

AW-CU598

Wireless MCU with Integrated Wi-Fi 6 and Bluetooth Low Energy 5.3 Module

Datasheet

Rev. F

DF

(For Standard)

Features

WLAN

- ◆ Support 1x1 dual-band 2.4 GHz/5 GHz Wi-Fi a/b/g/n/ac/ax radio
- ◆ 20 MHz channel operation
- ◆ Wi-Fi 6 Target Wake Time(TWT) support
- ◆ Wi-Fi 6 Extended Range (ER) and Dual Carrier Modulation (DCM)
- ◆ Power save features
- ◆ WPA2/WPA3 personal and enterprise

Bluetooth

- ◆ Supports Bluetooth LE 5.3(Class 2) certified and Bluetooth LE 5.2 features supported
- ◆ Wi-Fi/Bluetooth coexistence protocol support
- ◆ Intelligent Adaptive Frequency Hopping (AFH)
- ◆ Bluetooth LE Privacy 1.2
- ◆ Bluetooth LE Long Range
- ◆ Bluetooth LE 2 Mbps
- ◆ Bluetooth LE Isochronous Channels
- ◆ Bluetooth LE Audio with integrated LC3 codec
- ◆ Security: AES

Revision History

Document NO: R2-2598-DST-01

Version	Revision Date	DCN NO.	Description	Initials	Approved
A	2023/02/04	DCN028668	Draft version	Roger Liu	N.C Chen
B	2023/06/27	DCN029399	- Update block diagram - Update pin table	Roger Liu	N.C Chen
C	2023/08/30	DCN029967	- Modify feature and pin table - Update RF specification	Roger Liu	N.C Chen
D	2023/10/30	DCN030381	Modify Pin Table, GPIO[13] and GPIO[14] to SWCLK and SWDIO	Roger Liu	N.C Chen
E	2023/12/14	DCN030759	- Packing information - Dimension	Roger Liu	N.C Chen
F	2024/08/12	DCN032354	- Remove JTAG function - Update Power Consumption	Roger Liu	N.C Chen

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1. Introduction

1.1 Product Overview

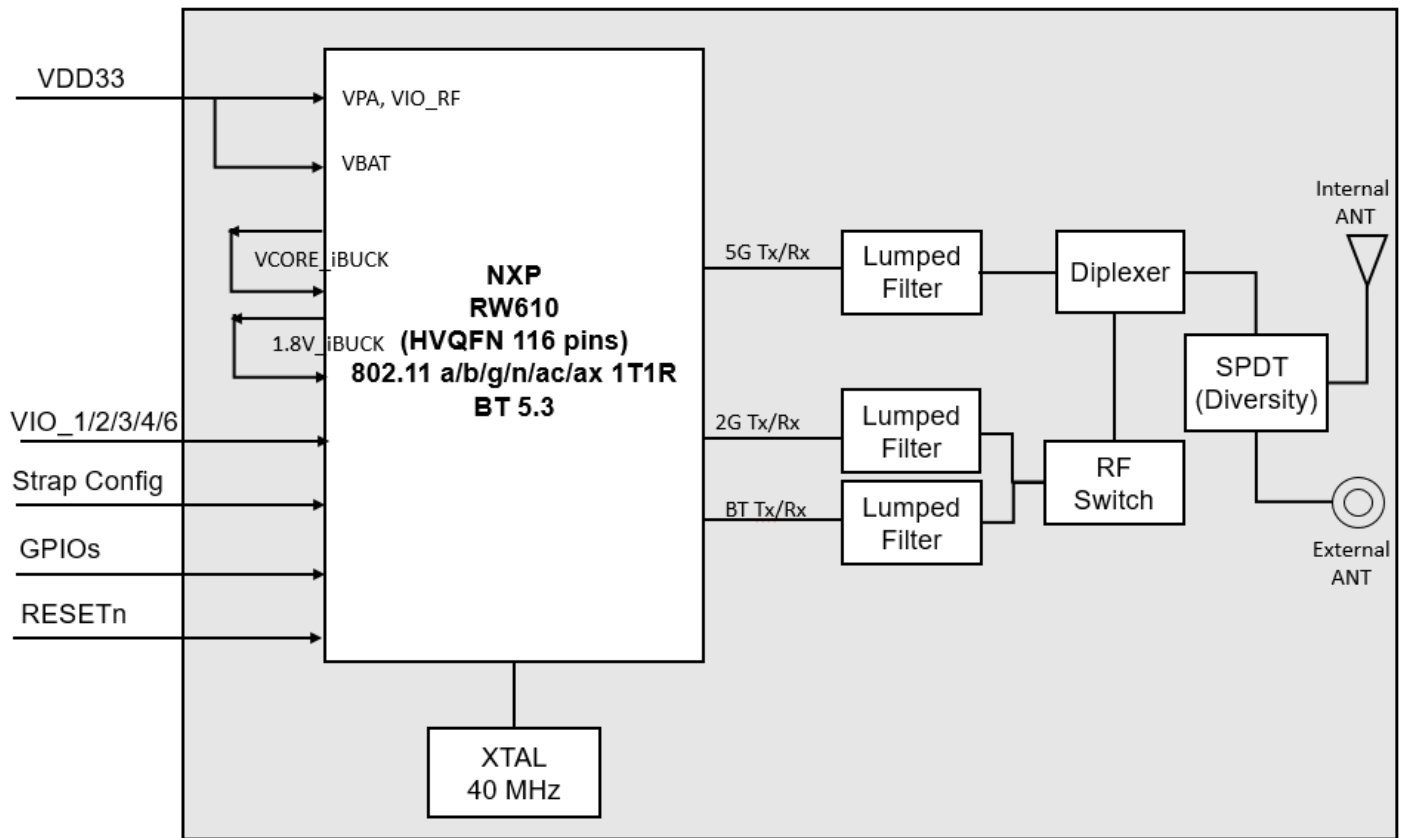
AzureWave **AW-CU598** is a highly integrated, low-power tri-radio Wireless RW610 MCU with an integrated MCU and Wi-Fi 6 + Bluetooth Low Energy (LE) 5.3 radios designed for a broad array of applications. Applications include connected smart home devices, enterprise and industrial automation, smart accessories, and smart energy.

