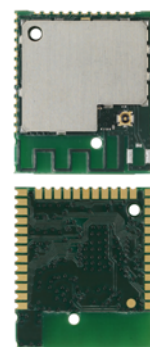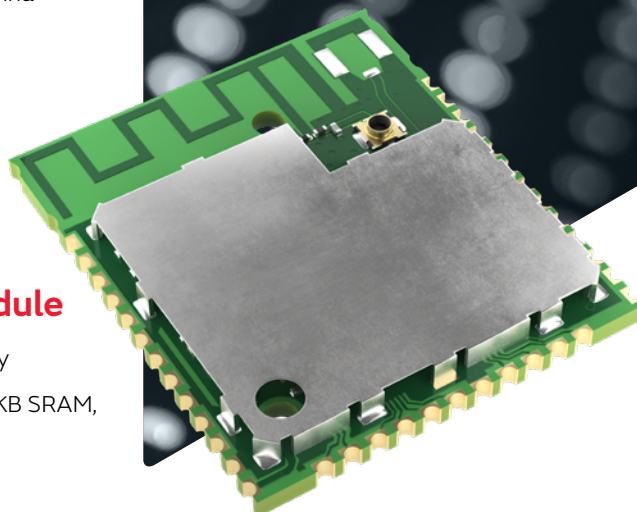
- Size: 22.0 x 19.0 x 2.4mm

Actual size

Type ABR Specifications

Murata part number	CMWC1ZZABR-107
Embedded Artists M.2 module P/N	N/A
Technology	Wi-Fi + MCU
Chipset	NXP 88MW320
Wi-Fi specification	802.11b/g/n
Bluetooth specification	N/A
Frequency (GHz)	2.4
Hosted/Hostless architecture	Hosted/Hostless
Software	EZ-Connect, MCUXpresso
Wi-Fi interface	UART, SPI
Bluetooth interface	N/A
MAX data rate - Wi-Fi (Mbps)	72.2
MAX data rate - Bluetooth (Mbps)	N/A
Interface voltage (V)	1.8, 3.3
Operating temp. Range (°C)	–30 to +85
Antenna configuration	PCB trace antenna
Regulatory certification	FCC/IC, CE

Note: CE marking and declaration should be done by customer as a final product

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Type 1ZM module

Wireless connectivity module

Shielded ultra-small dual band Wi-Fi® 11a/b/g/n/ac + Bluetooth® 5.1 module

Features

- 2.4GHz & 5 GHz Wi-Fi® + Bluetooth® module
- Network topology: uAP and STA dual mode
- Chipset: NXP (88W8987)
- Processor: No
- Modulation: DSSS / CCK / OFDM
- FCC/CE/IC/TELEC 'reference' certified

High performance capabilities for IoT

- For Industrial IoT, smart home, audio/video/voice, gateway
- 802.11 a/b/g/n/ac 1x1 433Mbps
- NXP i.MX Linux

Description

Type 1ZM is a small and very high performance module based on NXP 88W8987 combo chipset which supports Wi-Fi® 802.11a/b/g/n/ac + Bluetooth® 5.1 BR/EDR/LE up to 433Mbps PHY data rate on Wi-Fi® and 3Mbps PHY data rate on Bluetooth®. The WLAN section supports SDIO v3.0 interface and the Bluetooth® section supports high-speed 4-wire UART interface and PCM for audio data.

The 88W8987 implements highly sophisticated enhanced collaborative coexistence hardware mechanisms and algorithms, which ensure that WLAN and Bluetooth® collaboration is optimized for maximum performance.

In IEEE 802.11ac mode, the WLAN operation supports rates of MCS0 - MSC9 (up to 256 QAM) in 20MHz, 40MHz and 80MHz channels for data rate up to 433Mbps.
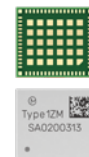
Type 1ZM module is packaged in an impressively small form factor that facilitates integration into size- and power-sensitive applications such as IoT applications, handheld wireless system, gateway and more.

