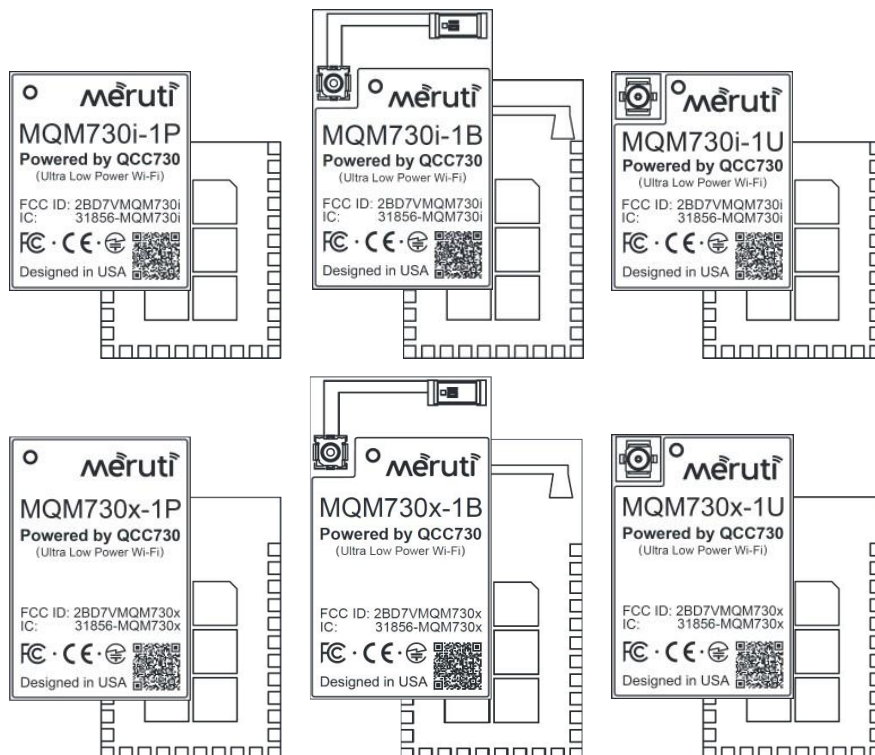




# Qualcomm QCC730 Module Data Sheet

March 2024



Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

# Table of Contents

<b>1</b>	<b>Product Overview</b>	<b>4</b>
1.1	Internal Power Amplifier Module (MQM730i-1)	5
1.2	External Power Amplifier Module (MQM730x-1)	6
1.3	MQM730-1 Development Kit	7
<b>2</b>	<b>Hardware Specification</b>	<b>8</b>
2.1	Block Diagram	8
2.2	Pinout Description	9
2.2.1	Pin Map	9
2.2.2	Pin Definition	9
2.2.3	External Power Amplifier Pin Control	10
2.2.4	I/O Pin Mux Table	11
2.3	Computing Subsystem	11
<b>3</b>	<b>Electrical Characteristics</b>	<b>13</b>
3.1	Absolute Maximum Ratings	13
3.2	Recommended Operating Conditions	13
<b>4</b>	<b>Radio Performance</b>	<b>14</b>
4.1.1	2.4GHz Active Power Consumption	14
4.1.2	5GHz Active Power Consumption	14
<b>5</b>	<b>Data Rate</b>	<b>16</b>
<b>6</b>	<b>Power Consumption</b>	<b>17</b>
6.1	Active Power	17
6.1.1	2.4GHz Active Power Consumption	17
6.1.2	5GHz Active Power Consumption	18
6.2	Sleep Power	18
<b>7</b>	<b>Mechanical Specification</b>	<b>20</b>
7.1	Internal Power Amplifier Module (MQM730i-1)	20
7.1.1	Dimension	20
7.1.2	Recommended PCB Landing Pattern	21
7.2	External Power Amplifier Module (MQM730x-1)	22
7.2.1	Dimension	22
7.2.2	Recommended PCB Landing Pattern	23
<b>8</b>	<b>Manufacturing Recommendation</b>	<b>25</b>

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

<b>8.1</b>	<b>Power Layout Guideline .....</b>	<b>25</b>
<b>8.2</b>	<b>RF Layout Guideline .....</b>	<b>25</b>
<b>8.3</b>	<b>Soldering Recommendations .....</b>	<b>26</b>
<b>9</b>	<b><i>Packaging</i>.....</b>	<b>27</b>
<b>10</b>	<b><i>Regulatory Compliance</i>.....</b>	<b>28</b>
<b>11</b>	<b><i>Order Information</i>.....</b>	<b>29</b>

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

# 1 Product Overview

Powered by Qualcomm game changing micro walt ultra-low power Wi-Fi technology, Qualcomm QCC730 IoT connectivity LGA module portfolio (“MQM730-1”) is purposely-designed to pack processing capabilities, embedded memory, Wi-Fi connectivity, on-module flash, and most of all ultra-low power technology into a single 32-pin LGA form factor with flexible choices of Pin, PCB and U.FL antenna. All variant antenna modules are pin compatible, allowing easy swap among modules. Its 1.27mm (0.05”) pitch design enables seamless LGA pad into standard 1.27mm (0.05”) header conversion to allow field replaceable header module portfolio if needed. Its compact size and on-chip SRAM and RRAM (NVM) contribute to reduced costs and enhanced performance, making it an attractive choice for space-constrained IoT devices requiring battery power.

Unlike many other Wi-Fi modules on the market, MQM730-1 has integrated 60MHz Arm Cortex-M4 processor with on-chip 640KB SRAM and 1.5MB RRAM to be capable of handling all protocol stacks all the way to cloud level. It has built-in Resistive RAM (RRAM), the industry latest Non-volatile Memory (NVM) technology, eliminating need for externally attached NOR flash for more streamlined and cost-effective system. Furthermore, MQM730-1 portfolio can be powered directly by a battery with only 1.8V input, making it suitable for battery-operated devices.

MQM730-1 has a variant supporting external power amplifier both on 2.4GHz and 5GHz to extend Wi-Fi range for an improved coverage.

MQM730-1 can operate in hostless mode, capable of running both the protocol stack and applications without requiring an external MCU. It can also be used as a Wi-Fi transceiver in hosted mode, offloading all the protocol stack to enable the external MCU to concentrate on IoT applications as well as managing system power consumption.

MQM730-1 has undergone rigorous regulatory compliance testing and is certified with FCC, CE, IC, UKCA, RCM, MIC, KC, SRRC and environmentally compliant with RoHS/WEEE directives.

MQM730-1 includes the following configurations:

Module	Form Factor	Antenna
MQM730i-1P	12.277 x 14.817x 2.2 mm, 1.27 mm pitch, 32-pin, LGA, iPA	Pin Antenna
MQM730i-1B	12.277 x 19.0 x 2.2 mm, 1.27 mm pitch, 32-pin, LGA, iPA	PCB Antenna
MQM730i-1U	12.277 x 14.817 x 2.2 mm, 1.27 mm pitch, 32-pin, LGA, iPA	U.FL Antenna
MQM730x-1P	12.277 x 18.0 x 2.2 mm, 1.27 mm pitch, 32-pin, LGA, xPA	Pin Antenna
MQM730x-1B	12.277 x 22.0 x 2.2 mm, 1.27 mm pitch, 32-pin, LGA, xPA	PCB Antenna
MQM730x-1U	12.277 x 18.0 x 2.2 mm, 1.27 mm pitch, 32-pin, LGA, xPA	U.FL Antenna

MQM730-1 is graphically illustrated below:

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

### 1.1 Internal Power Amplifier Module (MQM730i-1)

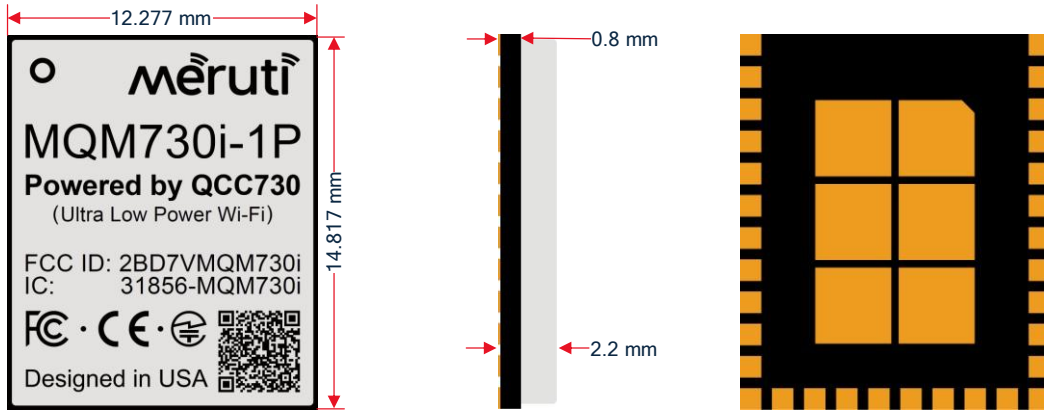


Figure 1: MQM730i-1P Module View

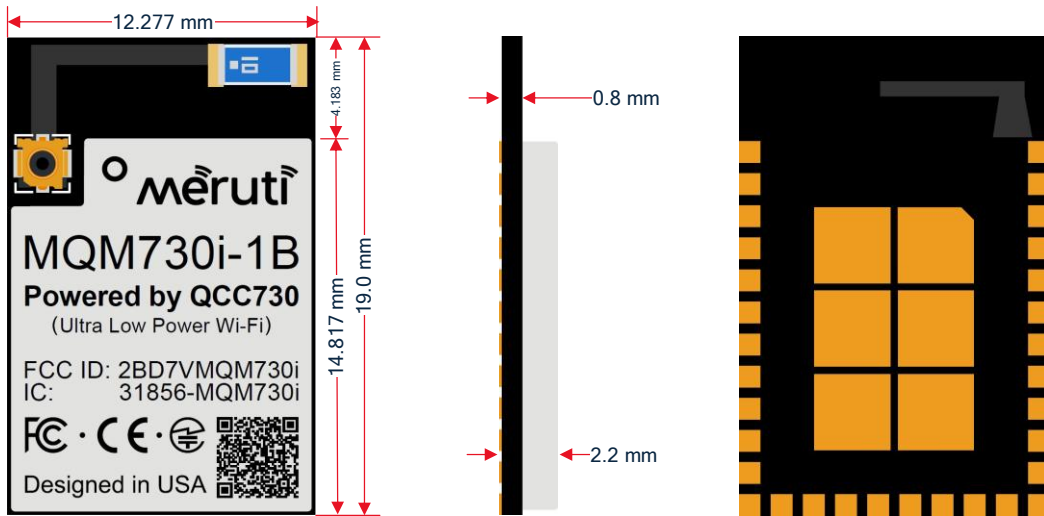


Figure 2: MQM730i-1B Module View

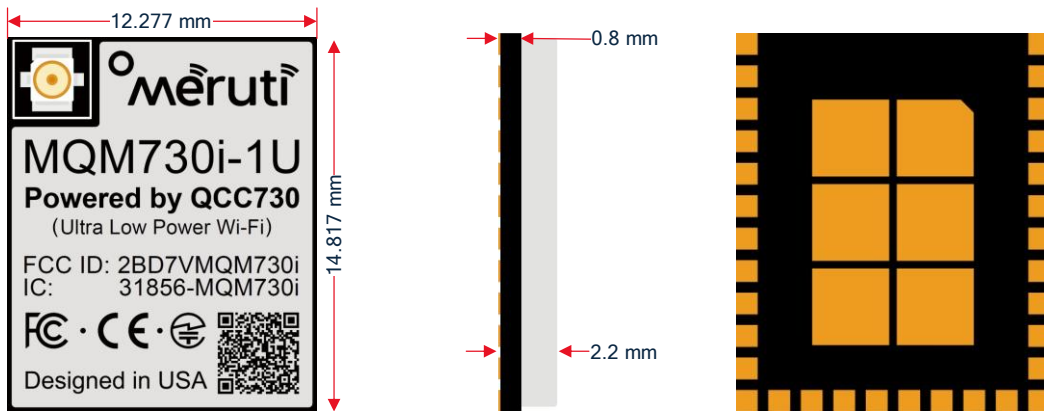


Figure 3: MQM730i-1U Module View

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 1.2 External Power Amplifier Module (MQM730x-1)

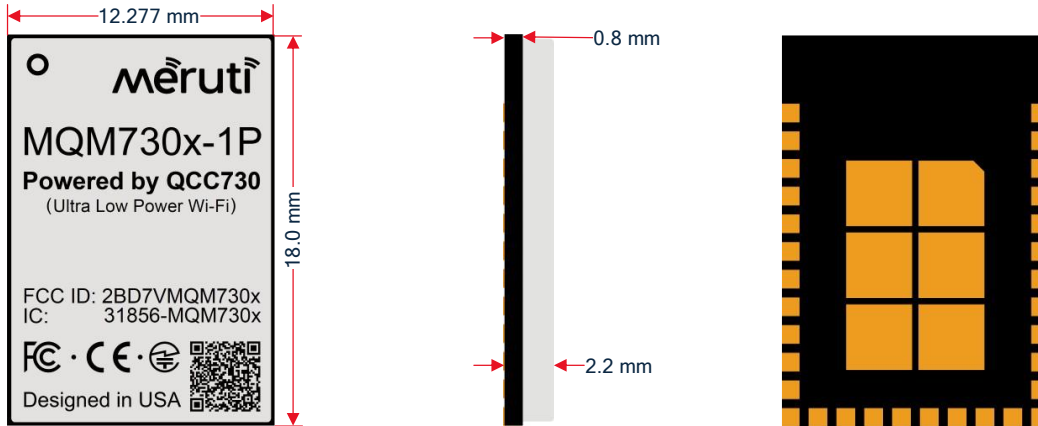


Figure 4: MQM730x-1P Module View

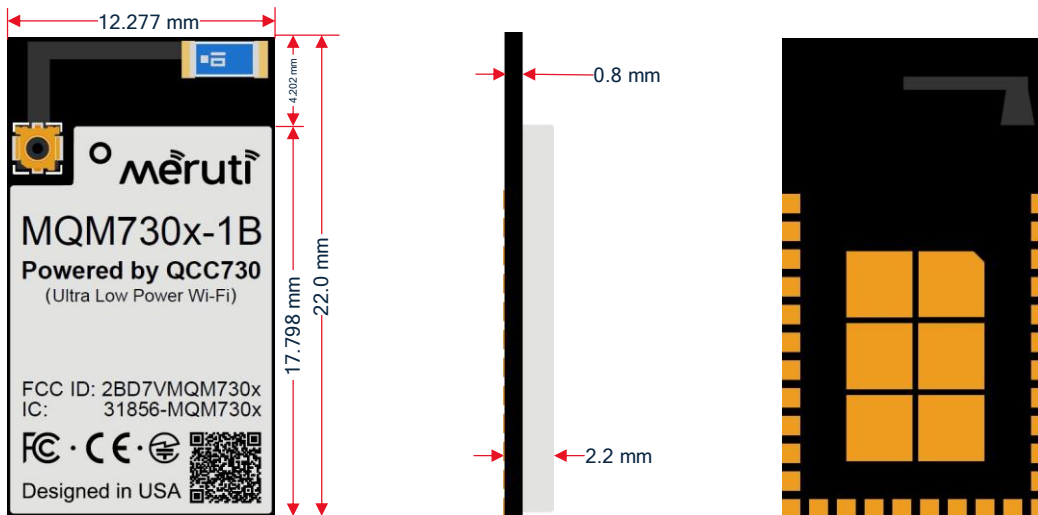


Figure 5: MQM730x-1B Module View

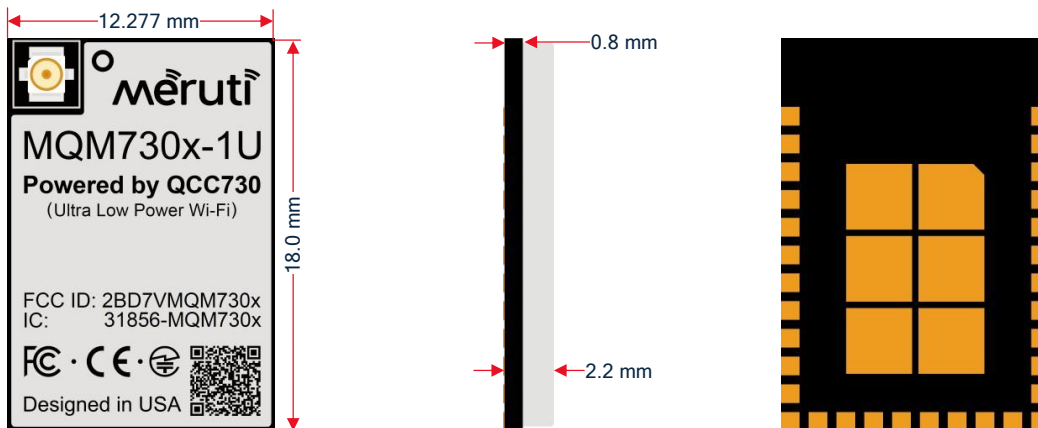


Figure 6: MQM730x-1U Module View

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

### 1.3 MQM730-1 Development Kit

The MQM730-1 specific development kit to cover both internal PA module (MQM730i-1) and external PA module (MQM45x-1) is provided to facilitate application software development as shown below:

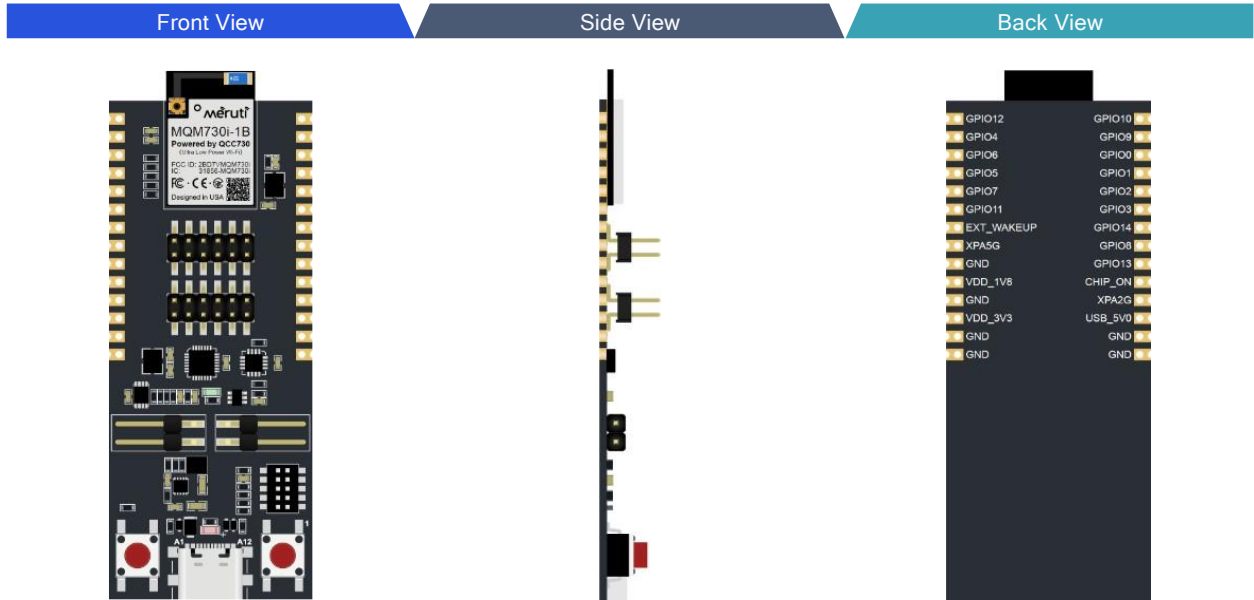


Figure 7: MQM730-1 Module Development Kit

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 2 Hardware Specification

This section provides detailed hardware design and specification of MQM730-1. MQM730-1 hardware design has been optimized for small footprint and reduced RBOM cost.

