WNFT-234ACN(BT)

802.11ac/abgn Dual-Band

2T2R Wi-Fi+Bluetooth 4.2 Combo

M.2 Module

Support Multiple Drivers (Android/ Windows/ Linux)

SparkLAN WNFT-234ACN(BT) is an 802.11ac/a/b/g/n Dual -Band WiFi + bluetooth M.2 card based on Realtek RTL8822BE chipset. **It supports Multiple drivers (Android/ Windows/ Linux)** for various application. It was opened to test functionality. It is dual band AC on 2.4 and 5GHz and incorporates the latest Bluetooth 4.2. The slot type is M.2 2230. The download speed are 300Mbps on N networks and 867Mbps on AC network.

The WNFT-234ACN(BT) is a highly integrated single-chip MIMO (Multiple In, Multiple Out) wireless local area network (WLAN) solution to let users enjoy the digital content through the latest wireless technology without using the extra cables and cords. It combines a WLAN MAC, a 2T2R capable WLAN baseband, and RF in s single chip. It enables a high performance, cost effective, low power, compact solution that easily fits onto the PCI Express and USB M.2 module. Incorporated with advanced security encryption, such as WEP, WPA, WPA2, WPS, and 802.1x, it helps prevent user's devices from malicious attacks

Embedded Application

Applications include Tablet/ Notebook/ TV board/ Advertising machine/ OTT/ IPTV/ DVB/ STB / DV/ IPC/ Mini Driving Recorder/ Doorbell / Smart TV/ Intelligent Projector Pico/ VR/ AR terminal/ Wireless storage/ Printer/ POS machine/ Vehicle mounted front/ Rear Terminal UAV/ Robot/ Intelligent Gateway/ Smart city and other consumer electronic products.

Key Feature

- Support Multiple drivers (Android/Windows/Linux)
- BT transmission speed including 1M, 2M and 3Mbps EDR operations
- Supports for Simple Pairing (SP) and Enhanced Inquiry Response (EIR) function
- Support MU-MIMO
- Wi-Fi Supports Low Power PCIe (w/ L1 substate) interfaces
- Two-stream spatial multiplexing up to 867Mbps data rate

Specification

Standards	IEEE 802.11ac/a/b/g/n (2T2R) Bluetooth V4.2,V4.1 LE, V3.0+HS, V2.1+EDR
Chipset	Realtek RTL8822BE
Data Rate	802.11b: 11Mbps / 802.11a/g: 54Mbps / 802.11n: MCS0~15/ 802.11ac: MCS0~9 Bluetooth: 1 Mbps, 2Mbps and Up to 3Mbps
Operating Frequency	IEEE 802.11 ac/a/b/g/n ISM Band, 2.412GHz~2.484GHz, 5.150MHz~5.850MHz *Subject to local regulations
Interface	PCIe: WLAN / USB: Bluetooth
Form Factor	M.2 2230
Antenna	2xIPEX MHF4 connector Support WiFi/BT co-existence
Modulation	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Power Consumption	TX: 517mA / RX: 247mA
Operating Voltage	DC 3.3V
Operating Temperature Range	0°C~+70°C
Storage Temperature Range	-40°C~+80°C
Humidity (Non-Condensing)	5%~90% (Operating) 5%~90% (Storing)
Dimension (in mm)	22mm x 30mm x 2.0mm
Weight (g)	≦ 2.5g
Driver Support	Windows7/8.1/10, Linux, Android
Security	64/128-bits WEP, WPA, WPA2, 802.1x

OUTPUT POWER & SENSITIVITY

802.11b		
Data Rate	**Tx ± 2dBm**	**Rx Sensitivity**
11Mbps	16dBm	≦-81dBm

802.11g		
Data Rate	**Tx ± 2dBm**	**Rx Sensitivity**
54Mbps	14dBm	≦-66dBm

802.11n / 2.4GHz				
HT20	**Data Rate**	**Tx ± 2dBm (1TX)**	**Tx ± 2dBm (2TX)**	**Rx Sensitivity**
	MCS7	13dBm	16dBm	≦-65dBm
HT40	MCS7	13dBm	16dBm	≦-61dBm

