

WF802BT-M2-Type1216

802.11ac/b/g/n Dual-Band

2T2R Wi-Fi+Bluetooth 4.1 Combo

M.2 LGA Module



Wi-Fi+Bluetooth Combo Solution M.2 LGA Module

SparkLAN WNSQ-261ACN(BT) is an 802.11ac/b/g/n Dual-Band Wi-Fi+Bluetooth M.2 LGA type 1216 module based on Qualcomm Atheros QCA6174A-5 chipset. It is Dual-Band AC on 2.4GHz+5GHz and incorporates the latest Bluetooth 4.1. The download speed are 300Mbps on N networks and 867Mbps on AC network.

Adopting the latest 802.11ac solution. WNSQ-261ACN(BT) is ideal for next-generation high throughput enterprise networking solution. 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 medical devices, security systems, Point of Sale, digital signs, set-top/net-top box, embedded / tablet PC's, handheld devices, thin client devices, Gaming machine, notebook computer, etc.

Key Feature :

- Qualcomm Atheros QCA6174A-5
- BT transmission speed including 1M, 2M and 3Mbps EDR operations
- Supports for Simple Pairing (SP) and Enhanced Inquiry Response (EIR) function
- HCI USB interface to work with Windows upper layer stack
- Support MU-MIMO
- Wi-Fi Supports Low Power Pie (w/ L1 substate) interfaces
- Two-stream spatial multiplexing up to 867Mbps data rate

Specification :

Standards:	IEEE 802.11ac/a/b/g/n (2T2R) Bluetooth V4.1, V4.0 LE, V3.0+HS, V2.1+EDR
Chipset:	Qualcomm Atheros QCA6174A-5
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~2.483GHz, 5.150MHz~5.850MHz *Subject to local regulations
Interface:	PCIe: WLAN; USB: Bluetooth
Form Factor:	M.2 LGA Type 1216
Antenna:	2xIPEX MHF4 connectors, 2T2R Support Wi-Fi/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: 610mA / RX: 285mA
Operating Voltage:	DC 3.3V
Operating Temperature Range:	-40°C~70°C
Storage Temperature Range:	-40°C~80°C
Humidity (Non-Condensing)	5%~90% (Operating) 5%~90% (Storing)
Dimension (in mm):	12mm x 16mm x 1.5mm
Weight (g):	≤ 0.7g
Driver Support:	Windows7/8.1/10
Security	64/128-bits WEP, WPA, WPA2, 802.1x

OUTPUT POWER & SENSITIVITY

802.11b

Data Rate	Tx \pm 2dBm	Rx Sensitivity
11Mbps	18dBm	\leq -76dBm

802.11g

Data Rate	Tx \pm 2dBm	Rx Sensitivity
54Mbps	15dBm	\leq -65dBm

802.11n / 2.4GHz

	Data Rate	Tx \pm 2dBm (1TX)	Tx \pm 2dBm (2TX)	Rx Sensitivity
HT20	MCS7	15dBm	18dBm	\leq -64dBm
HT40	MCS7	15dBm	18dBm	\leq -61dBm

802.11a

Data Rate	Tx \pm 2dBm	Rx Sensitivity
54Mbps	10.5dBm	\leq -65dBm

802.11n / 5GHz

	Data Rate	Tx \pm 2dBm (1TX)	Tx \pm 2dBm (2TX)	Rx Sensitivity
HT20	MCS7	10dBm	13dBm	\leq -64dBm
HT40	MCS7	10dBm	13dBm	\leq -61dBm