### 2.1 Block Diagram

MQM730-1 integrates 2/4/8MB 2x3 8-USON NOR flash as stuffing options. The design also supports PCB antenna (MQM730-1B) or simply provides antenna pin (MQM730-1U) to allow customized antenna implementation on motherboard.

MQM730-1 with internal PA (MQM730i-1) block diagram is shown below:

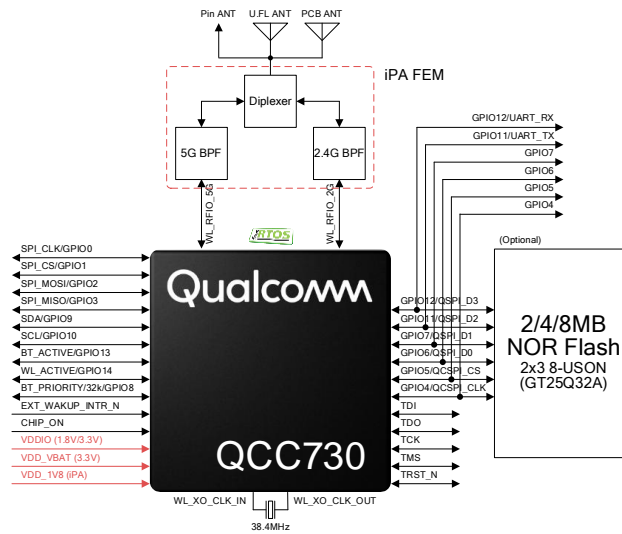


Figure 8: MQM730i-1 Module Block Diagram

QCC730 module with external PA (MQM730x-1) block diagram is shown below.

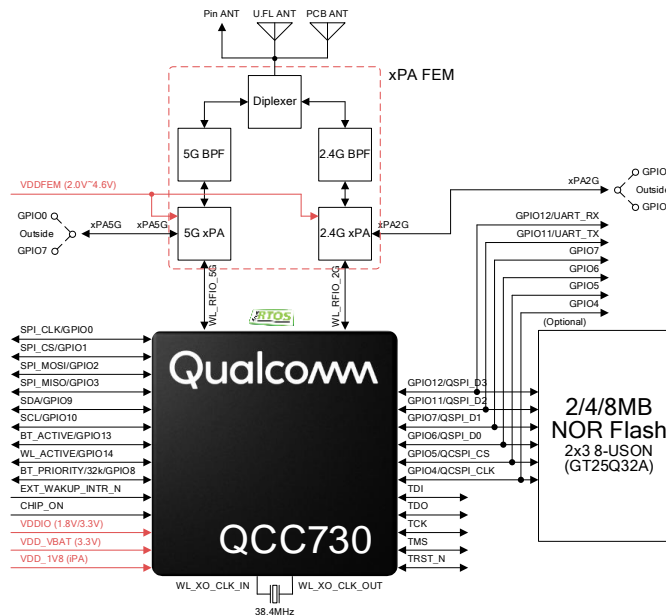


Figure 9: MQM730x-1 Module Block Diagram



Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 2.2 Pinout Description

In order to maintain pin compatible to allow easy drop replacement, All MQM730-1 shares the same pin map as illustrated below. MQM730x-1 will have Pin 4 as VDD\_FEM to allow power supply for external power amplifier as well as Pin 2 for xPA2G (2.4GHz external PA) and Pin 3 for xPA5G (5GHz external PA) control.

### 2.2.1 Pin Map

MQM703-1 internal PA and external PA module pin map is listed below. Since pin antenna and U.FL antenna share the same pin definition, they are grouped together.



Figure 10: MQM730i-1 Module Pin Map

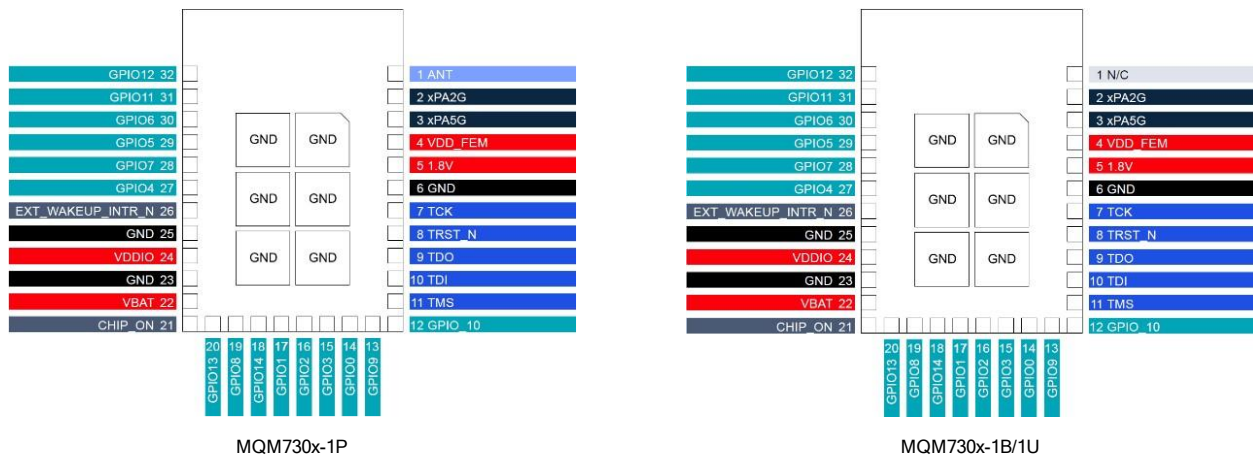


Figure 11: MQM730x-1 Module Pin Map

### 2.2.2 Pin Definition

Pin definition is listed in the table below:

Pin	Pin Name	Type	Power Domain	Description
24	VBAT	PWR	-	Power input (1.8~3.6V)
22	VDDIO	PWR	-	Host I/O voltage input 1.8V or 3.3V
5	1V8	PWR	-	Internal PA power input

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet	V2.0	Public	Release		Mar 31, 2024

4	VDD_FEM	PWR	-	External PA power input
1	ANT or N/C	AI/AO	-	Pin antenna (1U) or N/C (1B/1U)
2	xPA2G	DI	VDDIO	2.4GHz xPA control
3	xPA5G	DI	VDDIO	5GHz xPA control
6,23,25	GND	GND	GND	Ground
26	EXT_WAKEUP	DI	-	External interrupt input
21	CHIP_ON	DI	-	Chip power on
7	TRST_N	DI	-	JTAG
8	TCK	DI	-	JTAG
9	TDO	DO	-	JTAG
10	TMS	DI	-	JTAG
11	TDI	DI	-	JTAG
14	GPIO0	DI/DO	VDDIO	Generic PIO
15	GPIO1	DI/DO	VDDIO	Generic PIO
16	GPIO2	DI/DO	VDDIO	Generic PIO
17	GPIO3	DI/DO	VDDIO	Generic PIO
31	GPIO4	DI/DO	VDDIO	Generic PIO
29	GPIO5	DI/DO	VDDIO	Generic PIO
30	GPIO6	DI/DO	VDDIO	Generic PIO
28	GPIO7	DI/DO	VDDIO	Generic PIO
19	GPIO8	DI/DO	VDDIO	Generic PIO
13	GPIO9	DI/DO	VDDIO	Generic PIO
12	GPIO10	DI/DO	VDDIO	Generic PIO
27	GPIO11	DI/DO	VDDIO	Generic PIO
32	GPIO12	DI/DO	VDDIO	Generic PIO
20	GPIO13	DI/DO	VDDIO	Generic PIO
18	GPIO14	DI/DO	VDDIO	Generic PIO

### 2.2.3 External Power Amplifier Pin Control

xPA2G can be controlled by GPIO0 and GPIO2 while xPA5G can be controlled by GPIO6 and GPIO7. The configuration table is shown as below:

xPA2G	xPA5G	Description
GPIO2	GPIO0	No SPI interface
GPIO6	GPIO7	No QSPI (NOR Flash) support

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

### 2.2.4 I/O Pin Mux Table

GPIO	QSPI	SPI	I2C	UART	BT	PTA	xPA	FEM	Switch ANT	32k Oscillator
GPIO0		SPI_CLK					xPA5G			
GPIO1		SPI_CS		UART_RX				FEM_ENB5G	ANT_SWITCH_STATUS	
GPIO2		SPI_MOSI					xPA2G			
GPIO3		SPI_MISO		UART_TX				FEM_ENB2G		
GPIO4	QSPI_CLK							FEM_ENB2G	ANT_SWITCH_CTRL	
GPIO5 (AON)	QSPI_CS							FEM_ENB5G	ANT_SWITCH_STATUS	
GPIO6	QSPI_D0						xPA2G			
GPIO7	QSPI_D1						xPA5G			
GPIO8						BT_PRIORITY			ANT_SWITCH_CTRL	32k_IN
GPIO9 (AON)			SDA	UART_TX						
GPIO10			SCL	UART_RX						
GPIO11	QSPI_D2			UART_TX						
GPIO12	QSPI_D3			UART_RX						
GPIO13				UART_TX	WSI_CLK_BT	BT_ACTIVE				
GPIO14				UART_RX	WSI_DATA_BT	WL_ACTIVE				

## 2.3 Computing Subsystem

MQM730-1 have Qualcomm QCC730 at his core which integrates Arm Cortex-M3 @60MHz, 1.5MB RRAM and 640KB SRAM as well as on-module NOR flash with size up to 32MB. The code can be executed from flash via Execution-in-Place (XiP).