More details:

- https://wireless.murata.com/type-1zm.html

- Size: 10.2 x 9.3 x 1.3mm

Actual size

Type 1ZM Specifications

Murata part number	LBEE5QD1ZM-572
Embedded Artists M.2 module P/N	EAR00364
Technology	Wi-Fi + Bluetooth
Chipset	NXP 88W8987
Wi-Fi specification	802.11a/b/g/n/ac
Bluetooth specification	5.1
Frequency (GHz)	2.4 & 5
Hosted/Hostless architecture	Hosted
Software	Linux, MCUXpresso
Wi-Fi interface	SDIO 3.0
Bluetooth interface	UART
MAX data rate - Wi-Fi (Mbps)	433
MAX data rate - Bluetooth (Mbps)	3
Interface voltage (V)	1.8
Operating temp. Range (°C)	–20 to +85
Antenna configuration	PCB trace antenna or U.FL connected patch antenna
Regulatory certification	FCC/IC, CE, MIC

Note: CE marking and declaration should be done by customer as a final product

www.murata.com

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Type 1YM module

Wireless connectivity module

Shielded ultra-small dual band Wi-Fi® 11a/b/g/n/ac 2x2 MIMO + Bluetooth® 5.2 module

Features

- 2.4GHz & 5 GHz Wi-Fi® + Bluetooth® module
- Network topology: uAP and STA dual mode
- Chipset: NXP (88W8987)
- Processor: No
- Modulation: DSSS / CCK / OFDM
- FCC/CE/IC/TELEC 'reference' certified

Flexible solution for IoT

- For Industrial IoT, smart home, audio/video/voice, gateway
- 802.11 a/b/g/n/ac 2x2 MIMO 866Mbps
- NXP i.MX Linux

Description

Type 1YM is a small and very high performance module based on NXP 88W8997 combo chipset which supports Wi-Fi® 802.11a/b/g/n/ac 2x2 MIMO + Bluetooth® 5.1 BR/EDR/LE up to 866Mbps PHY data rate on Wi-Fi® and 3Mbps PHY data rate on Bluetooth®.

The WLAN section supports PCIe v3.0 interface, with optional support for SDIO v3.0 and USB 3.0 interfaces. The Bluetooth® section supports high-speed 4-wire UART interface (optional support for USB/SDIO) and PCM for audio data.

The 88W8997 implements highly sophisticated enhanced collaborative coexistence hardware mechanisms and algorithms, which ensure that WLAN and Bluetooth® collaboration is optimized for maximum performance.

In IEEE 802.11ac mode, the WLAN operation supports rates of MCS0 - MSC9 (up to 256 QAM) in 20MHz, 40MHz and 80MHz channels for data rate up to 866Mbps.
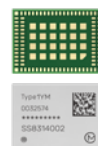
Type 1YM module is packaged in an impressively small form factor that facilitates integration into size- and power-sensitive applications such as IoT applications, handheld wireless system, gateway and more.

More details:

- https://wireless.murata.com/type-1ym.html

- Size: 11.8 x 8.4 x 1.3mm

Actual size

Type 1YM Specifications

Murata part number	LBEE5XV1YM-574
Embedded Artists M.2 module P/N	EAR00370
Technology	Wi-Fi + Bluetooth
Chipset	NXP 88W8997
Wi-Fi specification	802.11a/b/g/n/ac 2x2 MIMO
Bluetooth specification	5.2
Frequency (GHz)	2.4 & 5
Hosted/Hostless architecture	Hosted
Software	Linux
Wi-Fi interface	PCIe, SDIO 3.0
Bluetooth interface	UART, SDIO 3.0
MAX data rate - Wi-Fi (Mbps)	866
MAX data rate - Bluetooth (Mbps)	3
Interface voltage (V)	1.8, 2.5, 3.3
Operating temp. Range (°C)	-30 to +85
Antenna configuration	U.FL connected patch antennas
Regulatory certification	FCC/IC, CE, MIC

Note: CE marking and declaration should be done by customer as a final product

Contents are subject to change without notice.

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Type 1DX module

Wireless connectivity module

Shielded ultra-small Wi-Fi® 11b/g/n + Bluetooth® 5.1 module

Features

- 2.4GHz Wi-Fi®+Bluetooth® module
- Network topology: AP and STA dual mode
- Chipset: Cypress (CYW4343W)
- Processor: No
- Modulation: DSSS / CCK / OFDM
- FCC/IC 'reference' certified

Flexible solution for IoT

- For Industrial IoT, smart home, sensor network, gateway
- 802.11 b/g/n 65Mbps
- NXP i.MX Linux & MCUXpresso; Cypress WICED® & ModusToolbox®

Description

Type 1DX is a small and high performance module based on Cypress CYW4343W combo chipset supporting Wi-Fi® 802.11b/g/n + Bluetooth® 5.1 BR/EDR/LE up to 65Mbps PHY data rate on Wi-Fi® and 3Mbps PHY data rate on Bluetooth®. The WLAN section supports SDIO v2.0 interface and the Bluetooth® section supports high-speed 4-wire UART interface and PCM for audio data.