AW-CU598 includes a 260 MHz Arm Cortex-M33 core with TrustZone-M, 1.2 MB on-chip SRAM and a Quad SPI interface with high bandwidth

AW-CU598 includes a full-featured 1x1 dual-band (2.4 GHz / 5 GHz) 20 MHz Wi-Fi 6 (802.11ax) subsystem bringing higher throughput, better network efficiency, lower latency, and improved range over previous generation Wi-Fi standards. The Bluetooth LE radio supports 2 Mbit/s high-speed data rate, long range and extended advertising as well as LE Audio for a better overall audio experience. In addition, **AW-CU598** can support Matter over Wi-Fi or Matter over Thread offering a common, interoperable application layer across ecosystems and products.

The advanced design of the **AW-CU598** delivers tight integration, low power, and highly secure operation in a space- and cost-efficient wireless MCU requiring only a single 3.3 V power supply

1.2 Block Diagram



AW-CU598 Block Diagram

1.3 Specifications Table

1.3.1 General

Features	Description
Product Description	IEEE 802.11 a/b/g/n/ac/ax Wi-Fi 6 with Bluetooth 5.3 Module
Major Chipset	NXP RW610 HVQFN(116 pins)
Host Interface	UART
Dimension	28 mm x 15 mm x 3.15 mm(Max)
Package	LGA module, 88 pins
Antenna	u.FL Connector Receptacle ANT1 : WiFi → TX/RX(diversity) Printed antenna ANT2 : WiFi → TX/RX(diversity)
Weight	1.8 g

1.3.2 WLAN

Features	Description
WLAN Standard	IEEE 802.11 a/b/g/n/ac/ax 1T1R
WLAN VID/PID	NA
WLAN SVID/SPID	NA
Frequency Range	2.4 GHz ISM Bands 2.412-2.472 GHz 5.15-5.25 GHz (FCC UNII-low band) for US/Canada and Europe 5.25-5.35 GHz (FCC UNII-middle band) for US/Canada and Europe 5.47-5.725 GHz for Europe 5.725-5.825 GHz (FCC UNII-high band) for US/Canada
Modulation	DSSS, OFDM, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, OFDMA
Number of Channels	2.4GHz: ■ USA, NORTH AMERICA, Canada and Taiwan - 1 ~ 11 ■ China, Australia, Most European Countries - 1 ~ 13 ■ Japan, 1 ~ 13 5GHz: ■ USA, Canada, Most European Countries - 36,40,44,48,52,56,60,64,100,104,108,112,116,120,124,128,132,136,140,149,153,157,161,165

	■ Japan - 36,40,44,48,52,56,60,64,100,104,108,112,116,120,124,128,132,136,140 ■ China - 36,40,44,48,52,56,60,64, 149,153,157,161,165				
Output Power (Board Level Limit)*	2.4G				
		Min	Typ	Max	Unit
	11b (11Mbps) @EVM<35%	16	18	20	dBm
	11g (54Mbps) @EVM≤-25 dB	14.5	16	17.5	dBm
	11n (HT20 MCS7) @EVM≤-27 dB	13.5	15	16.5	dBm
	11ax(HE20 MCS9) @EVM≤-32 dB	12.5	14	15.5	dBm
	5G				
		Min	Typ	Max	Unit
	11a (54Mbps) @EVM≤-25 dB	14	16	18	dBm
	11n (HT20 MCS7) @EVM≤-27 dB	13	15	17	dBm
	11ac(VHT20 MCS8) @EVM≤-30 dB	12	14	16	dBm
	11ax(HE20 MCS9) @EVM≤-32 dB	11	13	15	dBm
Receiver Sensitivity	2.4G				
		Min	Typ	Max	Unit
	11b (11Mbps)	-	-86	-83	dBm
	11g (54Mbps)	-	-72	-69	dBm
	11n (HT20 MCS7)	-	-69	-66	dBm
	11ax (HE20 MCS9)	-	-63	-60	dBm
	5G				
		Min	Typ	Max	Unit
	11a (54Mbps)	-	-72	-69	dBm
	11n (HT20 MCS7)	-	-70	-67	dBm
	11ac(VHT20 MCS8)	-	-66	-63	dBm
	11ax(HE20 MCS9)	-	-65	-62	dBm

