

WUBT-239ACN(BT)

802.11ac/a/b/g/n 2T2R

Wi-Fi + Bluetooth 4.2 USB Module



SparkLAN **WUBT-239ACN(BT)** is a highly integrated single-chip Wireless LAN (WLAN), Bluetooth USB module which supports 2 streams 802.11ac solutions with multi-user MIMO (Multiple-Input, Multiple-Output) wireless LAN (WLAN) and integrated Bluetooth 4.2. It is integrated 2Tx2R WLAN MAC, baseband, and dual band RF in a single chip USB module. **WUBT-239ACN(BT)** provides a cost effective solution for M2M (machine to machine) connectivity product/device by one USB port.

WUBT-239ACN(BT) 802.11ac/abgn 2Tx2R USB WLAN/BT module with various USB input format & internal printing or external RF antenna connector for high performance wireless LAN and Bluetooth device. It is designed to provide completely M2M connection & excellent cost performance with low power consumption and enhance the advantages of robust system & applications.

Embedded Application

Applications include portable handheld devices, thin client computer, medical devices, network security & monitoring, 3D printer, TV, STB, POS, digital signs, gaming machine, robotic machinery, industrial tablets, etc.

Key Feature

- 802.11ac/a/b/g/n Wi-Fi +Bluetooth 4.2
- Support 802.11ac 2x2, compliant with MU-MIMO. Operates in 2.4GHz and 5GHz frequency bands
- Maximum data rates: 54Mbps in 802.11g, 300Mbps in 802.11n, 866.7Mbps in 802.11ac.
- BT 4.2 features including Low-Energy 2 Mbps
- Support Operation Systems (Android/Linux/Windows)

Specification

Standards	IEEE 802.11ac/a/b/g/n (2T2R) Bluetooth V4.2, V4.1, V4.0 LE, V3.0+HS, V2.1+EDR
Chipset	Realtek RTL8822CU
Data Rate	802.11b: 11Mbps 802.11a/g: 54Mbps 802.11n: MCS0~7 802.11ac: MCS0~9 Bluetooth: 1Mbps, 2Mbps and up to 3Mbps EDR
Operating Frequency	IEEE 802.11 ac/a/b/g/n ISM Band: 2.412GHz~2.484GHz, 5.150GHz~5.850GHz *Subject to local regulations
Interface	WLAN: USB ; Bluetooth: USB
Form Factor	4-Pin Wafer connector / 4-Pin Pin-Header / USB Type A
Antenna	2 x IPEX MHF1 connectors or printed antenna for 2T2R (ANT0 for WIFI only, ANT1 for WIFI+BT)
Modulation	WiFi : 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) BT: Header: GFSK Payload 2M: $\pi/4$ -DQPSK Payload 3M: 8-DPSK
Power Consumption	TX Mode: 600mA (Max.) RX Mode: 350mA (Max.)
Operating Voltage	DC 5V
Operating Temperature Range	-20°C ~+70°C
Storage Temperature Range	-40°C ~+85°C
Humidity (Non-Condensing)	5%~95% (Operating) / 5%~90% (Storing)
Dimension (in mm)	L x W x H [P4]:40.00mm(± 0.25mm) x 20.2mm(± 0.2mm) x 8.8mm(± 0.5mm) [M4W][P4W]:42.62mm(± 0.5mm) x 20.02mm(± 0.2mm) x 6.5mm(± 0.5mm) [MU][PU]:55.07mm(± 0.3mm) x 20.02mm(± 0.2mm) x 4.5mm(± 0.3mm)

	[P4WV]:40.00mm(± 0.25mm) x 20.2mm(± 0.2mm) x 9.50mm(± 0.5mm)
Weight (g)	[PU] / [MU] : 4.92g ; [P4W] / [M4W] / [P4] / [P4WV] : 3.12g
Driver Support	Windows, Linux, Android
Security	64/128-bits WEP, WPA, WPA2, 802.1x, WPA3

OUTPUT POWER & SENSITIVITY

802.11b

Data Rate	Tx ± 2dBm	Rx Sensitivity
11Mbps	17dBm	≤-76dBm

802.11g

Data Rate	Tx ± 2dBm	Rx Sensitivity
54Mbps	16dBm	≤-65dBm

802.11n / 2.4GHz

	Data Rate	Tx ± 2dBm(1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity
HT20	MCS7	15dBm	16dBm	≤-64dBm
HT40	MCS7	15dBm	16dBm	≤-61dBm

