

APPROVAL SHEET

QCC744M LGA Module

Halogens Free Product

P/N: RFIQM0744010NB001

Customer : _____
Customer 's Part No. : _____
Approval No. : _____
Issue Date : _____

*Contents in this sheet are subject to change without prior notice.

品名：RFIQM0744010NB001

History List

[illegible]

Device description

Powered by Qualcomm all-in-one 1x1 2.4 GHz Wi-Fi 6/ Bluetooth/802.15.4 combo all-in-one SoC QCC744, Qualcomm QCC744M LGA module is purposely designed to pack processing capabilities, Wi-Fi/Bluetooth/802.15.4 combo connectivity, and on-module memory into a single 46-pin LGA form factor.

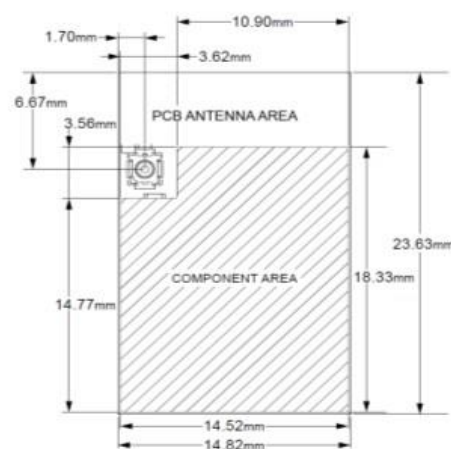
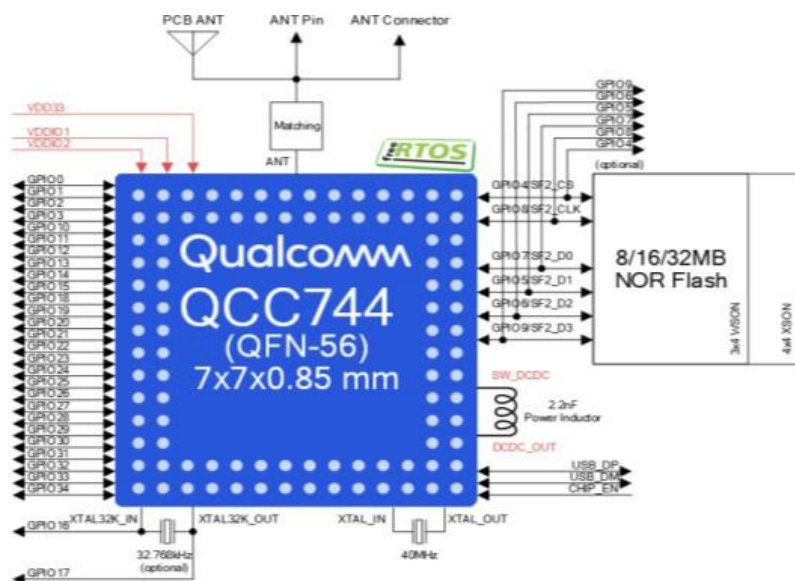
Key features

Pin compatible designs

QCC744M LGA module PCB antenna: 14.82 x 23.63 x 2.2 mm, 1.27 mm pitch, 46-pin, 4-side LGA (4-layer PCB)

UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A X.X=N/A X.XX=N/A ANGLES=N/A HOLEDIA=N/A			INPAQ TECHNOLOGY CO., LTD.		
SCALE : N/A	UNIT : mm				
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION			
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮				
TITLE : RFIQM0744010NB001		DOCUMENT NO.	ENS070033840-000803723857		SPEC REV. A0

QCC744M block diagram and package outline drawings

QCC744M LGA Module
PCB Antenna

GPIO Count	RTC	External Flash	8MB SiP Flash
27	Yes	Yes	No
33	Yes	No	Yes
29	No	Yes	No
35	No	No	Yes

UNLESS OTHER SPECIFIED TOLERANCES ON :
X=N/A X.X=N/A X.XX=N/A
ANGLES=N/A HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF
INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED
OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF
APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

Contents

1	INTRODUCTION	6
1.1	Product overview	6
1.2	QCC744M functional block diagram.....	7
1.3	QCC744M features.....	8
2	PIN DEFINITIONS	10
2.1	I/O parameter definitions	10
2.2	Pin assignments	10
2.2.1	Pin map.....	11
2.3	Pin definition	12
2.4	GPIO pin mux table	14
3	ELECTRICAL SPECIFICATIONS.....	16
3.1	Absolute maximum ratings	16
3.2	Operating conditions	16
3.3	Radio performance	16
3.3.1	802.11b/g/n/ax	17
3.3.2	Bluetooth.....	18
3.3.3	802.15.4	18
3.4	Power consumption.....	19
4	ANTENNA ELECTRICAL SPECIFICATIONS	20
4.1	Measurement Information	20
4.1.1	Experimental Setup	20
4.1.2	Antenna Solution Detail	21
4.2	Antenna Characteristics: Passive and Active	21
4.2.1	VSWR.....	21
4.2.2	Antenna Efficiency and Peak Gain	22
4.2.3	3D Pattern & 3 views of antenna & 2D Radiation Patterns	23
5	MECHANICAL INFORMATION.....	24
5.1	Device physical dimensions	24
5.1.1	QCC744M LGA module PCB antenna	24
5.2	Part marking	26
5.3	Device ordering information.....	26
6	CARRIER, STORAGE, AND HANDLING INFORMATION	27
7	MANUFACTURING GUIDELINES.....	28
7.1	Power layout guideline	28
7.2	RF layout guideline	29
7.3	Soldering guideline	30
8	PART RELIABILITY	31
	REVISION HISTORY	32