Data Rate	WLAN: 802.11b : 1, 2, 5.5, 11Mbps 802.11a/g : 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n : Maximum data rates up to 72 Mbps (20 MHz channel) 802.11ac: Maximum data rates up to 87 Mbps (20 MHz channel) 802.11ax: Maximum data rates up to 115 Mbps (20 MHz channel)
Security	■ WiFi: WPA2/WPA3 personal and enterprise and AES/CCMP/CMAC/GCMP ■ BT: AES

1.3.3 Bluetooth

Features	Description				
Bluetooth Standard	Full Bluetooth 5.3 features				
Frequency Rage	2402MHz~2483.5MHz				
Modulation	GFSK				
Output Power					
		Min	Typ	Max	Unit
	Low Energy	0	2	4	dBm
Receiver Sensitivity					
	BT Sensitivity (PER<30.8%)				
		Min	Typ	Max	Unit
	Low Energy	-	-95	-92	dBm

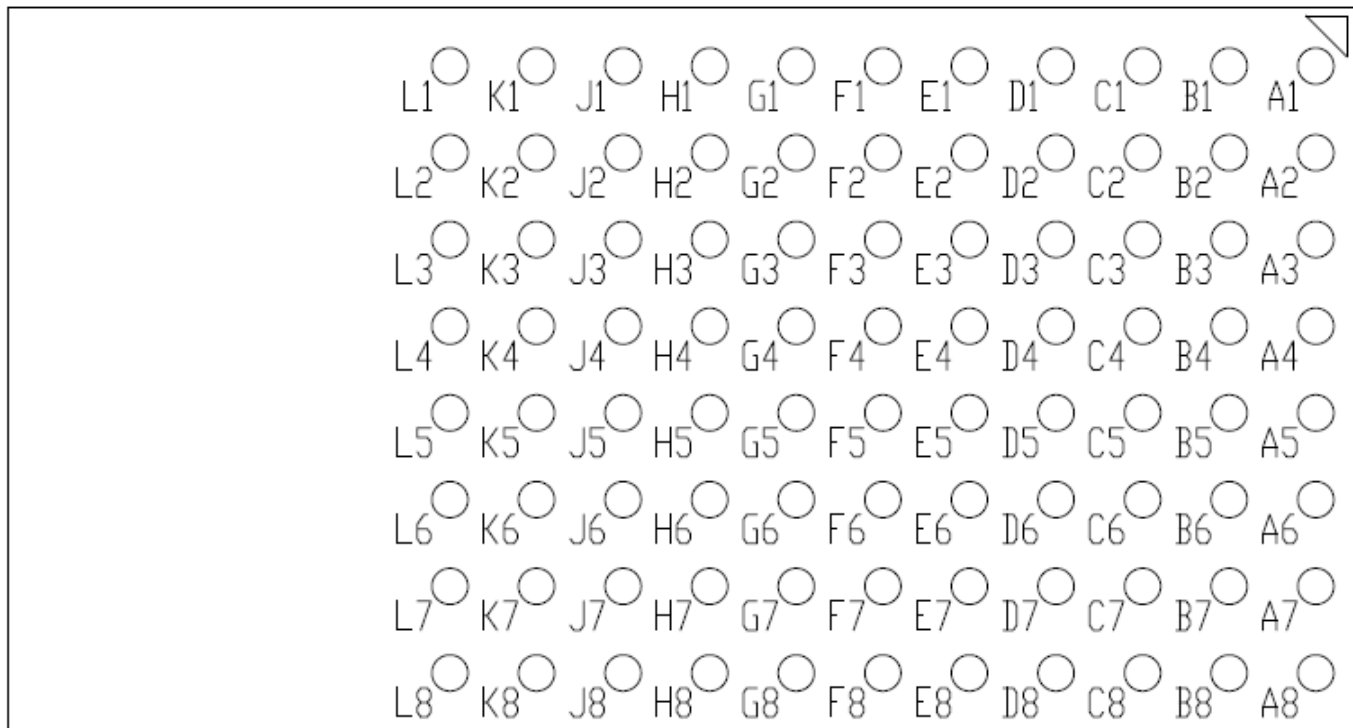
* If you have any certification questions about output power please contact FAE directly.