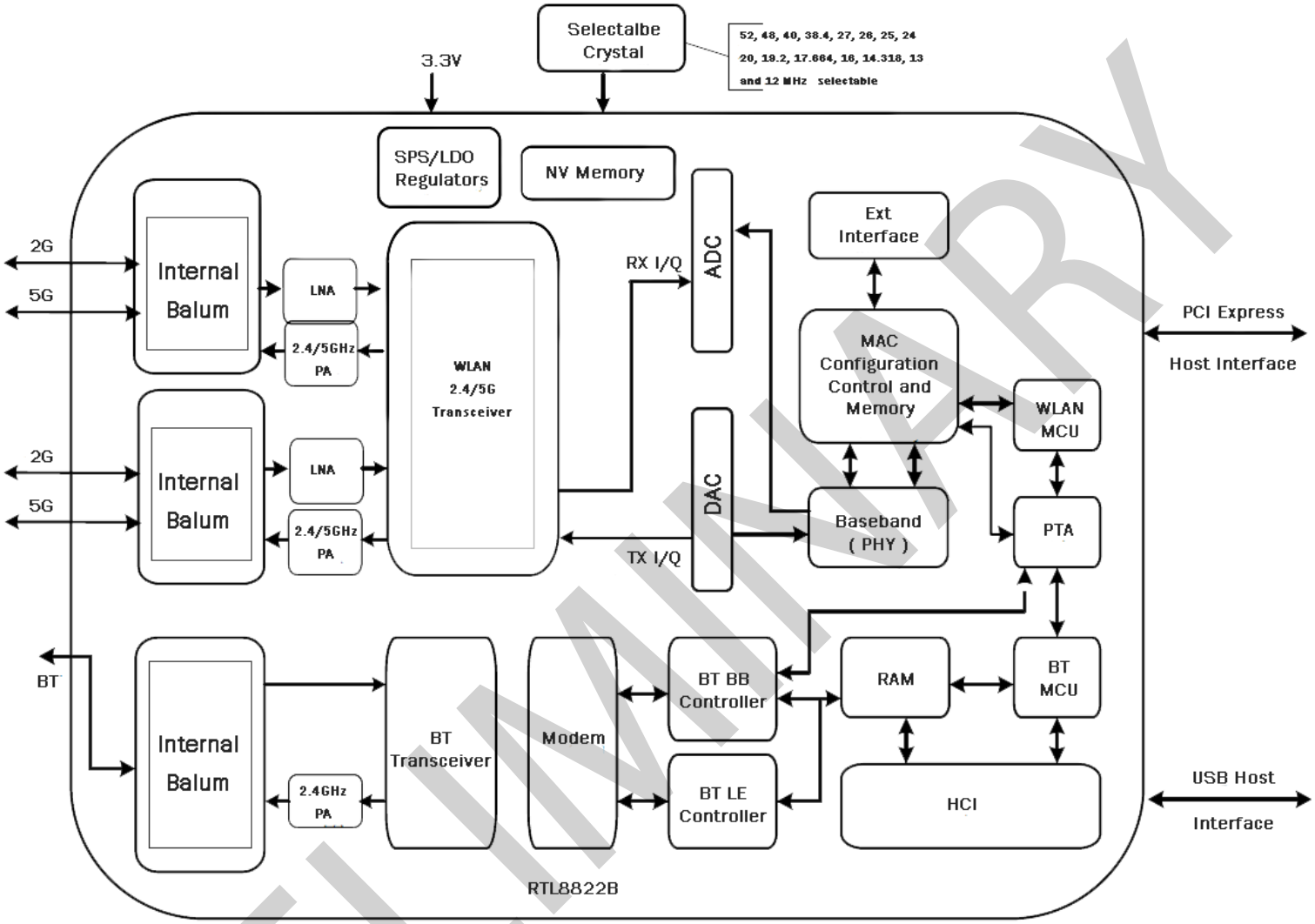
802.11a		
Data Rate	**Tx ± 2dBm**	**Rx Sensitivity**
54Mbps	13dBm	≦-66dBm

802.11n / 5GHz				
HT20	**Data Rate**	**Tx ± 2dBm (1TX)**	**Tx ± 2dBm (2TX)**	**Rx Sensitivity**
	MCS7	12dBm	15dBm	≦-65dBm
HT40	MCS7	12dBm	15dBm	≦-61dBm