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF
INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED
OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF
APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

1 Introduction

1.1 Product overview

Powered by Qualcomm high performance 1x1 2.4 GHz Wi-Fi 6/Bluetooth 5.3/802.15.4 combo all-in-one SoC QCC744, Qualcomm QCC744M LGA module is purposely designed to pack processing capabilities, Wi-Fi/Bluetooth/

802.15.4 combo connectivity, and on-module memory into a single 46-pin LGA form factor.

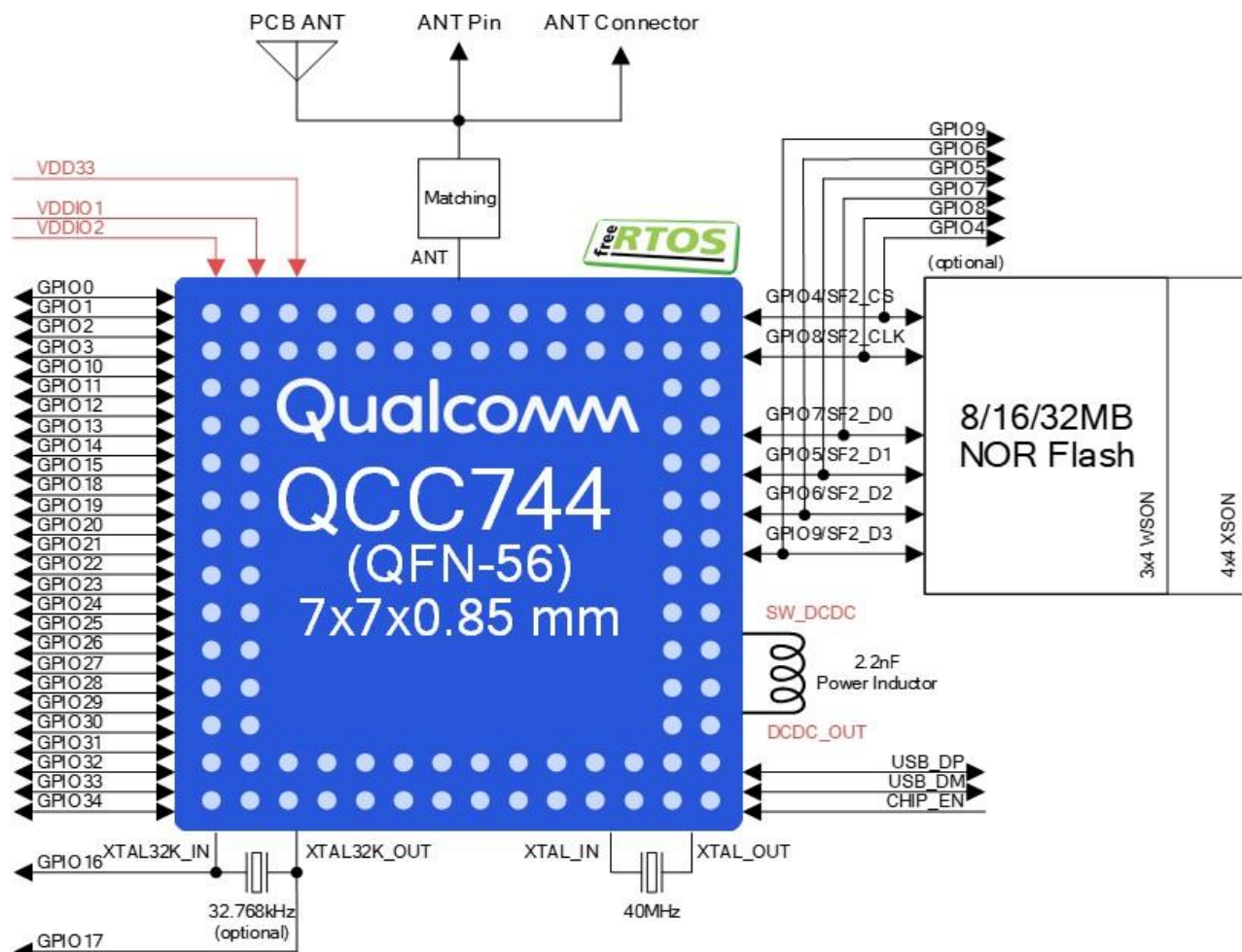
QCC744M has an integrated powerful 32-bit RISC-V processor with FPU and DSP running up to 325 MHz, on-chip 484 KB SRAM and 128 KB ROM, optional 4/8MB pSRAM, and 8/16MB flash System-in-Package (SiP), multimedia features such as audio and video codec and interfaces, and 35x multiplexed GPIO rich peripherals. Its all-in-one design and capability contribute to reduced costs and enhanced performance, making it an attractive choice for IoT edge devices requiring single chip solution.