The CYW4343W implements highly sophisticated enhanced collaborative coexistence hardware mechanisms and algorithms, which ensure that WLAN and Bluetooth® collaboration is optimized for maximum performance.

Type 1DX module is packaged in an impressively small shielded form factor that facilitates integration into size- and power-sensitive applications such as IoT applications, handheld wireless system, gateway and more. RF matching, antenna design and regulatory certification are already taken care of and tested.

More details:

- https://wireless.murata.com/type-1dx.html
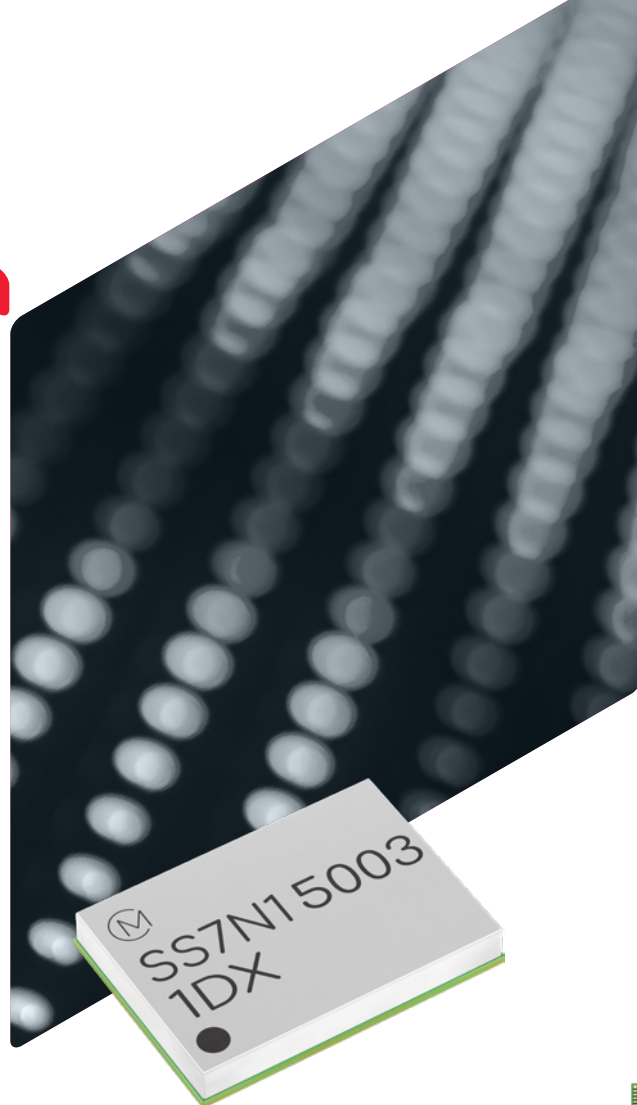
- Size: 6.95 x 5.15 x 1.1mm

Actual size

Type 1DX Specifications

Murata part number	LBEE5KL1DX-883
Embedded Artists M.2 module P/N	EAR00318
Technology	Wi-Fi + Bluetooth
Chipset	CYW4343W
Wi-Fi specification	802.11b/g/n
Bluetooth specification	5.1
Frequency (GHz)	2.4
Hosted/Hostless architecture	Hosted
Software	Linux
Wi-Fi interface	SDIO 2.0
Bluetooth interface	UART
MAX data rate - Wi-Fi (Mbps)	65
MAX data rate - Bluetooth (Mbps)	3
Interface voltage (V)	1.8, 3.3
Operating temp. Range (°C)	-30 to +70
Antenna configuration	PCB trace antenna
Regulatory certification	FCC/IC, CE

Note: CE marking and declaration should be done by customer as a final product

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Type 1MW module

Wireless connectivity module

Shielded ultra-small dual band Wi-Fi® 11a/b/g/n/ac with Bluetooth® 5.0 module

Features

- 2.4GHz & 5 GHz Wi-Fi®+Bluetooth® module
- Network topology: AP and STA dual mode
- Chipset: Cypress (CYW43455)
- Processor: No
- Modulation: DSSS / CCK / OFDM
- FCC/IC 'reference' certified

High performance capabilities for IoT

- For Industrial IoT, smart home, audio/video/voice, gateway
- 802.11 a/b/g/n/ac 1x1 433Mbps
- NXP i.MX Linux & MCUXpresso

Description

Type 1MW is a small and very high performance module based on Cypress CYW43455 combo chipset supporting Wi-Fi® 802.11a/b/g/n/ac + Bluetooth® 5.0 BR/EDR/LE up to 433Mbps PHY data rate on Wi-Fi® and 3Mbps PHY data rate on Bluetooth®. The WLAN section supports SDIO v3.0 interface and the Bluetooth® section supports high-speed 4-wire UART interface and PCM for audio data.