802.11a

Data Rate	Tx ± 2dBm	Rx Sensitivity
54Mbps	15dBm	≤-70dBm

802.11n / 5GHz

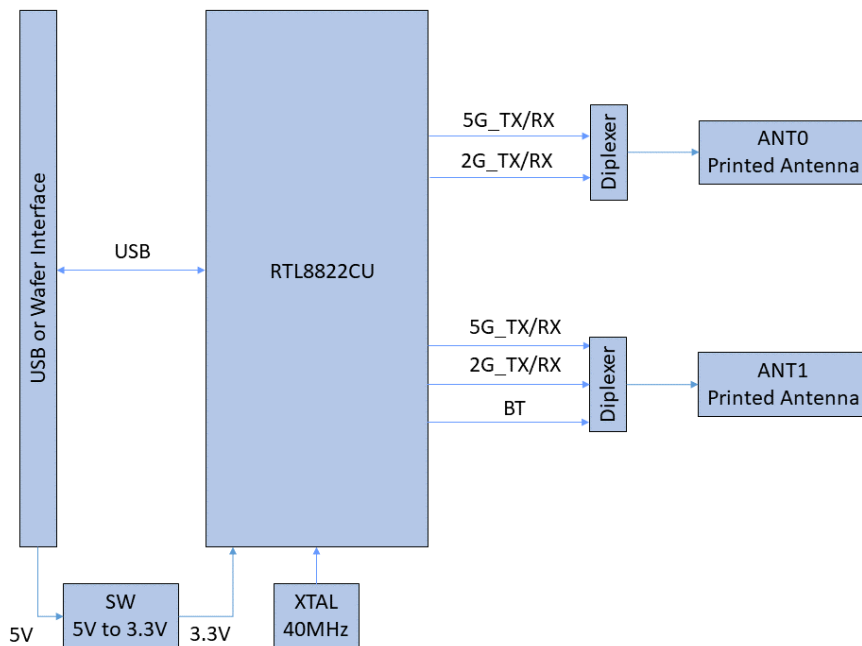
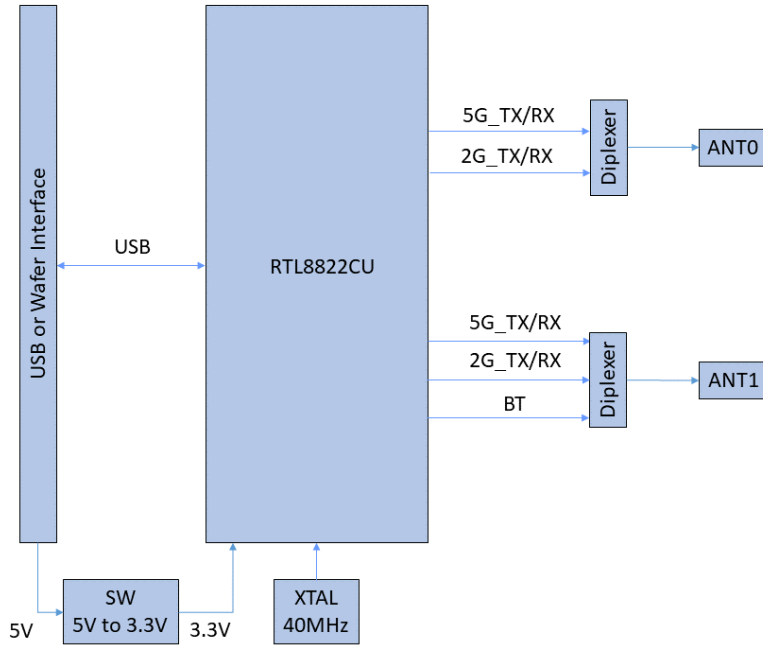
	Data Rate	Tx ± 2dBm(1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity
HT20	MCS7	14dBm	15dBm	≤-60dBm
HT40	MCS7	14dBm	15dBm	≤-60dBm

802.11ac

	Data Rate	Tx ± 2dBm(1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity
VHT80	MCS9	11dBm	12dBm	≤-51dBm

Bluetooth		
Data Rate	Tx +/- 2dB	Rx Sensitivity
2, 3Mbps	$0 \leq \text{Output Power} \leq +3.5 \text{ dBm}$	<0.1% BER at -80dBm

