



WMX5401

802.11ac wave2 4T4R WIFI Mini-PCIE Module

Technical Specifications

Standards
Data Rate
Operating Frequency
Interface
Modulation
Recommended Operating Conditions
Block Diagram
Dimension
Pin Assignment
Output Power & Sensitivity

Standards

Wireless: IEEE 802.11ac Wave 2 (4T4R)

MU-MIMO

Chipset: Qualcomm Atheros QCA9984

Data Rate

802.11ac(wave 2): 1.73Gbps

Operating Frequency

IEEE 802.11ac: 5.150GHz ~ 5.850GHz

Interface

Mini PCIe

Antenna Port: U.FL x4 for 4T4R

Modulation

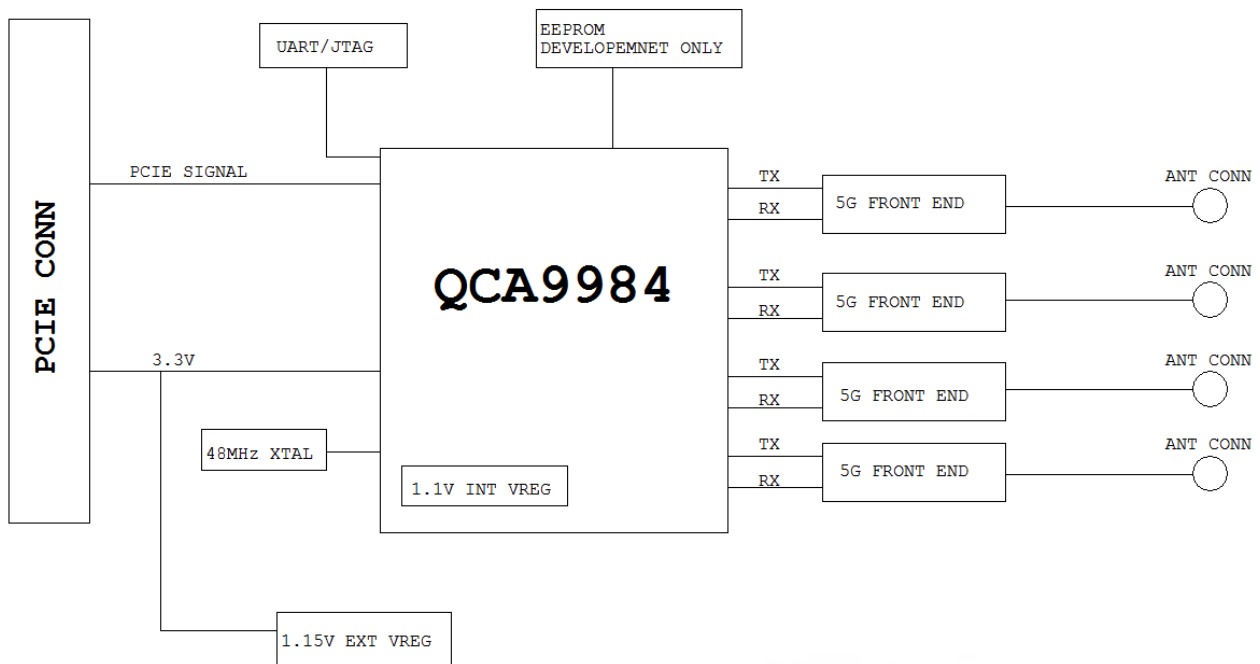
802.11ac OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)

Recommended Operating Conditions

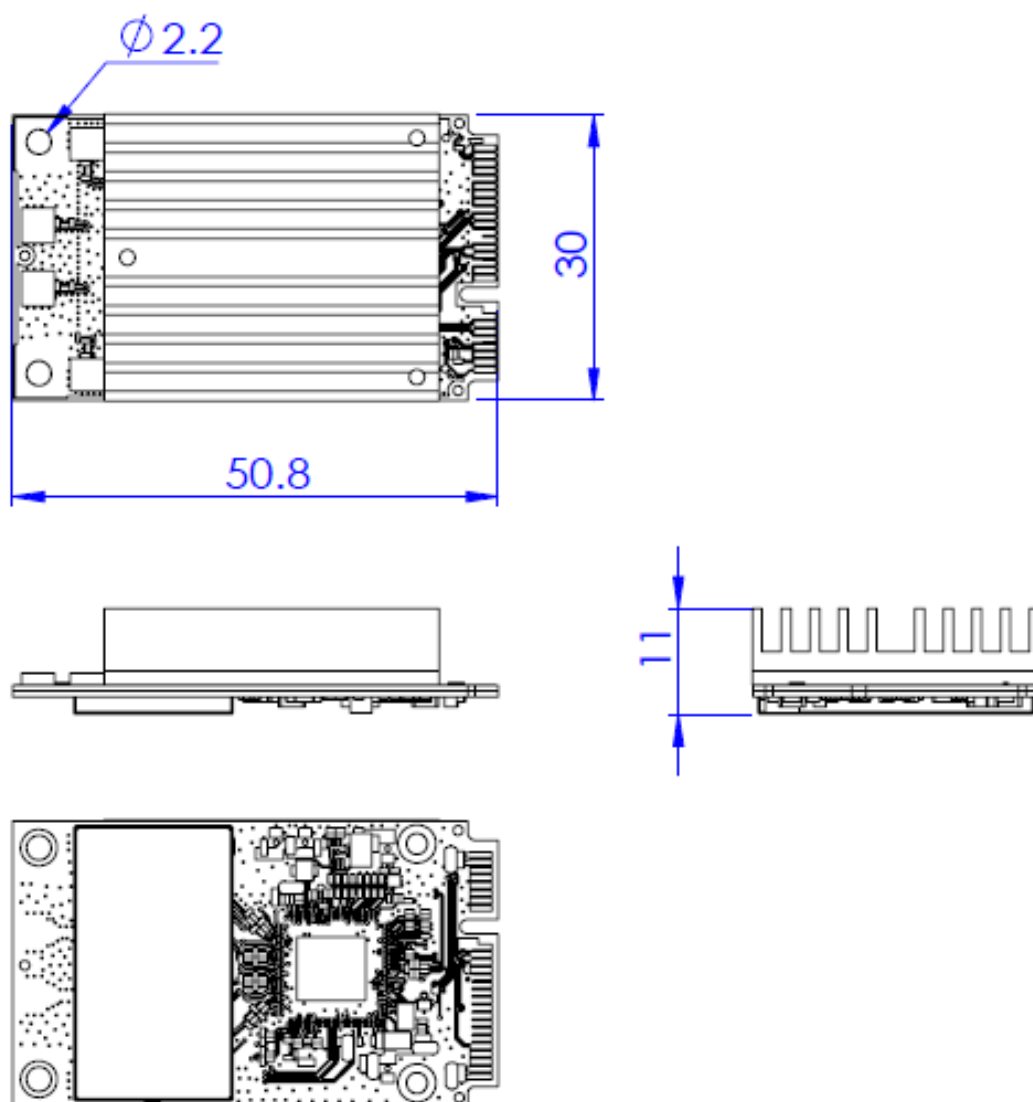
Operating Voltage: DC 3.3V $\pm$ 10%
 Operating Temperature Range: -20° ~ 85°C
 Storage Temperature Range: -40° ~ 135°C
 Operating Humidity (non-condensing): 5% ~ 95%
 Storage Humidity (non-condensing): 5% ~ 90%
 Power consumption: 4.5W(TBD)
 Dimension (in mm): 50.8(L) x 30.0(W) x 11.0(H) mm