1.3.4 Operating Conditions

Features	Description
Operating Conditions	
Voltage	3.3V +-5%
Operating Temperature	-40°C ~ 85°C
Operating Humidity	Less than 85% R.H.
Storage Temperature	-40°C to +85°C
Storage Humidity	Less than 60% R.H.
ESD Protection	
Human Body Model	+2KV
Changed Device Model	+500V

2. Pin Definition

2.1 Pin Map



AW-CU598 Pin Map (Top View)

2.2 Pin Table

2.2.1 Power

Pin No	Definition	Basic Description	Voltage	Type
A7	3.3V_IN_1	3.3V Power input	3.3V	P
B7	3.3V_IN_2	3.3V Power input	3.3V	P
K1	VIO_1	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
F1	VIO_2	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
A2	VIO_3	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
E1	VIO_4	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P
B8	VIO_6	1.8V/3.3V Digital I/O Power Supply	1.8V/3.3V	P

2.2.2 GPIO

Pin No	Definition	Basic Description	Voltage	Type
A3	GPIO_22	GPIO[22]/AON_XTAL32K_IN/SLP_CLK_32K/ SCT0_PIN_INP2/ENET_RX_DATA0	VIO_3	I/O
A5	USB_DM	USB bus data-	3.3V	I/O
A6	USB_DP	USB bus data+	3.3V	I/O
B1	GPIO_24	GPIO[24]/AON_WAKEUP/CT1_MAT2/CT_INP6/ ENET_TIMER2/FC3_RXD_SDA_MOSI_DATA_USA RT/I2C/I2S/SPI	VIO_3	I/O
B2	GPIO_26	GPIO[26]/AON_CAPT/SCT0_OUT4/SCT0_PIN_INP 4/ENET_TIMER3/FC3_TXD_SCL_MISO_WS_USA RT/I2C/I2S/SPI	VIO_3	I/O
B3	GPIO_23	GPIO[23]/AON_XTAL32K_OUT/SCT0_PIN_INP3/E NET_RX_DATA1	VIO_3	I/O
B4	GPIO_25	GPIO[25]/AON_WAKEUP/CT1_MAT3/CT_INP7/ ENET_CLK/FC3_SCK_USART/I2S/SPI	VIO_3	I/O
B5	USB_VBUS	VBUS selection, 5 V analog power supply	---	I/O
B6	USB_IDPIN	USB OTG ID pin	3.3V	I
C1	GPIO_28	QSPI flash slave select 0	VIO_4	I/O
C2	GPIO_31	Data bit 1 for QSPI flash	VIO_4	I/O
C3	GPIO_32	Data bit 2 for QSPI flash / SPIO0[0]	VIO_4	I/O
C4	GPIO_29	QSPI flash data strobe input/output	VIO_4	I/O
C5	GPIO_27	GPIO[27]/AON_OUT/SCT0_OUT5/SCT0_PIN_INP5 /ENET_TIMER0	VIO_3	I/O
C6	GPIO_4	GPIO[4]/Coexistence mode /SCT0_OUT1/SCT0_PIN_INP1/CLKIN_FRM_PD/ FC0_SCK_USART/I2S/SPI	VIO_6	I/O

C7	GPIO_3	GPIO[3]/SCT0_OUT0/SCT0_PIN_INP0/FC0_TXD_SCL_MISO_WS_USART/I2C/I2S/SPI	VIO_6	I/O
C8	RESETn	Full Power-down (input) (active low) 0 = full power-down mode 1 = normal mode This pin has an internal pull high 51k ohm to 3.3V	3.3V	I
D1	GPIO_34	GPIO[34]/ QSPI_flash_CLK0/ SPIO0[2]	VIO_4	I/O
D2	GPIO_33	GPIO[33]/ QSPI_flash_D3/ SPIO0[1]	VIO_4	I/O
D3	GPIO_30	GPIO[30]/ QSPI_flash_D0	VIO_4	I/O
D7	GPIO_2	GPIO[2]/FC0_RXD_SDA_MOSI_DATA_USART/I2C/I2S/SPI	VIO_6	I/O
D8	GPIO_49	GPIO[49]/LCD_D4/LCD SPI interface chip select/ADC0_7/ADC1_7/ACOMP7/SPIO0[17]	VIO_6	I/O
E7	GPIO_48	GPIO[48]/LCD 8080 interface read control /LCD SPI interface clock/ADC0_6/ ADC1_6/ ACOMP6/ SPIO0[16]	VIO_6	I/O
E8	GPIO_47	GPIO[47]/LCD_D3 /LCD SPI interface data/ ADC0_5/ ACOMP5/ SPIO0[15]	VIO_6	I/O
F2	GPIO_13	GPIO[13]/ CT_INP3/CT0_MAT3/ SWCLK/ FC2_RXD_SDA_MOSI_DATA_USART/I2C/I2S/SPI	VIO_2	I/O
F7	GPIO_46	GPIO[46]/ LCD_D2/LCD SPI interface data in_out/ADC0_4/ ACOMP4/ SPIO0[14]	VIO_6	I/O
F8	GPIO_45	GPIO[45]/LCD tearing effect input signal used to synchronize MCU frame writing/ LCD tearing effect input signal used to synchronize MCU frame writing/ ADC0_3/ACOMP3/EXT_VREF_ADC0_DAC/ SPIO0[13]	VIO_6	I/O
G1	GPIO_15	GPIO[15]/SD_CLK/UTICK_CAP0/UCLK/FC2_SCK_USART/I2S/SPI	VIO_2	I/O
G2	GPIO_16	GPIO[16]/SD_D3/UTICK_CAP1/URST/FC2_CTS_SDA_SSELN0_USART/FC2_CTS_SDA_SSELN0_SPI/FC2_CTS_SDA_SSELN0_I2C_COPY	VIO_2	I/O
G7	GPIO_44	GPIO[44]/DAC_A/ADC0_2/ ACOMP2/output signal to reset the LCD device/SPIO0[12]	VIO_6	I/O
G8	GPIO_43	GPIO[43]/LCD_D1/ADC0_1/ACOMP1/DAC_B/SPIO0[11]	VIO_6	I/O
H1	GPIO_17	GPIO[17]/SDIO_CMD/UTICK_CAP2/UIO/FC2_RTS_SCL_SSELN1_USART/FC2_RTS_SCL_SSELN1_I2C_COPY	VIO_2	I/O
H2	GPIO_18	GPIO[18]/SDIO_DAT2/UTICK_CAP3/UVS/ GPIO_INT_BMAT	VIO_2	I/O
H7	GPIO_42	GPIO[42]/ ADC0_0/ACOMP0/LCD_D0/SPIO0[10]	VIO_6	I/O
H8	GPIO_50	GPIO[50]/FREQME_GPIO_CLK/ADC_DAC_TRIGGER0/ SPIO0[18]	VIO_6	I/O