Block Diagram



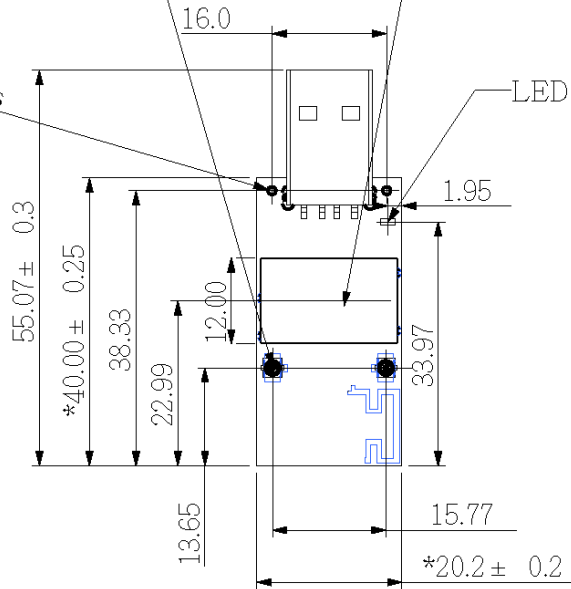
Mechanical Dimension (mm)

USB Type A: WUBT-239ACN(BT) [PU] / WUBT-239ACN(BT) [MU]

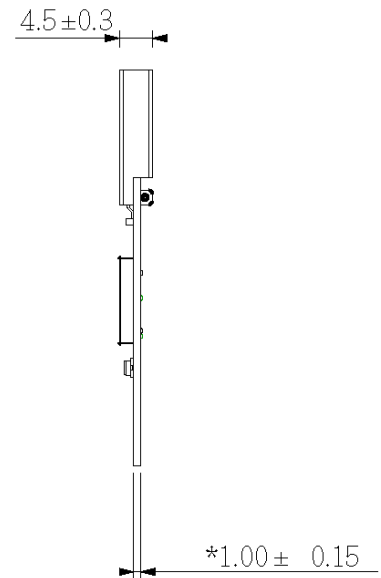
2-Ant RF IPEX/OR connector

Shielding cover

2- $\varnothing 1.10$ Holes



Top view



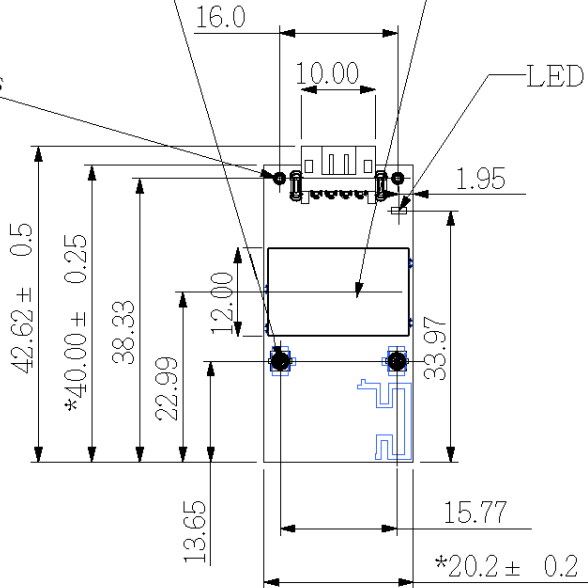
Side view

Wafer Type: WUBT-239ACN(BT) [M4W] / WUBT-239ACN(BT) [P4W]