Noted: The best RF performance specified in the data sheet, that's guaranteed only between -20° and 70° without reduce performance.

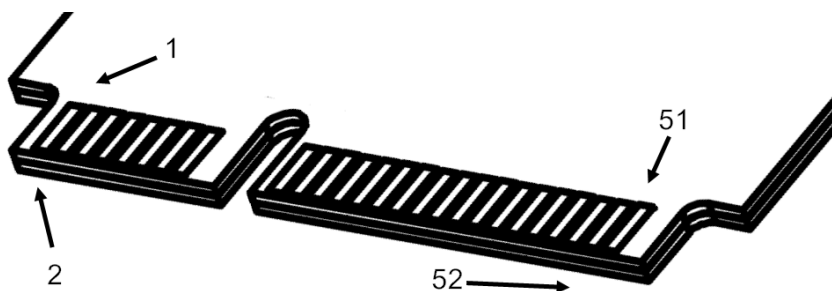
Block Diagram



Dimension



Pin Assignment



PIN#	Pin Name	Design Status	PIN#	Pin Name	Design Status
1	WAKE#	WAKE	2	+3.3Vaux	VDD33
3	COEX1	CHP_PWD	4	GND	GND
5	COEX2	NC	6	+1.5V	NC
7	CLKREQ#	VLKREQ	8	UIM_PWR	NC
9	GND	GND	10	UIM_DATA	NC
11	REFCLK-	REFCLK-	12	UIM_CLK	NC
13	REFCLK+	REFCLK+	14	UIM_RESET	NC
15	GND	GND	16	UIM_VPP	NC
17	Reserved	NC	18	GND	GND
19	Reserved	NC	20	W_DISABLE#	WLAN_DISABLE
21	GND	GND	22	PERST#	RESET
23	PERn0	PERn0	24	+3.3Vaux	VDD33
25	PERp0	PERp0	26	GND	GND
27	GND	GND	28	+1.5V	NC
29	GND	GND	30	SMB_CLK	NC
31	PETn0	PETn0	32	SMB_DATA	NC
33	PETp0	PETp0	34	GND	GND
35	GND	GND	36	USB_D-	NC
37	GND	NC	38	USB_D+	NC
39	+3.3Vaux	NC	40	GND	GND
41	+3.3Vaux	NC	42	LED_WWAN	NC
43	GND	GND	44	LED_WLAN	WLAN_LED
45	RESERVED	NC	46	LED_WPAN	NC
47	RESERVED	NC	48	+1.5V	NC
49	RESERVED	NC	50	GND	GND
51	RESERVED	NC	52	+3.3Vaux	VDD33

Output Power & Sensitivity

802.11a		
Data Rate	Tx +/- 2dB	Rx Sensitivity +/- 2dB
6Mbps	21dBm	-90dBm
24Mbps	20dBm	-80dBm
54Mbps	17dBm	-70dBm

802.11ac			
Data Rate		Tx +/- 2dB (1TX)	Rx Sensitivity +/- 2dB
VHT 20	MCS 0	21dBm	-90dBm
	MCS 4	20dBm	-80dBm
	MCS 8	15dBm	-70dBm
VHT 40	MCS 0	21dBm	-90dBm
	MCS 4	20dBm	-75dBm
	MCS 9	15dBm	-65dBm
VHT 80	MCS 0	21dBm	-85dBm
	MCS 4	20dBm	-70dBm
	MCS 9	15dBm	-60dBm
VHT 160	MCS 0	21dBm	-85dBm
	MCS 4	20dBm	-70dBm
	MCS 9	15dBm	-60dBm