The computing subsystem software architecture is shown below:

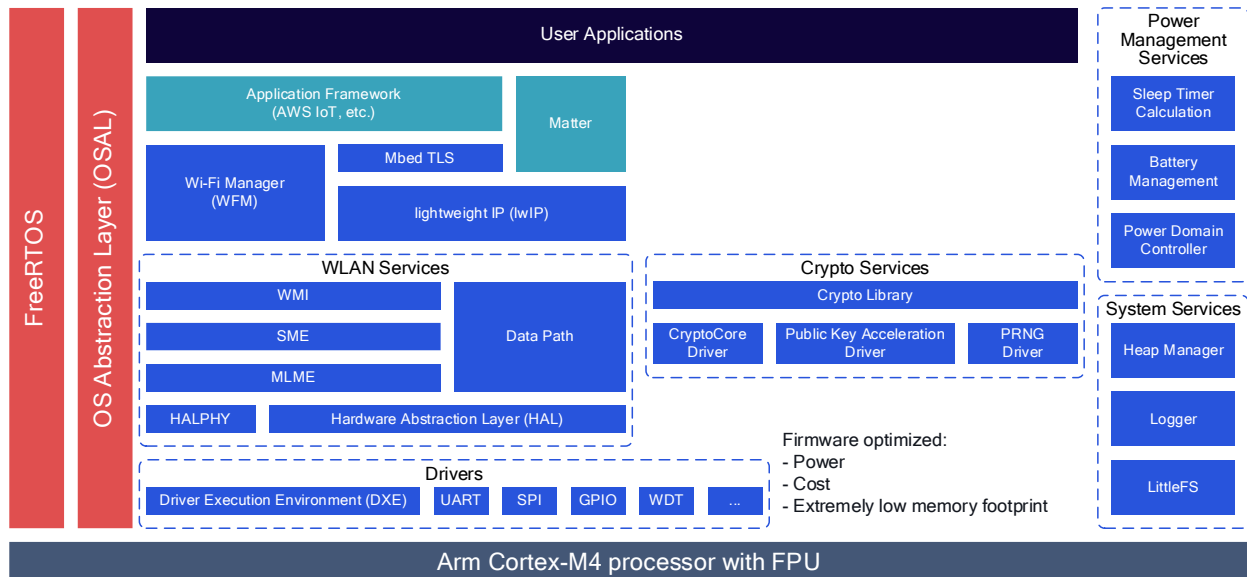


Figure 12: Computing Subsystem Software Architecture

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

Software SDK will be open sourced at GitHub with blocks in dot line will be offered in binary format inside software SDK package.

GitHub Download Link: *To be provided later*

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 3 Electrical Characteristics

### 3.1 Absolute Maximum Ratings

The absolute maximum ratings provided in this section reflect the stress levels that, if exceeded, may cause permanent damage to the device. No functionality is guaranteed outside the operating specifications. Functionality and reliability are only guaranteed within the operating.

Pin	Parameter	Min	Max	Unit
VBATT	Power input voltage	-0.3	4.0	V
1V8	Internal PA voltage	-0.3	1.98	V
VDDIO	I/O port voltage	-	VDD+0.03	V
VDD_FEM	External PA voltage	2.0	4.6	V
Tstore	Storage temperature	-55	150	°C

### 3.2 Recommended Operating Conditions

Pin	Parameter	Min	TYP	Max	Unit
VBATT	Power input voltage	-	3.3	-	V
1V8	Internal PA voltage	1.71	1.8	1.89	V
VDDIO 1.8V	I/O port voltage	1.71	1.8	1.89	V
VDDIO 3.3V	I/O port voltage	-0.3	-	VDD+0.3	V
VDD_FEM	External PA voltage	2.0	3.3	4.6	V

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 4 Radio Performance

The radio performance for both max transmit power and receive sensitivity on both 2.4GHz and 5GHz band is listed in the table below:

### 4.1.1 2.4GHz Active Power Consumption

Standard	Channel BW	PHY	Modulation	MCS Index	Data Rate (Mbps)	Max Tx Power (dBm)		Rx Sensitivity (dBm)	
						iPA	xPA	iPA	xPA
802.11b	22MHz	CCK (DSSS)	DBPSK	-	1				
		CCK (DSSS)	DQPSK	-	2				
		CCK (DSSS)	B/DQPSK	-	5.5				
		CCK (DSSS)	Q/DQPSK	-	11				
802.11g	20MHz	OFDM	BPSK	-	6				
		OFDM	BPSK	-	9				
		OFDM	QPSK	-	12				
		OFDM	QPSK	-	18				
		OFDM	16QAM	-	24				
		OFDM	16QAM	-	36	Not Supported			
		OFDM	64QAM	-	48	Not Supported			
		OFDM	64QAM	-	54	Not Supported			
802.11n	20MHz (HT20)	OFDM	BPSK	MCS0	7.2				
		OFDM	QPSK	MCS1	14.4				
		OFDM	QPSK	MCS2	21.7				
		OFDM	16QAM	MCS3	28.9				
		OFDM	16QAM	MCS4	43.3	Not Supported			
		OFDM	64QAM	MCS5	57.8	Not Supported			
		OFDM	64QAM	MCS6	65	Not Supported			
		OFDM	64QAM	MCS7	72.2	Not Supported			

### 4.1.2 5GHz Active Power Consumption

Standard	Channel BW	PHY	Modulation	MCS Index	Data Rate (Mbps)	Max Tx Power (dBm)		Rx Sensitivity (dBm)	
						iPA	xPA	iPA	xPA
802.11a	20MHz	OFDM	BPSK	-	6				
		OFDM	BPSK	-	9				
		OFDM	QPSK	-	12				
		OFDM	QPSK	-	18				
		OFDM	16QAM	-	24				

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet	V2.0	Public	Release		Mar 31, 2024

		OFDM	16QAM	-	36	Not Supported			
		OFDM	64QAM	-	48	Not Supported			
		OFDM	64QAM	-	54	Not Supported			
802.11n	20MHz (HT20)	OFDM	BPSK	MCS0	7.2				
		OFDM	QPSK	MCS1	14.4				
		OFDM	QPSK	MCS2	21.7				
		OFDM	16QAM	MCS3	28.9				
		OFDM	16QAM	MCS4	43.3	Not Supported			
		OFDM	64QAM	MCS5	57.8	Not Supported			
		OFDM	64QAM	MCS6	65	Not Supported			
		OFDM	64QAM	MCS7	72.2	Not Supported			

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 5 Data Rate

Since MQM730-1 can support up to MCS3 on 802.11n. The max data rate at UDP/TCP level is listed below:

PAMPDU	Protocol	Rate	MCS Index	Traffic	Throughput	KPI %
No	UDP	28.9 Mbps	MCS3	DL	16.63 Mbps	92.39%
	UDP	28.9 Mbps	MCS3	UL	17.72 Mbps	98.44%
	TCP	28.9 Mbps	MCS3	DL	13.97 Mbps	93.13%
	TCP	28.9 Mbps	MCS3	UL	14.03 Mbps	93.54%
Yes	UDP	28.9 Mbps	MCS3	DL	23.5 Mbps	98.54%
	UDP	28.9 Mbps	MCS3	UL	22.58 Mbps	94.08%
	TCP	28.9 Mbps	MCS3	DL	16.02 Mbps	94.24%
	TCP	28.9 Mbps	MCS3	UL	16.17 Mbps	95.12%



Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 6 Power Consumption

MQM730-1 can operate in four power states as shown in the table below:

Power Mode	CPU	MEM	RTC	Wakeup Source	Description	Use Case
Active	On	On	On	N/A	Normal operation	Awake
Sleep	Off	Retained	Off	DTIM timer	<ul style="list-style-type: none"> <li>Enter When RTOS is idle, and WLAN is connected*</li> <li>Maintain WLAN connection</li> <li>When awake, continue to run from sleep point</li> </ul>	WLAN DTIM
Deep Sleep	Off	Off	Off	RTC timer or EXT_WAKEUP_INTR_N	<ul style="list-style-type: none"> <li>Enter when RTOS is idle, and WLAN is disconnected*</li> <li>Nothing maintained</li> <li>When awake, restart from PBL</li> </ul>	Alarm or Shutdown
Indefinite Sleep	Off	Off	Off	EXT_WAKEUP_INTR_N	Same as Deep Sleep, except not waked up by RTC timer	Shutdown

Note: Actual entering condition is complicated, such as considering sleep interval

### 6.1 Active Power

The active power consumption for both continuous transmitting and receiving on both 2.4GHz and 5GHz band is listed in the table below:

#### 6.1.1 2.4GHz Active Power Consumption

Standard	Channel BW	PHY	Modulation	MCS Index	Data Rate (Mbps)	Continuous Transmit (mW)		Continuous Receive (mW)	
						iPA	xPA	iPA	xPA
802.11b	22MHz	CCK (DSSS)	DBPSK	-	1				
		CCK (DSSS)	DQPSK	-	2				
		CCK (DSSS)	B/DQPSK	-	5.5				
		CCK (DSSS)	Q/DQPSK	-	11				
802.11g	20MHz	OFDM	BPSK	-	6				
		OFDM	BPSK	-	9				
		OFDM	QPSK	-	12				
		OFDM	QPSK	-	18				
		OFDM	16QAM	-	24				
		OFDM	16QAM	-	36	Not Supported			
		OFDM	64QAM	-	48	Not Supported			
		OFDM	64QAM	-	54	Not Supported			
802.11n	20MHz (HT20)	OFDM	BPSK	MCS0	7.2				
		OFDM	QPSK	MCS1	14.4				
		OFDM	QPSK	MCS2	21.7				

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet	V2.0	Public	Release		Mar 31, 2024

	OFDM	16QAM	MCS3	28.9				
	OFDM	16QAM	MCS4	43.3	Not Supported			
	OFDM	64QAM	MCS5	57.8	Not Supported			
	OFDM	64QAM	MCS6	65	Not Supported			
	OFDM	64QAM	MCS7	72.2	Not Supported			

Note: Vbatt = 3.0V

### 6.1.2 5GHz Active Power Consumption

Standard	Channel BW	PHY	Modulation	MCS Index	Data Rate (Mbps)	Continuous Transmit (mW)		Continuous Receive (mW)	
						iPA	xPA	iPA	xPA
802.11a	20MHz	OFDM	BPSK	-	6				
		OFDM	BPSK	-	9				
		OFDM	QPSK	-	12				
		OFDM	QPSK	-	18				
		OFDM	16QAM	-	24				
		OFDM	16QAM	-	36	Not Supported			
		OFDM	64QAM	-	48	Not Supported			
		OFDM	64QAM	-	54	Not Supported			
802.11n	20MHz (HT20)	OFDM	BPSK	MCS0	7.2				
		OFDM	QPSK	MCS1	14.4				
		OFDM	QPSK	MCS2	21.7				
		OFDM	16QAM	MCS3	28.9				
		OFDM	16QAM	MCS4	43.3	Not Supported			
		OFDM	64QAM	MCS5	57.8	Not Supported			
		OFDM	64QAM	MCS6	65	Not Supported			
		OFDM	64QAM	MCS7	72.2	Not Supported			

Note: Vbatt = 3.0V

## 6.2 Sleep Power

Power Mode	CPU	Internal Power Amplifier		External Power Amplifier		Unit
		2.4GHz	5GHz	2.4GHz	5GHz	
Standby	Power Down					μA
	Deep Sleep					μA
	Listen					μA
	DTIM sleep (128KB RAM Retention)					μA

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

	DTIM sleep (650KB RAM Retention)					$\mu\text{A}$
DTIM	DTIM 1					$\mu\text{A}$
	DTIM 3					$\mu\text{A}$
	DTIM 5					$\mu\text{A}$
	DTIM 10					$\mu\text{A}$
	DTIM 100					$\mu\text{A}$