J1	GPIO_19	GPIO[19]/SDIO_DAT0/FC3_RTS_SCL_SSELN1_U SART/FC3_RTS_SCL_SSELN1_I2C_COPY	VIO_2	I/O
J2	GPIO_20	GPIO[20]/SDIO_DAT1/FC3_CTS_SDA_SSELN0_U SART/SPI/I2C_COPY	VIO_2	I/O
J3	RF_CNTL1	RF_CNTL1	3.3V	O
J4	RF_CNTL2	RF_CNTL2	3.3V	O
J5	RF_CNTL3	RF_CNTL3	3.3V	O
J7	EXT_FREQ	External radio frequency input signal (optional) - muxed with WCI-2_SOUT signal of WCI-2 interface.	1.8V	I
J8	EXT_PRI	External radio input priority signal (optional) Priority of the request from the external radio.	1.8V	I
K2	GPIO_14	GPIO[14]/CT_INP4/CT1_MAT0/SWDIO/ FC2_TXD_SCL_MISO_WS_USART/I2C/I2S/SPI	VIO_2	I/O
K3	GPIO_7	GPIO[7]/FC1_SCK_USART/I2S/SPI	VIO_1	I/O
K4	GPIO_8	GPIO[8]/FC1_TXD_SCL_MISO_WS_USART/I2C/I2 S/SPI	VIO_1	I/O
K5	GPIO_10	GPIO[10]/FC1_RTS_SCL_SSELN1_USART	VIO_1	I/O
K7	EXT_GNT	External radio grant output signal	1.8V	O
K8	EXT_REQ	Request from external radio	1.8V	I
L2	GPIO_5	GPIO[5]/MCLK/FC0_RTS_SCL_SSELN1_USART	VIO_1	I/O
L3	GPIO_6	GPIO[6]/FC1_CTS_SDA_SSELN0_USART/SPI	VIO_1	I/O
L4	GPIO_9	GPIO[9]/FC1_RXD_SDA_MOSI_DATA_USART/I2C/ I2S/SPI	VIO_1	I/O
L5	GPIO_11	GPIO[11]/SCT0_OUT8:	VIO_1	I/O
L7	GPIO_12	GPIO[12]/UTMI_DRV_VBUS/CT0_MAT2/CT_INP2/ SD_HOST_INT	3.3V	I/O

2.2.3 GND

Pin No	Definition	Basic Description	Voltage	Type
A1	GND_A1	Ground	---	---
A4	GND_A4	Ground	---	---
A8	GND_A8	Ground	---	---
D4	GND_D4	Ground	---	---
D5	GND_D5	Ground	---	---
D6	GND_D6	Ground	---	---
E2	GND_E2	Ground	---	---
E3	GND_E3	Ground	---	---
E4	GND_E4	Ground	---	---
E5	GND_E5	Ground	---	---
E6	GND_E6	Ground	---	---
F3	GND_F3	Ground	---	---
F4	GND_F4	Ground	---	---
F5	GND_F5	Ground	---	---
F6	GND_F6	Ground	---	---

G3	GND_G3	Ground	---	---
G4	GND_G4	Ground	---	---
G5	GND_G5	Ground	---	---
G6	GND_G6	Ground	---	---
H3	GND_H3	Ground	---	---
H4	GND_H4	Ground	---	---
H5	GND_H5	Ground	---	---
H6	GND_H6	Ground	---	---
J6	GND_J6	Ground	---	---
K6	GND_K6	Ground	---	---
L1	GND_L1	Ground	---	---
L6	GND_L6	Ground	---	---
L8	GND_L8	Ground	---	---

3. Electrical Characteristics

3.1 Absolute Maximum Ratings

Symbol	Parameter	Minimum	Typical	Maximum	Unit
V _{BAT}	DC supply for the 3.3V input	-	3.3	3.96	V
V _{IO}	1.8 V/3.3 V digital I/O power supply	-	1.8	2.16	V
			3.3	3.96	V