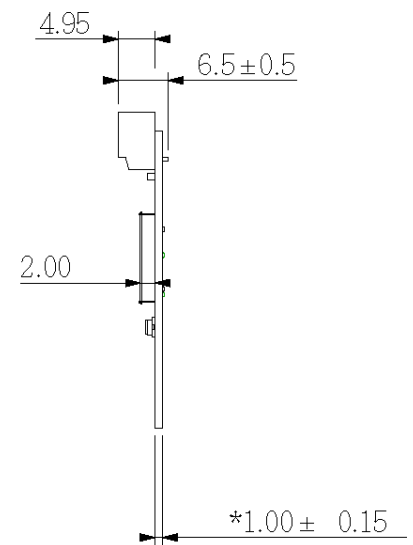
2-Ant RF IPEX/OR connector

Shielding cover

2- $\varnothing 1.10$ Holes

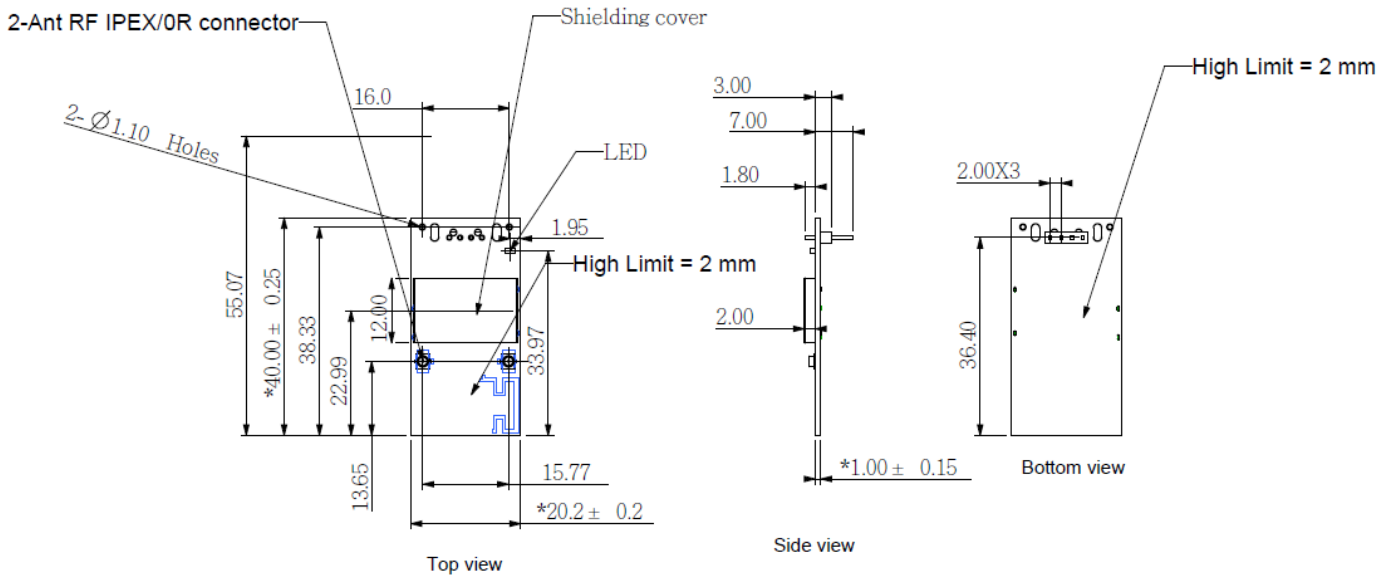


Top view

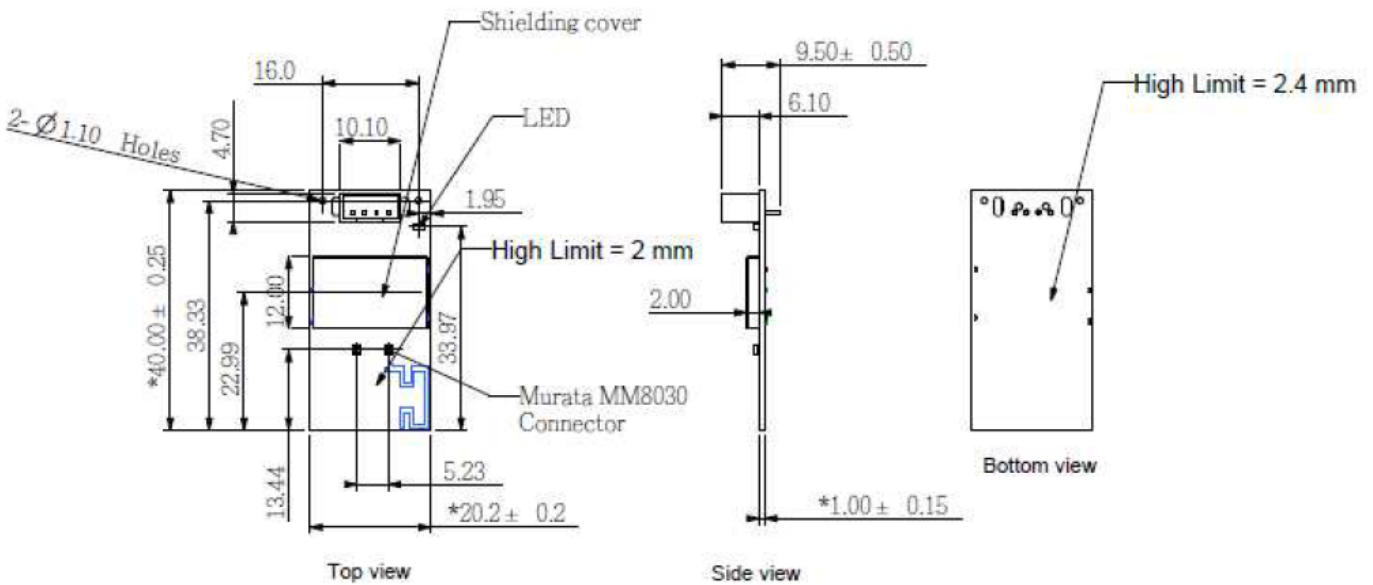


Side view

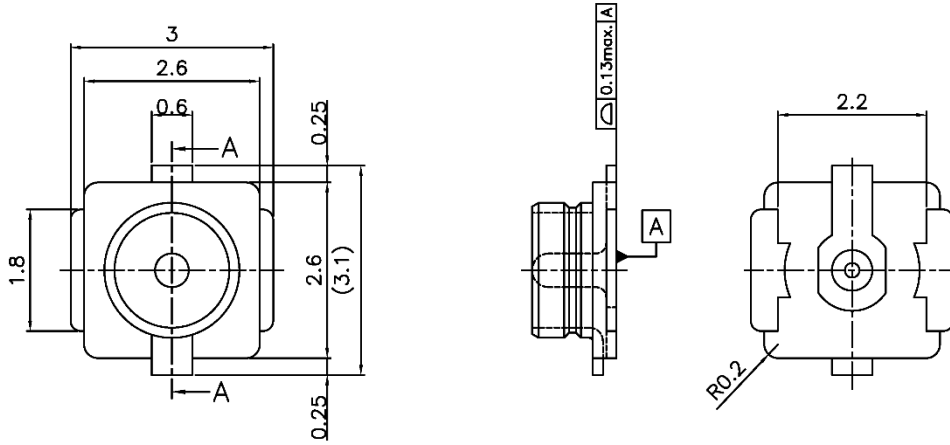
Wafer Type: WUBT-239ACN(BT) [P4]



Wafer Type: WUBT-239ACN(BT) [P4WV]



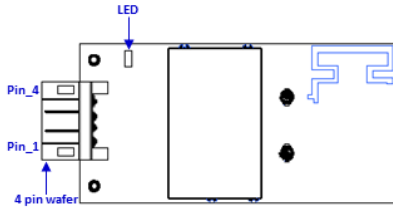
MHF1 connector spec.