Note: Vbatt = 3.3V

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 7 Mechanical Specification

### 7.1 Internal Power Amplifier Module (MQM730i-1)

#### 7.1.1 Dimension

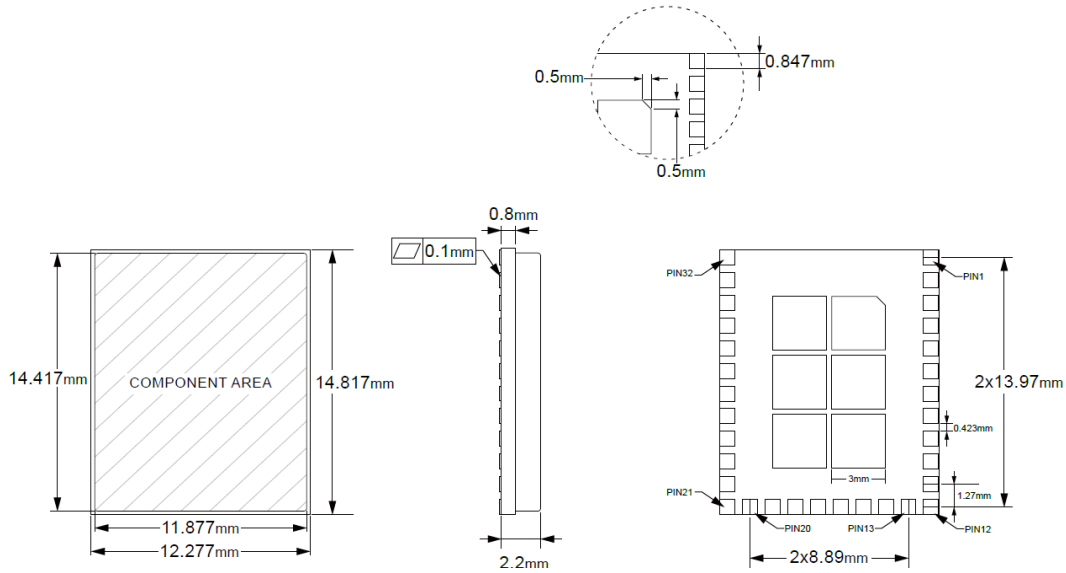


Figure 13: MQM730i-1P Module Dimension

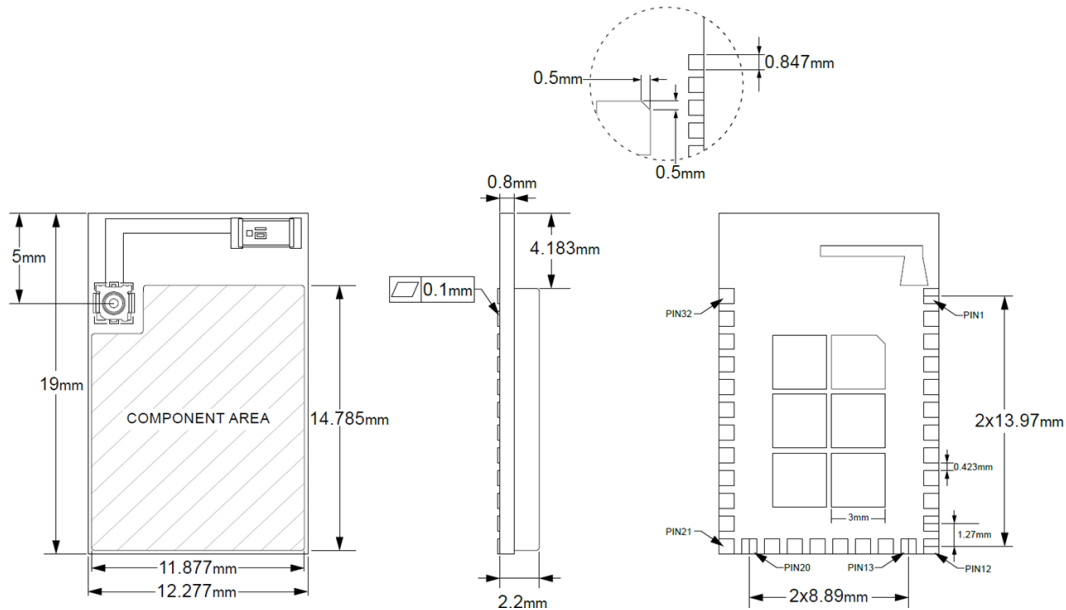


Figure 14: MQM730i-1B Module Dimension

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

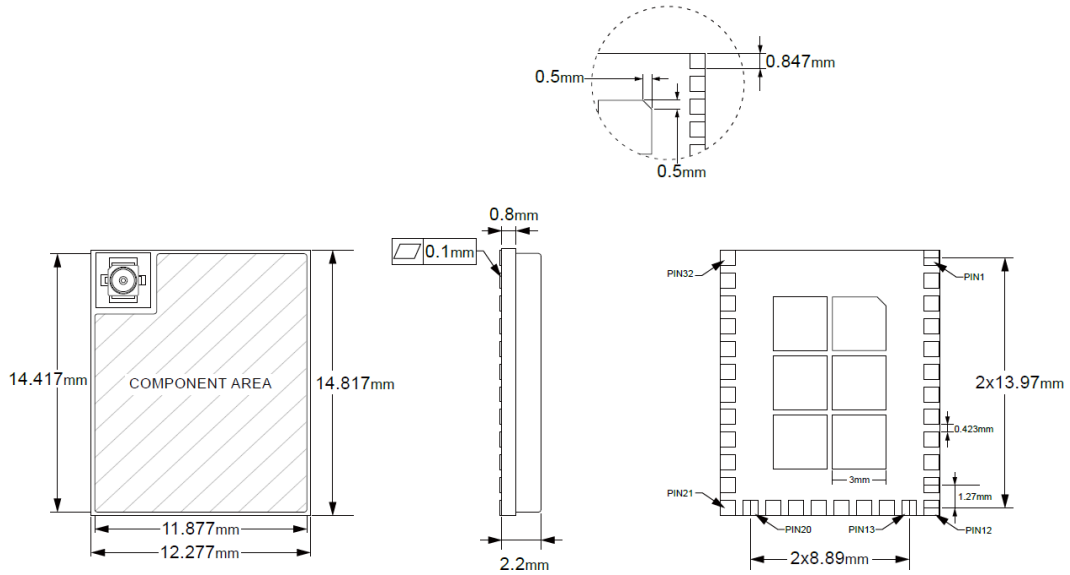


Figure 15: MQM730i-1P/1U Module Dimension

### 7.1.2 Recommended PCB Landing Pattern

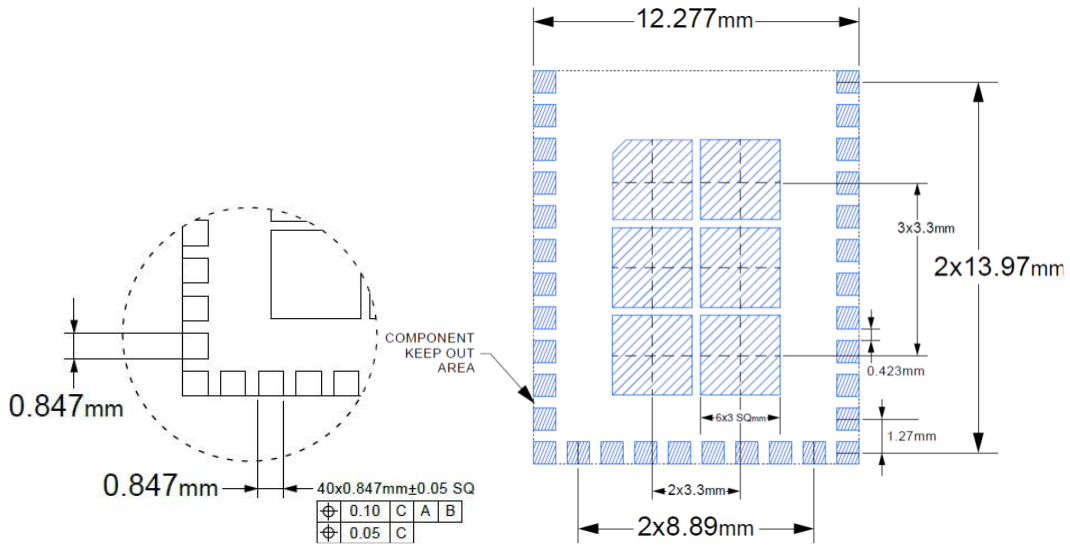


Figure 16: MQM730i-1P/1U Module PCB Landing Pattern

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

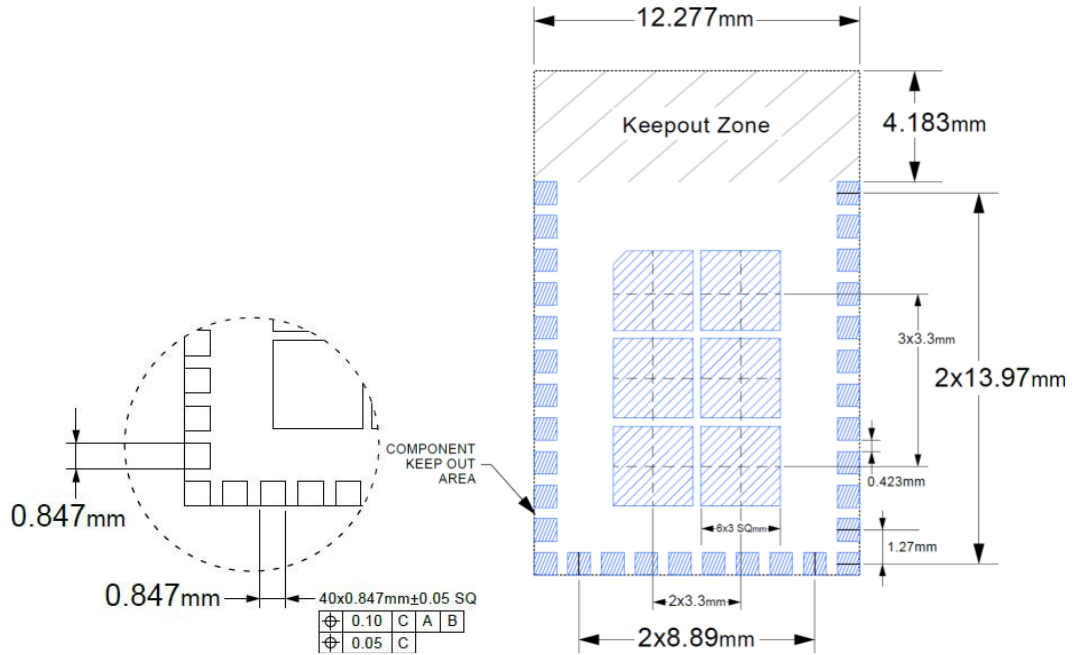


Figure 17: MQM730i-1B Module PCB Landing Pattern

## 7.2 External Power Amplifier Module (MQM730x-1)

### 7.2.1 Dimension

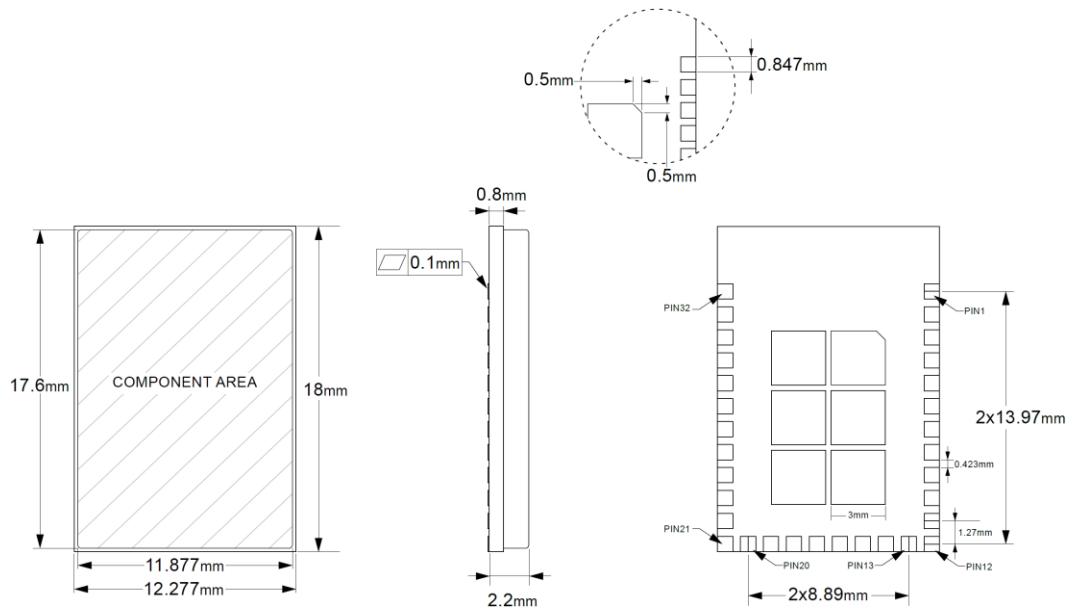


Figure 18: MQM730x-1P Dimension

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

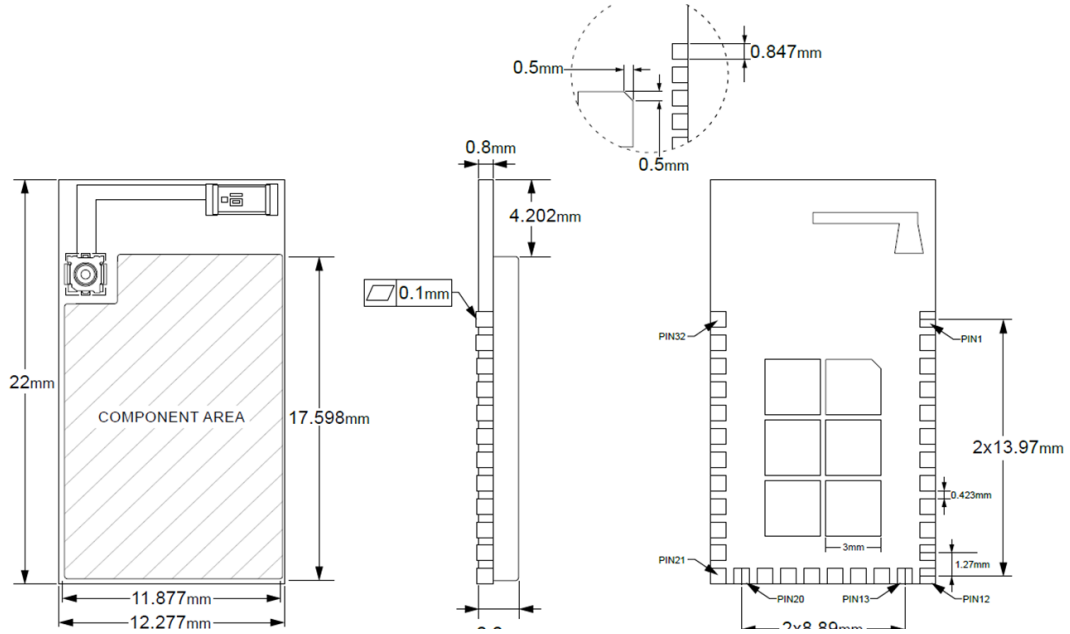


Figure 19: MQM730x-1B Dimension

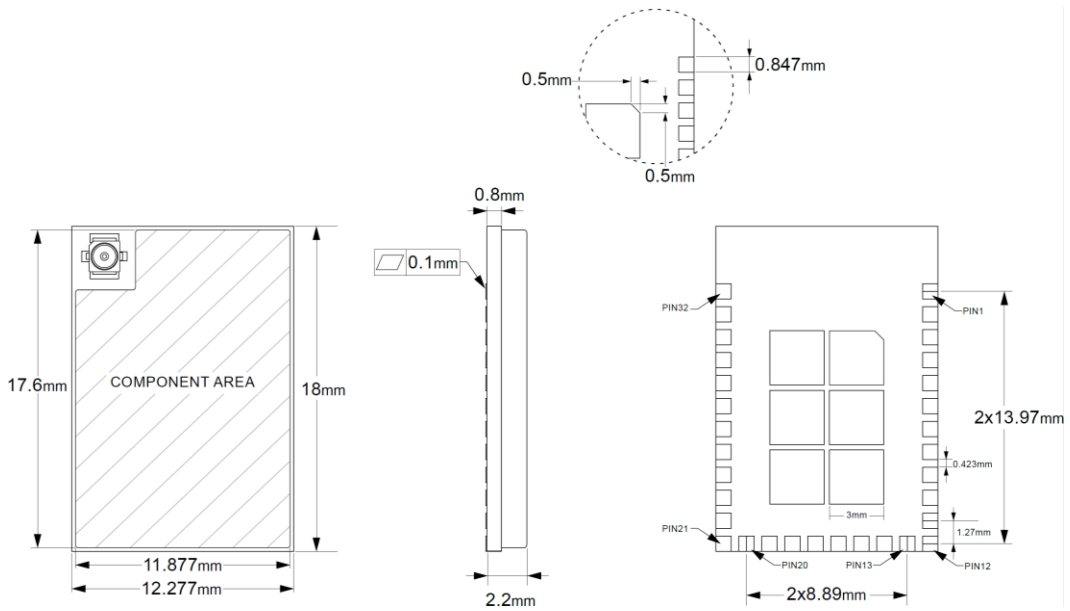


Figure 20: MQM730x-1U Dimension