3.2 Recommended Operating Conditions

Symbol	Parameter	Minimum	Typical	Maximum	Unit
V _{BAT}	DC supply for the 3.3V input	3.14	3.3	3.46	V
V _{IO}	1.8 V/3.3 V digital I/O power supply	1.71	1.8	1.89	V
		3.14	3.3	3.46	V

3.3 Digital IO Pin DC Characteristics

3.3.1 VIO 1.8V Operation

Symbol	Parameter	Minimum	Typical	Maximum	Unit
V _{IO}	I/O pad supply voltage	1.71	1.8	1.89	V
V _{IH}	Input high voltage	0.7*V _{IO}	-	V _{IO} +0.4	V
V _{IL}	Input low voltage	-0.4	-	0.3*V _{IO}	
V _{HYS}	Input Hysteresis	100	-	-	mV

3.3.2 VIO 3.3V Operation

Symbol	Parameter	Minimum	Typical	Maximum	Unit
V _{IO}	I/O pad supply voltage	3.14	3.3	3.46	V
V _{IH}	Input high voltage	0.7*V _{IO}	-	V _{IO} +0.4	V
V _{IL}	Input low voltage	-0.4	-	0.3*V _{IO}	
V _{HYS}	Input Hysteresis	100	-	-	mV

3.4 Power Consumption

a. WLAN Power Consumption

Band (GHz)	Mode	BW (MHz)	RF Power (dBm)	VBAT_3.3V (mA)	
				Transmit	
				Max.	Avg.
2.4	11b@1Mbps	20	18	277	276
	11g@54Mbps	20	16	217	216
	11n@MCS0	20	15	233	232
	11n@MCS7	20	15	202	201
	11ax@MCS0 NSS1	20	14	231	230
	11ax@MCS11 NSS1	20	14	227	226
5	11a@6Mbps	20	16	367	366
	11n@MCS0	20	15	352	351
	11n@MCS7	20	15	290	289
	11ac@MCS0 NSS1	20	14	330	329
	11ac@MCS8 NSS1	20	14	275	274
	11ax@MCS0 NSS1	20	13	323	322
	11ax@MCS11 NSS1	20	13	315	314
Band (GHz)	Mode	BW(MHz)		Receive	
				Max.	Avg.
2.4	11b@11Mbps	20		83	82
	11n@MCS7	20		87	85
	11ax@MCS11 NSS1	20		90	89
5	11a@54Mbps	20		102	102
	11n@MCS7	40		103	102
	11ac@MCS8 NSS1	80		103	102
	11ax@MCS11 NSS1	80		105	104

Band (GHz)	Mode	BW (MHz)	RF Power (dBm)	VIO_BRD_3.3V(mA)	
				Transmit	
				Max.	Avg.
2.4	11b@1Mbps	20	18	2.8	2.8
	11ax@MCS11 NSS1	20	14	2.8	2.8
5	11a@6Mbps	20	16	2.8	2.8
	11ax@MSC11 NSS1	20	13	2.8	2.8

Band (GHz)	Mode	BW(MHz)	Receive	
			Max.	Avg.
2.4	11b@11Mbps	20	2.7	2.7
5	11ax@MCS11 NSS1	20	2.7	2.7

Band (GHz)	Mode	BW (MHz)	RF Power (dBm)	VIO_BRD_1.8V(uA)	
				Transmit	
				Max.	Avg.
2.4	11b@1Mbps	20	18	812	811
	11ax@MCS11 NSS1	20	14	811	810
5	11a@6Mbps	20	16	800	799
	11ax@MSC11 NSS1	20	13	799	798
Band (GHz)	Mode	BW(MHz)	Receive (uA)		
			Max.	Avg.	
2.4	11b@11Mbps	20	798	798	
5	11ax@MCS11 NSS1	20	798	798	

b. Normal Mode

Voltage=VBAT_3.3V								
MCU Status	WiFi Deep Sleep	WiFi STA Connected		WiFi IEEE Power Saving				WiFi Power Down
		2.4G	5G	2.4G		5G		
				DTIM 1	DTIM 10	DTIM 1	DTIM 10	
PM0(Active)	23.6	65.6		NA ^{*(2)}				23.7
PM1(Idle)	14.8	66	78	18.4	15.6	18.3	17.2	15.0
PM2(Standby)	4.2	66	79	7.7	5.1	8.0	6.9	4.4
PM3(Sleep)	0.25	67	79	1.8	0.9	2.7	3.1	0.3
PM4(Shutdown)	NA ^{*(1)}	NA ^{*(1)}		NA ^{*(1)}				NA ^{*(1)}

Current Unit: mA

Voltage=VIO_1.8V								
MCU Status	WiFi Deep Sleep	WiFi STA Connected		WiFi IEEE Power Saving				WiFi Power Down
		2.4G	5G	2.4G		5G		
				DTIM1	DTIM10	DTIM1	DTIM10	
PM0(Active)	0.050	0.065		NA ^{*(2)}				0.050

PM1(Idle)	0.048	0.064	0.070	0.048	0.048	0.08	0.07	0.048
PM2(Standby)	0.046	0.064	0.068	0.047	0.046	0.06	0.06	0.047
PM3(Sleep)	1.66	0.065	0.069	1.66	1.63	0.05	0.07	1.66
PM4(Shutdown)	NA ^{*(1)}	NA ^{*(1)}		NA ^{*(1)}				NA ^{*(1)}