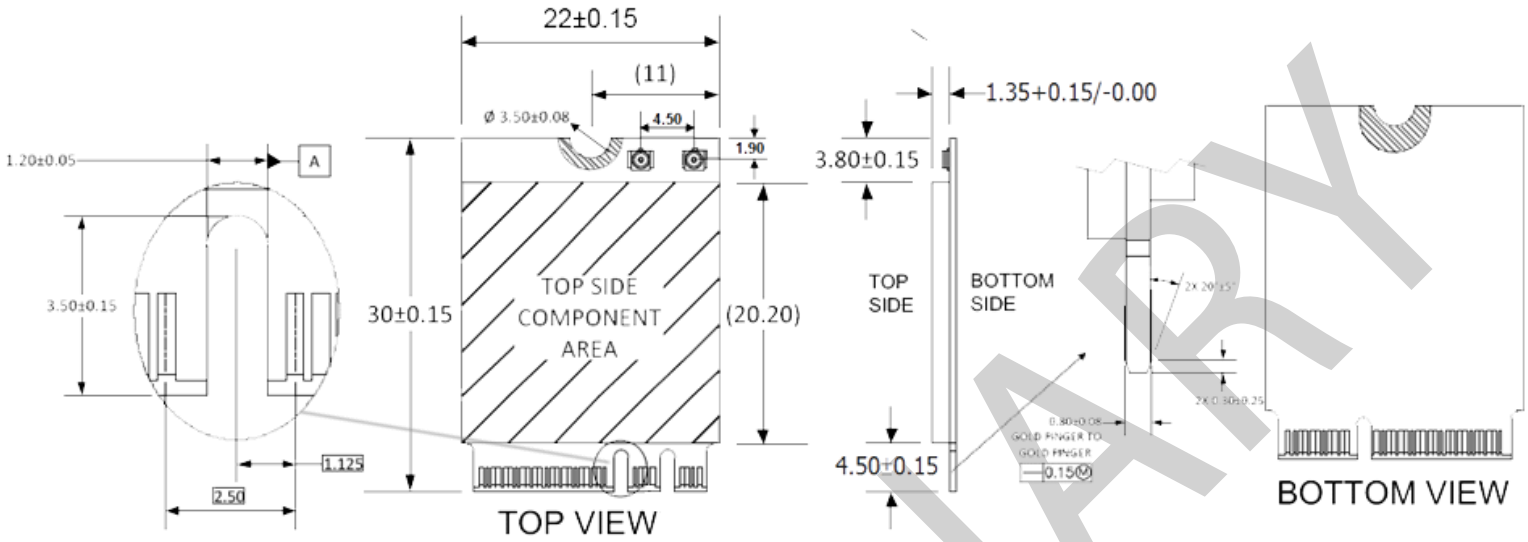
802.11ac				
VHT80	**Data Rate**	**Tx ± 2dBm (1TX)**	**Tx ± 2dBm (2TX)**	**Rx Sensitivity**
	MCS9	10dBm	13dBm	≦-54dBm

Bluetooth		
Data Rate	**Tx ± 2dBm (Class 1 Device)**	**Rx Sensitivity**
3Mbps	+0≦ Output Power ≦+6.5dBm	<0.1% BR, BER at -70dBm

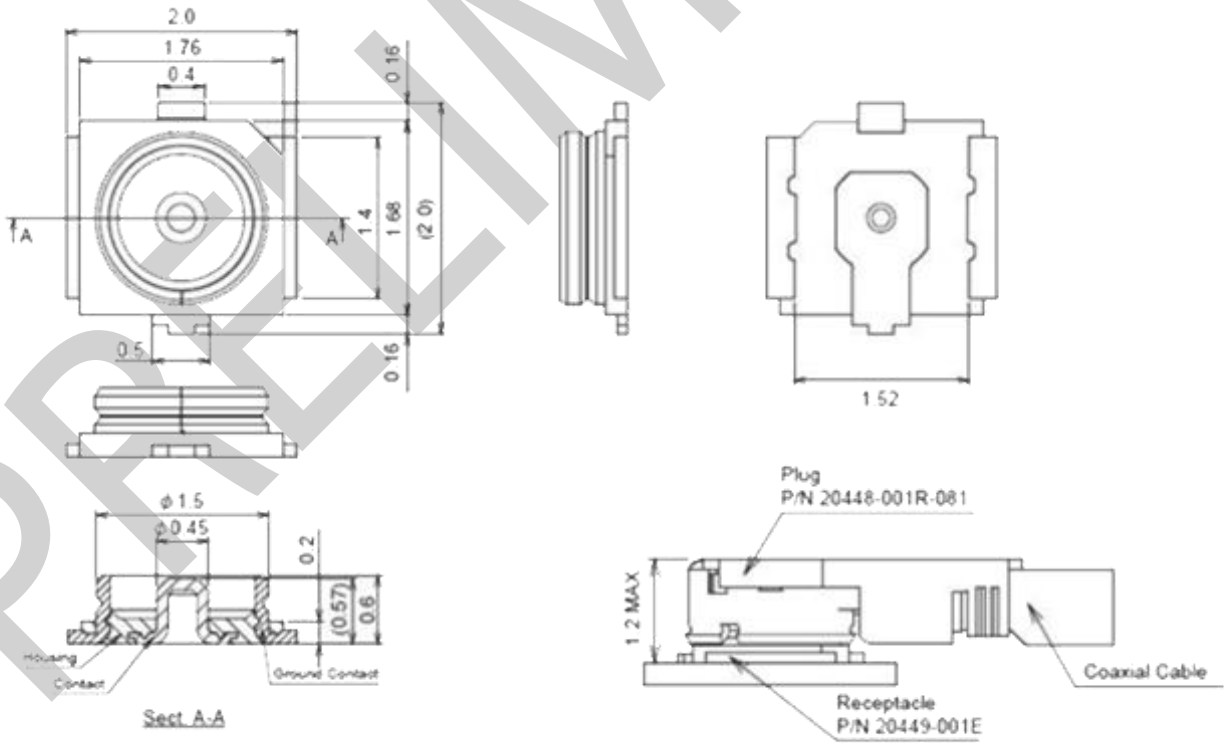
Block Diagram



Mechanical Diagram (mm)