### 7.2.2 Recommended PCB Landing Pattern

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

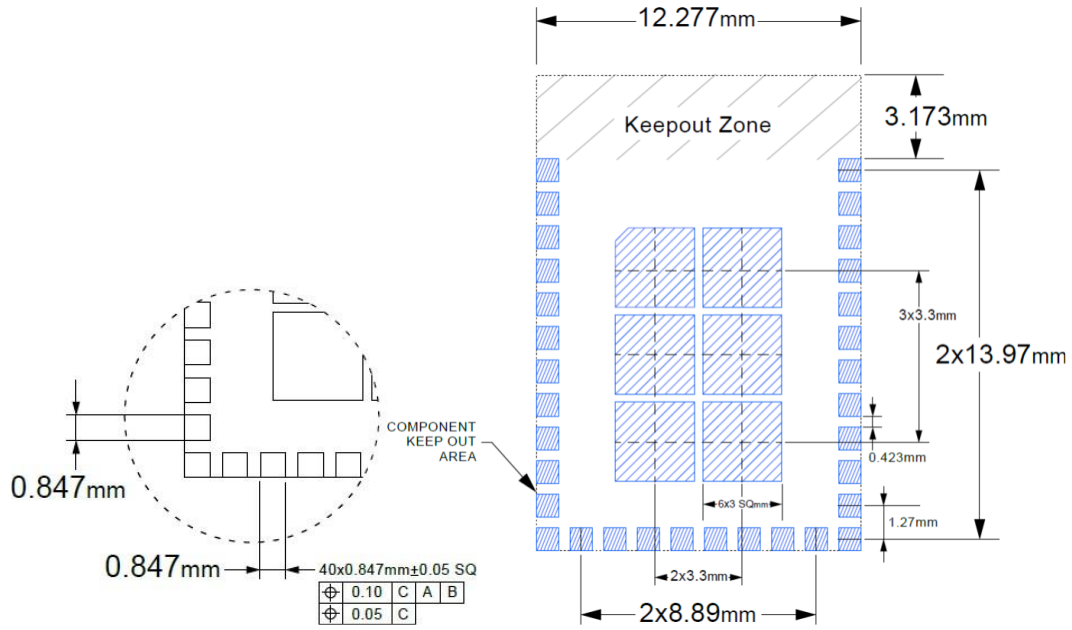


Figure 21: MQM730x-1P/1U PCB Landing Pattern

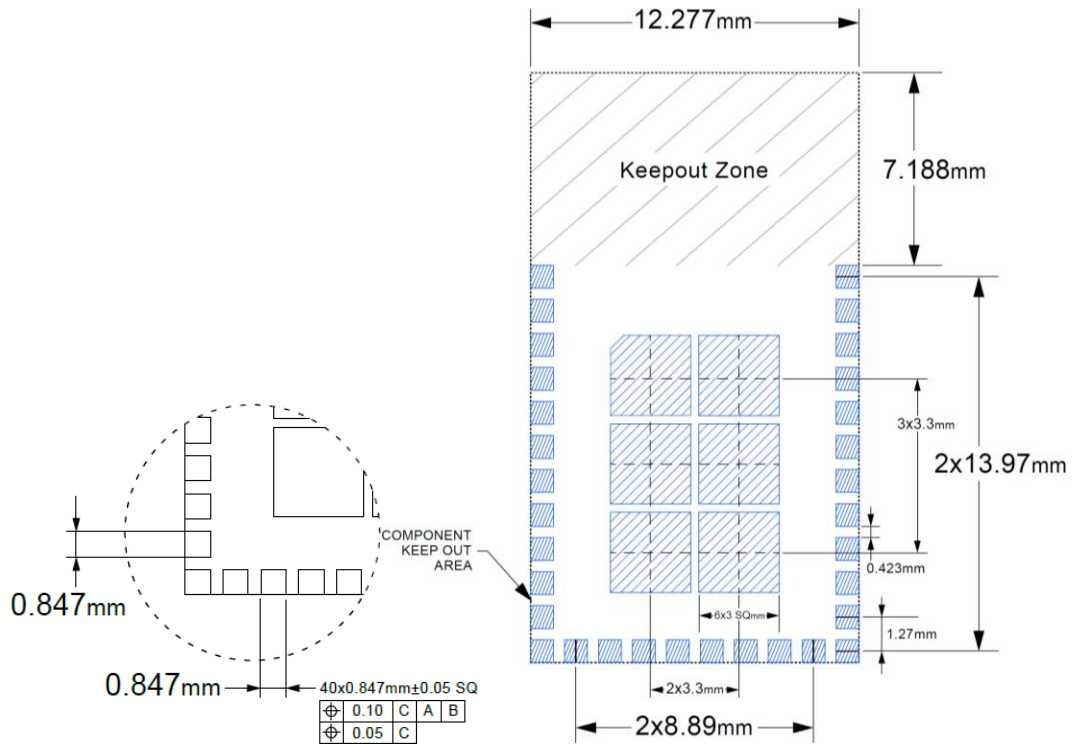


Figure 22: MQM730x-1B PCB Landing Pattern



Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 8 Manufacturing Recommendation

### 8.1 Power Layout Guideline

MQM730-1 is powered by either 3V battery or DC 3.3V. Power pin connection capacitor is as close as possible to chip and pin. Decoupling the power supply from the chip using a capacitor. Use capacitors to prevent noise from coupling back to the power plane.

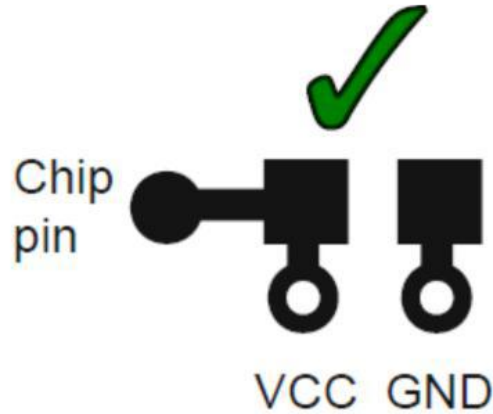


Figure 23: Power Layout Guideline

### 8.2 RF Layout Guideline

To optimize antenna performance, place the module in the corner of the PCB as shown below. Do not cover copper and trace the antenna clearance area. Keep the antenna area as far away as possible from the power supply and metal components. Connect all GND pins directly to a solid GND plane. Place GND vias as close as possible to the GND pin. Use a good layout method to avoid excessive noise coupling with signal lines or supply voltage lines.