Current Unit: mA

c. Bluetooth

No.	Mode	Packet Type	RF Power (dBm)	VBAT_3.3V (mA)	
				Max.	Avg.
2	Transmit ^{*(1)}	BLE1M	2	93	90
3	Receive ^{*(2)}	BLE1M	N/A	92	88

No.	Mode	Packet Type	RF Power (dBm)	VIO_BRD_3.3V(mA)	
				Max.	Avg.
2	Transmit ^{*(1)}	BLE1M	2	2.7	2.7
3	Receive ^{*(2)}	BLE1M	N/A	2.7	2.7

No.	Mode	Packet Type	RF Power (dBm)	VIO_BRD_1.8V(uA)	
				Max.	Avg.
2	Transmit ^{*(1)}	BLE1M	2	798	798
3	Receive ^{*(2)}	BLE1M	N/A	798	798

d. Peak Current

No.	Item	VBAT_3.3V (mA)
		Max.
1	Peak current during device initialization	542
2	Peak current during device scan AP	592
3	Peak current during device connect AP	600

No.	Item	VIO_BRD_3.3V(mA)
		Max.
1	Peak current during device initialization	87
2	Peak current during device scan AP	76
3	Peak current during device connect AP	76

No.	Item	VIO_BRD_1.8V(uA)
		Max.
1	Peak current during device initialization	87
2	Peak current during device scan AP	40
3	Peak current during device connect AP	40

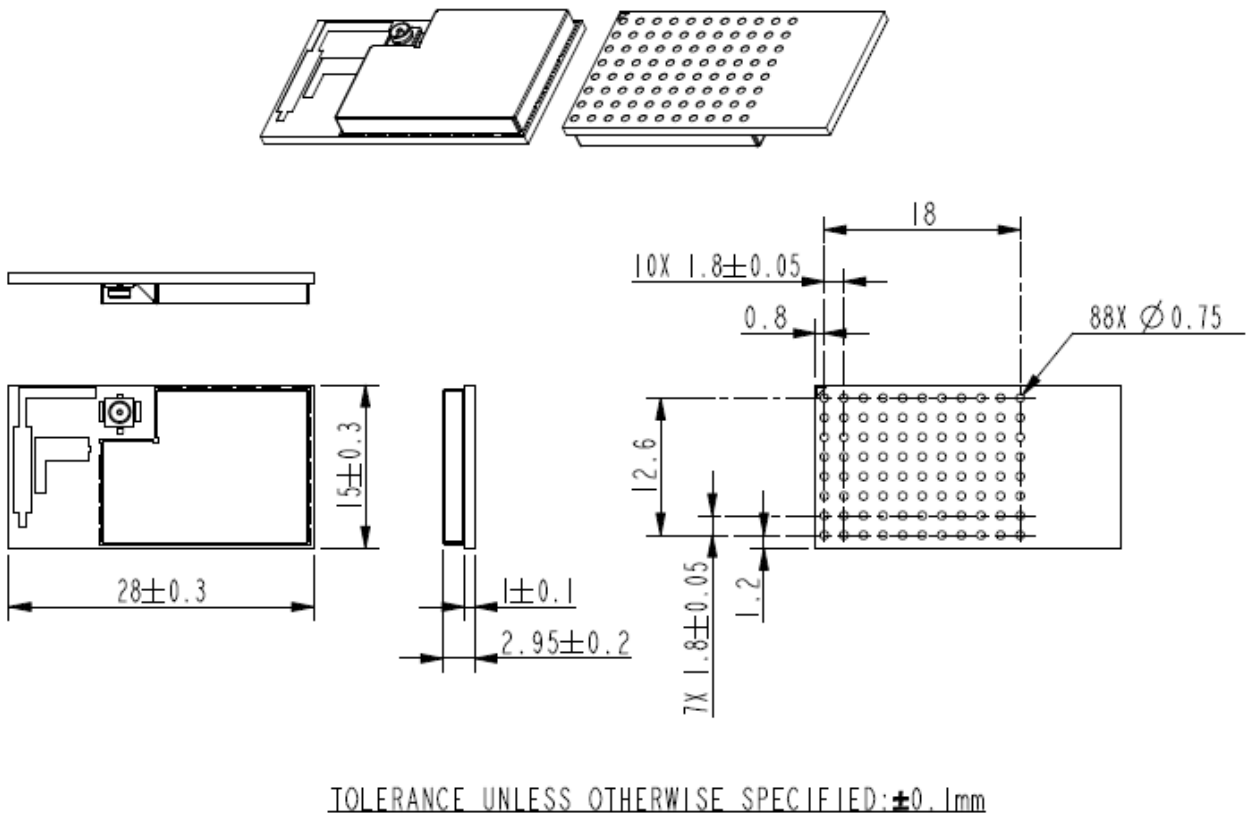
3.5 External 32.768KHZ Crystal Requirement

An external 32.768kHz crystal can be used for low-power consumption. Below are the specifications for this crystal.