The CYW43455 implements highly sophisticated enhanced collaborative coexistence hardware mechanisms and algorithms, which ensure that WLAN and Bluetooth® collaboration is optimized for maximum performance.

In IEEE 802.11ac mode, the WLAN operation supports rates of MCS0 - MSC9 (up to 256 QAM) in 20MHz, 40MHz and 80MHz channels for data rate up to 433Mbps.

Type 1MW module is packaged in an impressively small form factor that facilitates integration into size- and power-sensitive applications such as IoT applications, handheld wireless system, gateway and more. RF matching, antenna design and regulatory certification are already taken care of and tested.

More details:

- https://wireless.murata.com/type-1mw.html

- Size: 7.9 x 7.3 x 1.1mm
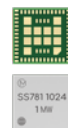
Actual size

Type 1MW Specifications

Murata part number	LBEE5HY1MW-230
Embedded Artists M.2 module P/N	EAR00315
Technology	Wi-Fi + Bluetooth
Chipset	CYW43455
Wi-Fi specification	802.11a/b/g/n/ac
Bluetooth specification	5.0
Frequency (GHz)	2.4 & 5
Hosted/Hostless architecture	Hosted
Software	Linux
Wi-Fi interface	SDIO 3.0
Bluetooth interface	UART
MAX data rate - Wi-Fi (Mbps)	433
MAX data rate - Bluetooth (Mbps)	3
Interface voltage (V)	1.8, 3.3
Operating temp. Range (°C)	–30 to +85
Antenna configuration	PCB trace antenna
Regulatory certification	FCC/IC, CE

Note: CE marking and declaration should be done by customer as a final product

Contents are subject to change without notice.

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Type 1LV module

Wireless connectivity module

Shielded ultra-small dual band Wi-Fi® 11a/b/g/n/ac-friendly + Bluetooth® 5.0 module

Features

- 2.4GHz & 5 GHz Wi-Fi®+Bluetooth® module
- Network topology: AP and STA dual mode
- Chipset: Cypress (CYW43012)
- Processor: No
- Modulation: DSSS / CCK / OFDM
- FCC/IC 'reference' certified

High performance capabilities for IoT

- For industrial IoT, smart home, sensor network, gateway
- 802.11 a/b/g/n/ac-friendly 78Mbps
- NXP i.MX Linux & MCUXpresso; Cypress WICED® & ModusToolbox®

Description

Type 1LV is a small and high performance module based on Cypress CYW43012 combo chipset supporting Wi-Fi® 802.11a/b/g/n/ac-friendly + Bluetooth® 5.0 BR/EDR/LE up to 72.2Mbps PHY data rate on Wi-Fi® and 3Mbps PHY data rate on Bluetooth®. 2Mbps LE PHY is also supported. The WLAN section supports SDIO v3.0 (SDR40) interface and the Bluetooth® section supports high-speed 4-wire UART interface and PCM for audio data. In IEEE 802.11ac-friendly mode, the WLAN operation supports MCS8 (256 QAM) in 20MHz channel for data rate up to 78Mbps.

The CYW43012 implements highly sophisticated enhanced collaborative coexistence hardware mechanisms and algorithms, which ensure that WLAN and Bluetooth® collaboration is optimized for maximum performance.

Embedded IPv6 network stack for use with WICED SDK and TCP keepalive is handled internally, so that host processor can keep sleeping.

In addition to Bluetooth® 5.0 2Mbps PHY support, all of optional Bluetooth® 4.2 features, LE Secure Connections, LE Privacy 1.2 and LE Data Packet Length Extension, are supported.

Type 1LV module is packaged in an impressively small shielded form factor that facilitates integration into size- and power-sensitive applications such as IoT applications, handheld wireless system, gateway and more. RF matching, antenna design and regulatory certification are already taken care of and tested.