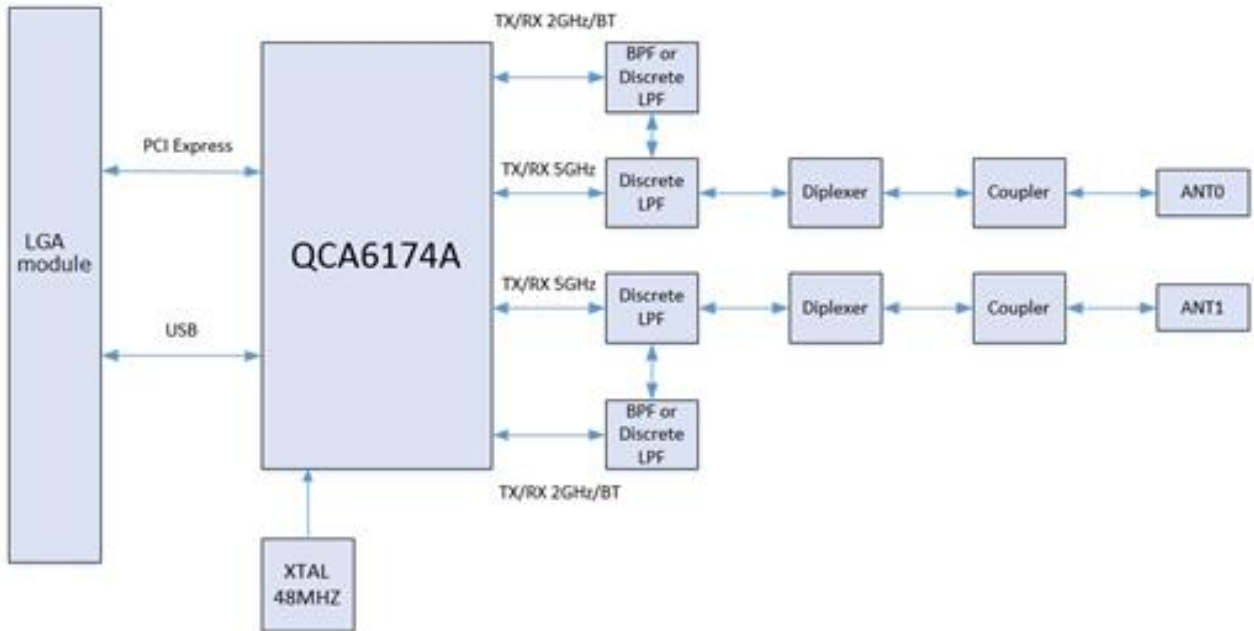
802.11ac

	Data Rate	Tx \pm 2dBm (1TX)	Tx \pm 2dBm (2TX)	Rx Sensitivity
VHT80	MCS9	6dBm	9dBm	\leq -51dBm

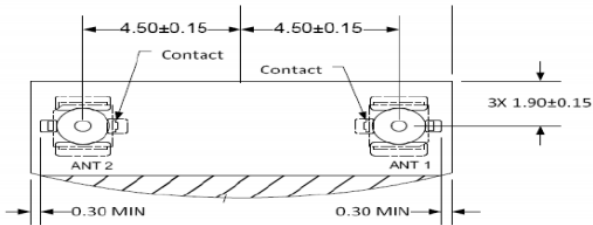
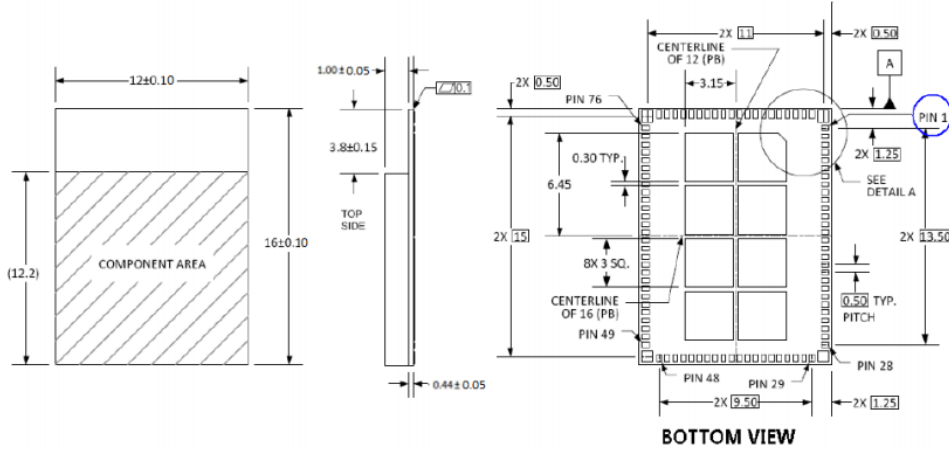
Bluetooth

Data Rate	Tx \pm 2dBm (Class 1 Device)	Rx Sensitivity
3Mbps	+4 \leq Output Power \leq +10dBm	<0.1% BER at -70dBm