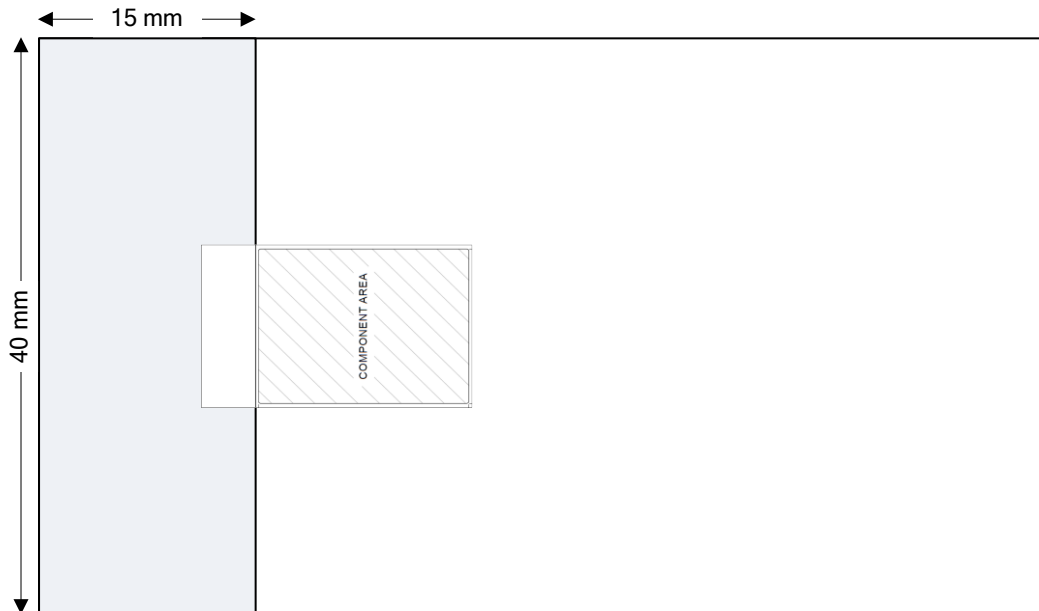


Figure 24: RF Layout Guideline

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

### 8.3 Soldering Recommendations

MQM730-1 can be SMT on the board following the temperature curve graph:

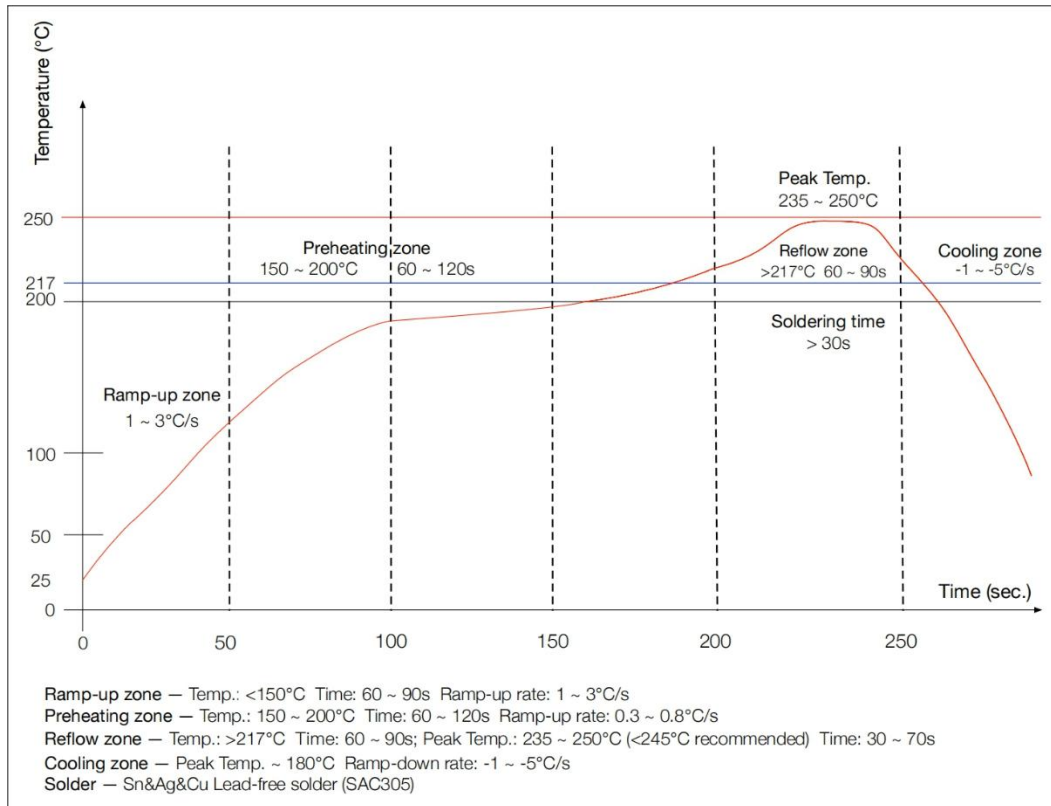


Figure 25: Soldering Guideline

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 9 Packaging

MQM730-1 are packaged on reels loaded with 1000 modules. Each reel is placed in an antistatic bag with a desiccant pack and a humidity card and placed in an 36x25x12cm box. Anti-static warnings and labels adhere to the outside of the bag.

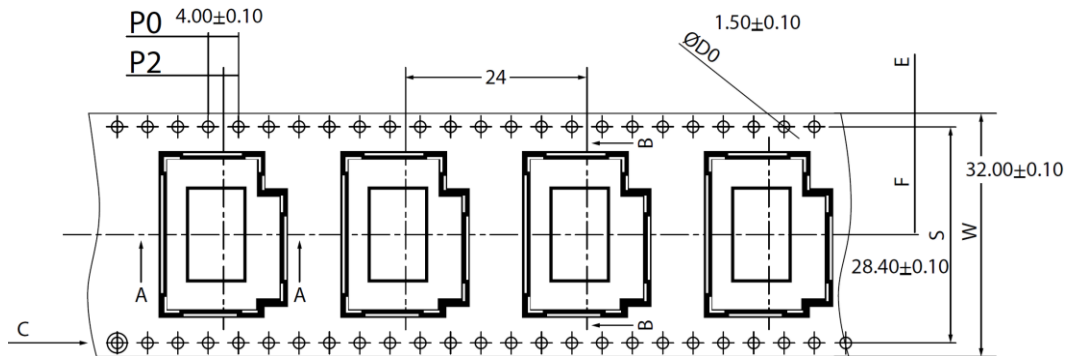


Figure 26: Module Packaging

### Warning

The MeshConnect Modules contain highly sensitive electronic circuitry. Handling without proper ESD protection may destroy or damage the module permanently.

### Warning

The MeshConnect Modules are moisture-sensitive devices. Appropriate handling instructions and precautions are summarized in J-STD-033. Read carefully to prevent permanent damage due to moisture intake.

### Moisture Sensitivity Level (MSL)

MQM100-1 is qualified to moisture sensitivity (MSL3) in accordance with JEDEC J-STD-020

### Storage

Storage/shelf life in sealed bags is 12 months at <40°C and <90% relative humidity. 12.2 Packing Label

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 10 Regulatory Compliance

Country	Certification	No
USA	FCC 15C	Coming soon
Europe Union	CE	Coming soon
Canada	IC	Coming soon
Japan	MIC	Coming soon
Korea	KC	Coming soon
Australia	RCM	Coming soon
United Kingdom	UKCA	Coming soon
China	SRRC	Coming soon

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## 11 Order Information

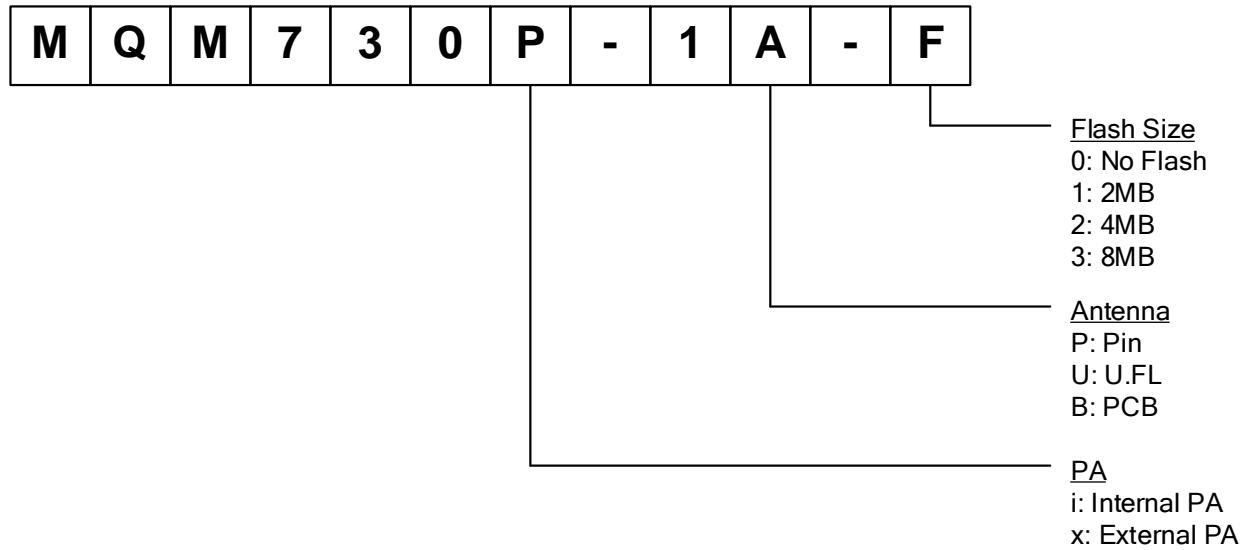


Figure 27: Order Number

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## Revision History

Revision	Description	Date
0.1	Initial draft	January 5, 2024
0.2	Changed module model name to MQM730-1	January 20, 2024
2.0	Re-designed to optimize RF performance	March 31, 2024

Documentation Title	Documentation No	Revision	Classification	Status	Date
Qualcomm QCC730 Module Data Sheet		V2.0	Public	Release	Mar 31, 2024

## Disclaimer and Copyright Notice

Information in this document, including URL references, is subject to change without notice. Please visit [www.meruti.io/](http://www.meruti.io/) for the latest information.

THIS CODUMENT IS PROVIDED AS IS WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY WARRANTY OTHERWISE ARISING OUT OF ANY PROPOSAL, SPECIFICATION OR SAMPLE.

All liability, including liability for infringement of any proprietary rights, relating to the use of information in this document, is disclaimed. No licenses express or implied, by estoppel or otherwise, to any intellectual property rights are granted herein.

The Wi-Fi Alliance Member logo is a trademark of the Wi-Fi Alliance. The Bluetooth logo is a registered trademark of Bluetooth SIG. All trade names, trademarks and registered trademarks mentioned in this document are property of their respective owners and are hereby acknowledged.

Copyright©2024 Meruti Design, Inc. All rights reserved.