More details:

- https://wireless.murata.com/type-1lv.html

- Size: 10.0 x 7.2 x 1.4mm

Actual size

Type 1LV Specifications

Murata part number	LBEE59B1LV-278
Embedded Artists M.2 module P/N	EAR00323
Technology	Wi-Fi + Bluetooth
Chipset	CYW43012
Wi-Fi specification	802.11a/b/g/n/ac-friendly™
Bluetooth specification	5.0
Frequency (GHz)	2.4 & 5
Hosted/Hostless architecture	Hosted
Software	Linux
Wi-Fi interface	SDIO 3.0
Bluetooth interface	UART
MAX data rate - Wi-Fi (Mbps)	78
MAX data rate - Bluetooth (Mbps)	3
Interface voltage (V)	1.8
Operating temp. Range (°C)	–20 to +70
Antenna configuration	PCB trace antenna
Regulatory certification	FCC/IC, CE

Note: CE marking and declaration should be done by customer as a final product

Contents are subject to change without notice.

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µSD-M.2 adapter

Customized Wi-Fi®/Bluetooth® for NXP's i.MX RT & i.MX 6

MCUXpresso FreeRTOS Platforms

- i.MX RT 1020 EVK
- i.MX RT 1050 EVK
- i.MX RT 1060 EVK
- i.MX RT 1064 EVK

Linux Platforms

- i.MX 6UL/ULL EVK
- i.MX 6SL/SLL EVK
- i.MX 6SX SDB
- i.MX 6Q(P)/DL SDB

Features

- microSD (uSD) interface for WLAN-SDIO (SD is an option with microSD-SD adapter)
- Arduino Headers (i.MX RT) or Flat/Flex Connector (i.MX 6) for BT UART/PCM and WLAN/BT control signals
- Optional power, debug, and clocking signals connect through Arduino Header or Micro-AB USB connector
- Specifically designed/engineered for compatibility with Embedded Artists' Wi-Fi®/Bluetooth® M.2 Modules
- Type 1DX, 1MW, 1LV, and 1ZM M.2 Modules compatible with Adapter - pictured below