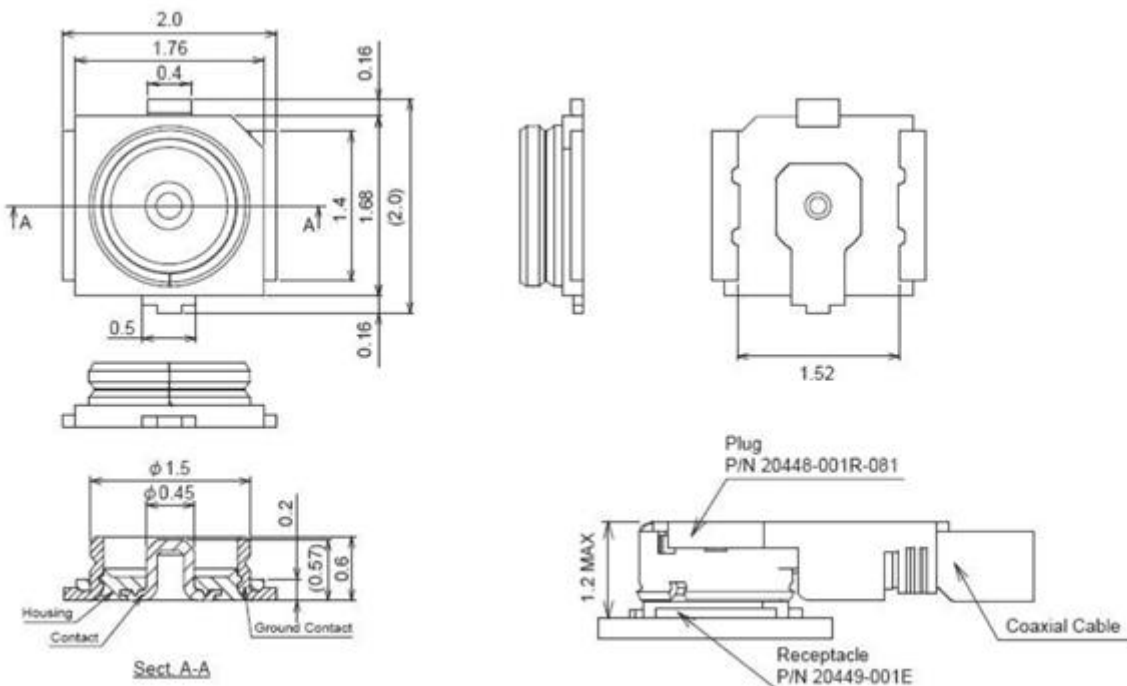
Block Diagram



Mechanical Dimension (mm)



MHF4 connector SPEC



Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
1	No Connection	-	2	No Connection	-
3	No Connection	-	4	+3.3V	+3.3V
5	+3.3V	+3.3V	6	GND	GND
7	No Connection	-	8	No Connection	-
9	No Connection	-	10	No Connection	-
11	COEX1_SYNC (OPT)	LTE_COEX1	12	COEX2_PRI(OPT)	COEX2_PRI(OPT)
13	COEX3_ACTIVE (OPT)	LTE_COEX3	14	No Connection	-
15	No Connection	-	16	Reserved	-
17	GND	GND	18	No Connection	-
19	No Connection	-	20	GND	GND
21	No Connection	-	22	No Connection	-
23	GND	GND	24	No Connection	-
25	No Connection	-	26	GND	GND
27	SUSCLK(32KHz)	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.	28	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
29	WAKE_L	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.	30	CLKREQ_L	Output for reference clock request signal
31	PCIE_PERST# PERST_L	Input signal for functional reset to the card	32	GND	GND
33	REFCLK-	Input signal for PCI Express differential reference clock (100 MHz)	34	REFCLK+	Input signal for PCI Express differential reference clock (100 MHz)
35	GND	GND	36	PETn0	PCI Express x1 data interface: one differential transmit pair
37	PETp0	PCI Express x1 data interface: one differential transmit pair	38	GND	GND
39	PERn0	PCI Express x1 data interface: one differential receive pair	40	PERp0	PCI Express x1 data interface: one differential receive pair
41	GND	GND	42	No Connection	-
43	No Connection	-	44	No Connection	-
45	WL_EN	WLAN enable. Active high	46	No Connection	-
47	No Connection	-	48	No Connection	-
49	No Connection	-	50	No Connection	-
51	No Connection	-	52	No Connection	-

Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
53	No Connection	-	54	No Connection	-
55	No Connection	-	56	No Connection	-
57	No Connection	-	58	No Connection	-
59	No Connection	-	60	No Connection	-
61	No Connection	-	62	GND	GND
63	BT_DISABLE_L (OPT)	These pins are reserved for definition with future revisions of this specification.	64	BT_LED	Status indicators via LED devices that will be provided by the system and it is an open drain.
65	WLAN_LED# 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.	66	No Connection	-
67	No Connection	-	68	GND	GND
69	USB_D-	USB_D-	70	USB_D+	USB_D+
71	GND	GND	72	+3.3V	+3.3V
73	+3.3V	+3.3V	74	GND	GND
75	GND	GND	76	GND	GND

Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
77~96	GND	GND	97(G1)~100(G4)	GND	GND
101~ 108	GND	GND			-

* NA: No active, OPT: Optional