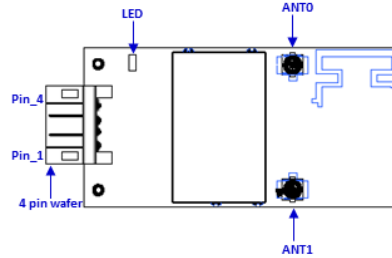
Unit: mm

Pin Define

WUBT-239ACN(BT) [P4W]

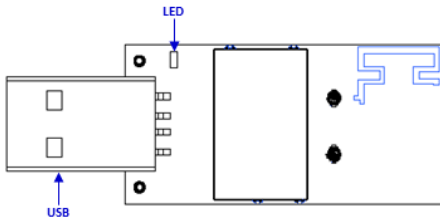


WUBT-239ACN(BT) [M4W]

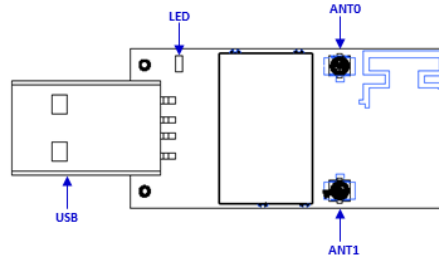


Pin	Description
Wafer Pin_1	USB 5V
Wafer Pin_2	USB D-
Wafer Pin_3	USB D+
Wafer Pin_4	USB GND
LED	WiFi LED
Ant_0	RF Antenna for WiFi 2.4GHz/5GHz
Ant_1	RF Antenna for WiFi 2.4GHz/5GHz & Bluetooth