Embedded Artists M.2 modules
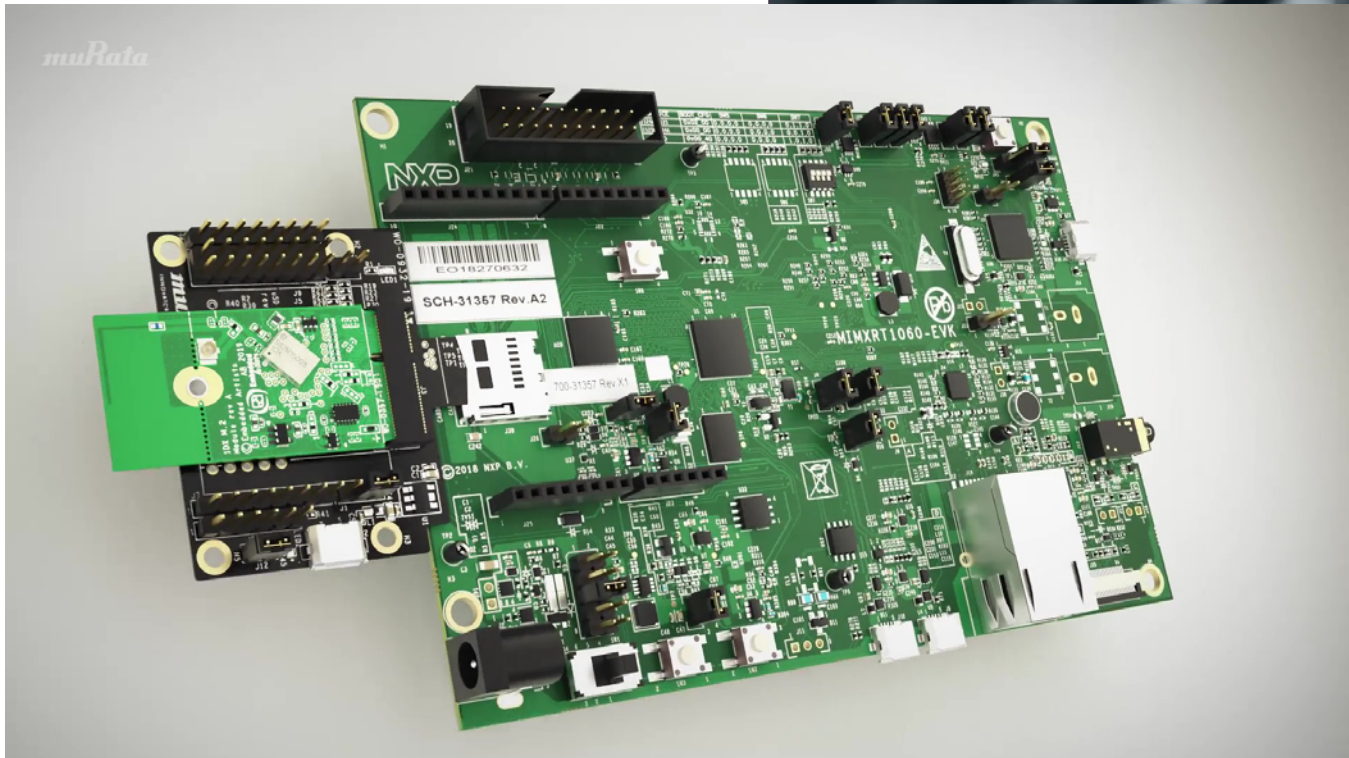

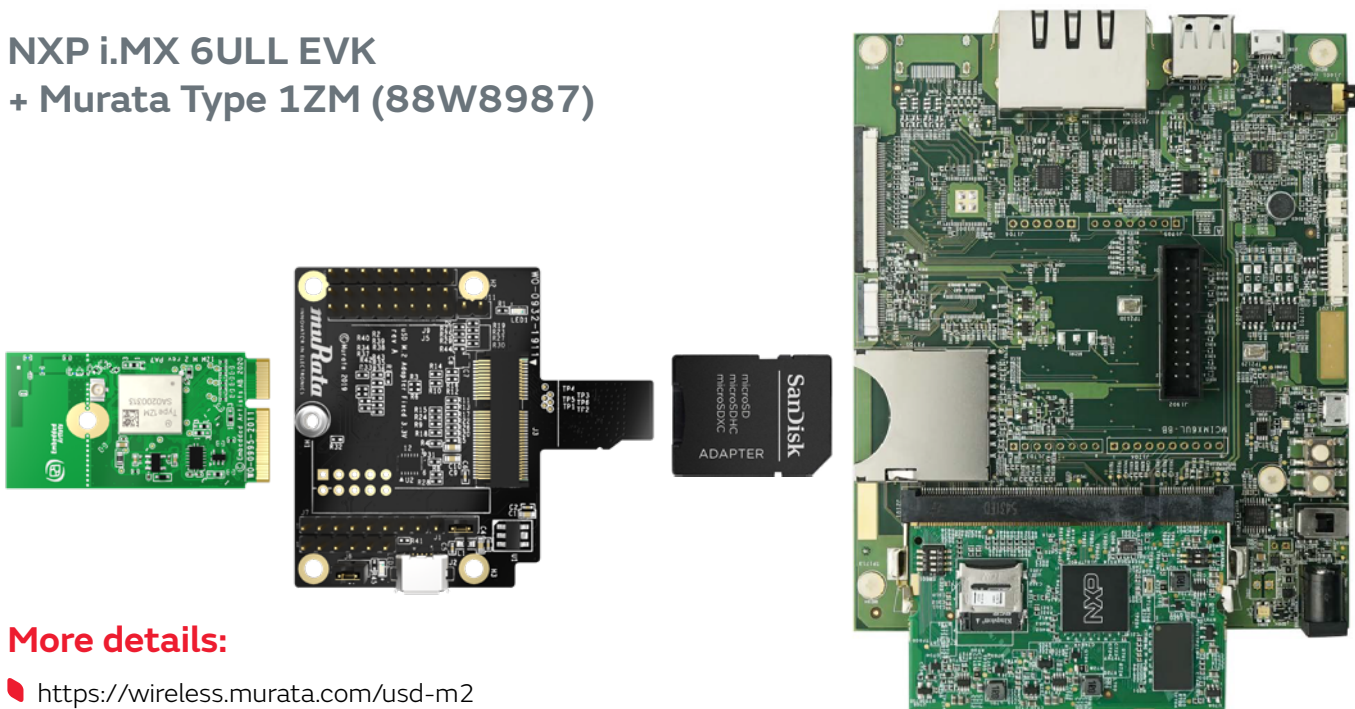1YM   1ZM   1DX   1MW   1LV

More details:

- https://wireless.murata.com/usd-m2
- https://www.embeddedartists.com/m2

www.murata.com

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Modular solutions

Examples

NXP's i.MX RT 1060 EVK
+ Murata Type 1DX (CYW4343W)

NXP i.MX 6ULL EVK
+ Murata Type 1ZM (88W8987)

More details:

🔖 https://wireless.murata.com/usd-m2

🔖 https://www.embeddedartists.com/m2

www.murata.com

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