MHF4 Connector



Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
1	GND	GND	2	+3.3V	+3.3V
3	USB_D+	USB_D+	4	+3.3V	+3.3V
5	USB_D-	USB_D-	6	LED_WLAN_L (OPT)	Defined in the PCI Express Mini card specification and it is an open drain, active low signal, used to allow the PCIe Mini Card add-in card to provide status indicators via LED devices that will be provided by the system.
7	GND	GND	8	No Connection	No Connection
9	No Connection	No Connection	10	No Connection	No Connection
11	No Connection	No Connection	12	No Connection	No Connection
13	No Connection	No Connection	14	No Connection	No Connection
15	No Connection	No Connection	16	BT_LED	Status indicators via LED devices that will be provided by the system and it is an open drain.
17	No Connection	No Connection	18	GND	GND
19	No Connection	No Connection	20	No Connection	No Connection
21	No Connection	No Connection	22	No Connection	No Connection
23	No Connection	No Connection	24	No Connection	No Connection
25	No Connection	No Connection	26	No Connection	No Connection
27	No Connection	No Connection	28	No Connection	No Connection
29	No Connection	No Connection	30	No Connection	No Connection
31	No Connection	No Connection	32	No Connection	No Connection
33	GND	GND	34	No Connection	No Connection

Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
35	PERp0	PCI Express x1 data interface: one differential receive pair	36	No Connection	No Connection
37	PERn0	PCI Express x1 data interface: one differential receive pair	38	Reserved	-
39	GND	GND	40	Reserved	-
41	PETp0	PCI Express x1 data interface: one differential transmit pair	42	Reserved	-
43	PETn0	PCI Express x1 data interface: one differential transmit pair	44	COEX3_ACTIVE (OPT)	No Connection
45	GND	GND	46	COEX2_PRI(OPT)	No Connection
47	REFCLK+	Input signal for PCI Express differential reference clock (100 MHz)	48	COEX1_SYNC (OPT)	No Connection
49	REFCLK-	Input signal for PCI Express differential reference clock (100 MHz)	50	SUSCLK(OPT)	32.768 kHz clock supply input that is provided by PCH to reduce power and cost for the module. SUSCLK will have a duty cycle that can be as low as 30% or as high as 70% 200ppm.
51	GND	GND	52	PERST_L	Input signal for functional reset to the card
53	CLKREQ_L	Output for reference clock request signal	54	BT_ DISABLE_L (OPT)	These pins are reserved for definition with future revisions of this specification.
55	WAKE_L (OPT)	Output and open Drain active Low signal. This signal is used to request that the system return from a sleep/suspended state to service a function initiated wake event.	56	W_DISABLE_L (OPT)	Input and active low signal. This signal is used by the system to disable radio operation on add-in cards that implement radio frequency applications. When implemented, this signal requires a pull-up resistor on the card

Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
57	GND	GND	58	No Connection	No Connection
59	Reserved	-	60	No Connection	No Connection
61	Reserved	-	62	No Connection	No Connection
63	GND	GND	64	No Connection	No Connection
65	Reserved	-	66	Reserved	-
67	Reserved	-	68	Reserved	-
69	GND	GND	70	Reserved	-
71	Reserved	-	72	+3.3V	+3.3V
73	Reserved	-	74	+3.3V	+3.3V
75	GND	GND			

***NA→No active, OPT →Optional**

Certification

- ■ **FCC**
- ■ **IC**
- □ **NCC**
- ■ **CE** (RED EN 300 328 V2.1.1 / EN 301 893 V2.1.1)
- ■ **MIC**
- ■ **ASNZS**

Ordering Information

Product Name	Part Number	Description
WNFT-234ACN(BT)	R9701800004	802.11ac/b/g/n WiFi+Bluetooth M.2 Card, RTL8822BE,2T2R 2230

Optional Accessory

Product Name	Part Number	Description
Ant. AD-103AG	R3410110203	2dBi Dipole RP-SMA 5G/2.4GHz
CBIRF-N150	R3470300018	I-PEX/MHF4 to RP-SMA Female ;L:150mm;Coaxial 0.81 Black