WUBT-239ACN(BT) [PU]

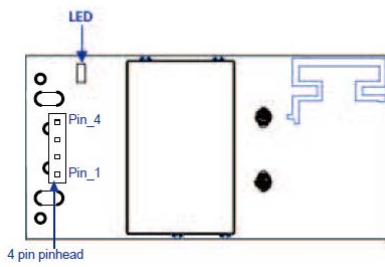


WUBT-239ACN(BT) [MU]

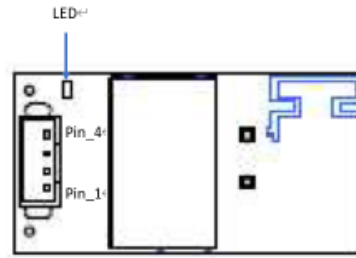


Pin	Description
USB	USB Type-A connector for USB2.0
LED	WiFi LED
Ant_0	RF Antenna for WiFi 2.4GHz/5GHz
Ant_1	RF Antenna for WiFi 2.4GHz/5GHz & Bluetooth

WUBT-239ACN(BT) [P4]



WUBT-239ACB(BT)[P4WV]



Pin	Description
Wafer Pin_1	USB 5V
Wafer Pin_2	USB D-
Wafer Pin_3	USB D+
Wafer Pin_4	USB GND
LED	WiFi LED
Ant_0	RF Antenna for WiFi 2.4GHz/5GHz
Ant_1	RF Antenna for WiFi 2.4GHz/5GHz & Bluetooth

Certification

Dipole Ant.

- | | |
|---|--|
| <input checked="" type="checkbox"/> FCC | <input checked="" type="checkbox"/> CE (RED EN 300 328 V2.2.2 / EN 301 893 V2.1.1) |
| <input checked="" type="checkbox"/> IC | <input checked="" type="checkbox"/> MIC |
| <input type="checkbox"/> NCC | <input type="checkbox"/> ASNZS |

Ordering Information

Product Name	Part Number	Description
WUBT-239ACN(BT) [PU]	R970183000D	802.11ac/a/b/g/n 2T2R Wi-Fi + BT USB Module (USB Type A + Printed Ant.)
WUBT-239ACN(BT) [P4W]	R970183000E	802.11ac/a/b/g/n 2T2R Wi-Fi + BT USB Module (4-Pin Wafer + Printed Ant.)
WUBT-239ACN(BT) [MU]	R970183000F	802.11ac/a/b/g/n 2T2R Wi-Fi + BT USB Module (USB Type A + IPEX)
WUBT-239ACN(BT) [M4W]	R970183000G	802.11ac/a/b/g/n 2T2R Wi-Fi + BT USB Module (4-Pin Wafer + IPEX)
WUBT-239ACN(BT) [P4]	R970183000H	802.11ac/a/b/g/n 2T2R Wi-Fi + BT USB Module (4-Pin + Printed Ant.)
WUBT-239ACN(BT) [P4WV]	R970183000I	802.11ac/a/b/g/n 2T2R Wi-Fi + BT USB Module (4-Pin Vertical Wafer + Printed Ant.)

Optional Accessory

Product Name	Part Number	Description
AD-103AG	R3410110203	Dipole Antenna, 2dBi 2.4GHz/5GHz, RP-SMA(M) connector
AD-302N	R3410110221	Dipole Antenna, 3dBi/2dBi 2.4G/5GHz, RP-SMA(M) connector
AD-303N	R3410110222	Dipole Antenna, 3dBi/3dBi 2.4G/5GHz, RP-SMA(M) connector
AD-305N	R3410110223	Dipole Antenna, 5dBi/5dBi 2.4G/5GHz, RP-SMA(M) connector
AD-315N	R3410110233	Dipole Antenna, 3dBi/5dBi 2.4G/5GHz, I-PEX / MHF1 connector
CBIRF-ME150	R3470300023	I-PEX/MHF1 to RP-SMA Female; L:150mm; Coaxial 1.37 Black
CBIRF-ME250	R3470300024	I-PEX/MHF1 to RP-SMA Female; L:250mm; Coaxial 1.37 Black
CBPP-C200	R3200700010	4-pin WTB to 4 pin WTB_L200mm
CBPW-C200	R3200700011	4-pin WTB to flying leads