Parameter	Min	Typ	Max	Unit
Output frequency	-	32.768	-	kHz
Frequency accuracy(Over process, voltage, temperature (PVT))	-	-	-22/-192	PPM
Temperature tolerance (From -40°C to 120°C)	-	0.0192	-	%
Start-up time(From power on to CLK_RDY without noise injection)	-	208	380	ms
Start-up time(From power on to CLK_RDY with noise injection)	-	15	170	ms
Duty cycle	46.7	47.4	49.77	%
Crystal ESR resistance		50	80	kΩ

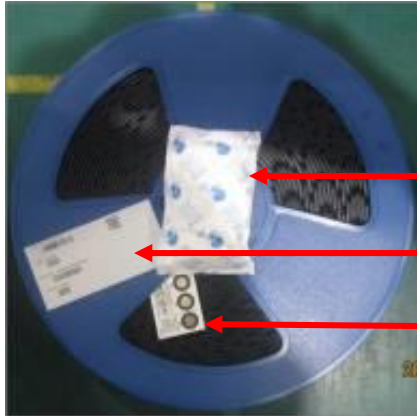
4. Mechanical Information

4.1 Mechanical Drawing



5. Packing Information

1. One reel can pack 2,400pcs modules
2. One production label is pasted on the reel, one desiccant and one humidity indicator card are put on the reel



← One desiccant

← One production label

← One humidity indicator card

3. One reel is put into the anti-static moisture barrier bag, and then one label is pasted on the bag



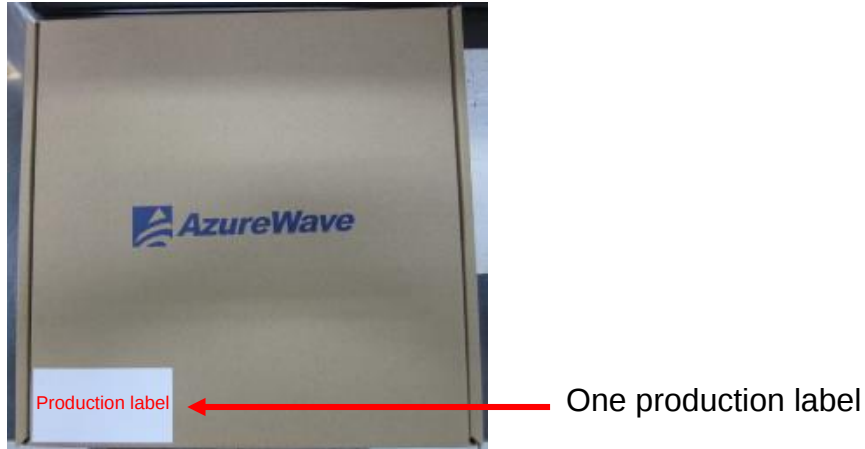
← One production label

4. A bag is put into the anti-static pink bubble wrap



← One anti-static pink bubble wrap

5. A bubble wrap is put into the inner box and then one label is pasted on the inner box



6. 3 inner boxes could be put into one carton



7. Sealing the carton by AzureWave tape

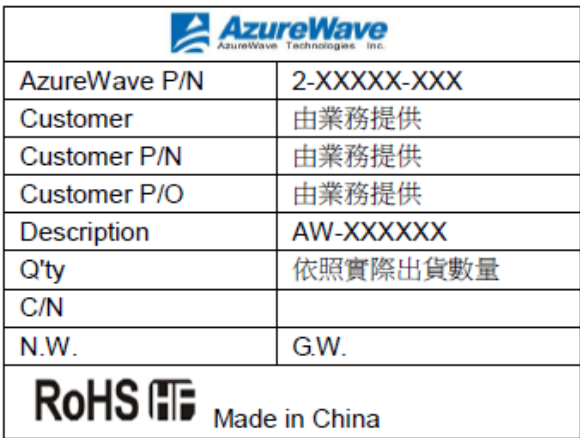


8. One carton label and one box label are pasted on the carton. If one carton is not full, one balance label pasted on the carton

One carton label

One box label



Example of carton label	 The example shows a label with the AzureWave logo at the top. Below it is a table with the following fields: AzureWave P/N (2-XXXXX-XXX), Customer (由業務提供), Customer P/N (由業務提供), Customer P/O (由業務提供), Description (AW-XXXXXX), Q'ty (依照實際出貨數量), C/N, and N.W. (G.W.). At the bottom, it features the RoHS logo and 'Made in China'.
Example of box label	 The example shows a label with a barcode on the left. To the right of the barcode, the text reads: 2-XXXXX-XXX, 数量: XXX, and XXXXXX 股份有限公司. Below the barcode, the text 'BOX0275351' is visible.



AzureWave

AzureWave Technologies, Inc.

Example of production label	P/N:  D/C: 1309  PCK NO.: PCKNO0069097  QTY: 294  BAG SEAL DATE: _____ 
Example of balance label	尾数 Balance

Note:

- ◆ 1 reel = 1 inner box = 800pcs
- ◆ 1 carton = 3 inner boxes = 3 * 800pcs = 2,400pcs

Appendix