QCC744M operates in hostless mode, capable of running both the protocol stack all the way to application level as well as IoT applications without requiring an external MCU. Built on FreeRTOS, its software SDK is open-sourced on codelinaro coupled with VS Code IDE market extension to facilitate rapid IoT application development. It can also be used as an IoT connectivity transceiver in hosted mode with an external host running all upper protocol stacks and applications.

UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A X.X=N/A X.XX=N/A ANGLES=N/A HOLEDIA=N/A			INPAQ TECHNOLOGY CO., LTD.		
SCALE : N/A	UNIT : mm				
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION			
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮				
TITLE : RFIQM0744010NB001		DOCUMENT NO.	ENS070033840-000803723857		SPEC REV
					A0

1.2 QCC744M functional block diagram

QCC744M integrates 8/16/32MB 3x4 WSON NOR Flash and optional 32KHz RTC crystal. The design also supports PCB antenna or simply provides antenna pin to allow customized antenna implementation on the motherboard. The block diagram is shown below.



GPIO Count	RTC	External Flash	8MB SiP Flash
27	Yes	Yes	No
33	Yes	No	Yes
29	No	Yes	No
35	No	No	Yes

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

1.3 QCC744M features

Features	Capability
Microcontroller	32-bit RISC-V processor up to 325 MHz
On-chip Memory	484 KB SRAM 128 KB ROM 1/2/4 KB OTP 4 Kb eFuse
Security System	- Security System encryption engine - Secure services (boot, debug, OTA, OTFAD, and so on)
Standard	802.11b/g/n/ax - Bluetooth Classic/Low Energy 5.3 dual mode - IEEE 802.15.4
Wi-Fi	- Max Tx Power (HE40 and MCS9): +16 dBm - Rx Sensitivity (HE40 and MCS9): -67 dBm - Active Tx Power (HE40 and MCS9): TBD - Active Rx Power (HE40 and MCS9): TBD
802.15.4	- Max Tx Power: TBD - Rx Sensitivity: TBD
Bluetooth	- Max Tx Power - EDR (3Mbps): +8 dBm - EDR (2Mbps): +8 dBm - BR (1Mbps): +10 dBm - BLE (2Mbps): +10 dBm - BLE (1Mbps): +10 dBm - BLE Coded PHY (500 kbps): +10 dBm - BLE Coded PHY (125 kbps): +10 dBm - Active Tx Power: TBD - Rx Sensitivity - EDR (3Mbps): -90 dBm - EDR (2Mbps): -96 dBm - BR (1Mbps): -94 dBm - BLE (2Mbps): -97 dBm - BLE (1Mbps): -99 dBm - BLE Coded PHY (500 kbps): -102 dBm - BLE Coded PHY (125 kbps): -105 dBm - Active Rx Power: TBD

UNLESS OTHER SPECIFIED TOLERANCES ON :
X=N/A X.X=N/A X.XX=N/A
ANGLES=N/A HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

Features	Capability
Peripherals	35 configurable I/O: ▪ Serial Flash ▪ SD/MMC ▪ SDIO 2.0 ▪ QSPI ▪ SPI ▪ I2C ▪ UART
Voltage	▪ Input voltage: 2.97 V~3.63 V ▪ I/O voltage: 1.8 V/3.3 V
Environmental	▪ Temperature ▫ Operating: -40°C ~ 105°C ▫ Storage: -40°C ~ 85°C ▪ Humidity ▫ Relative: < 90% Non-condensing ▫ Storage: < 90% Non-condensing

UNLESS OTHER SPECIFIED TOLERANCES ON :
 X = N/A X.X = N/A X.XX = N/A
 ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF
 INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED
 OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF
 APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

2 Pin definitions

2.1 I/O parameter definitions

Table 2-1 I/O description (pin type) parameters

Symbol	Description
Pin attribute	
AI	Analog input (does not include pin circuitry)
AO	Analog output (does not include pin circuitry)
DI	Digital input (CMOS)
DO	Digital output (CMOS)

2.2 Pin assignments

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF
INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED
OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF
APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

2.2.1 Pin map

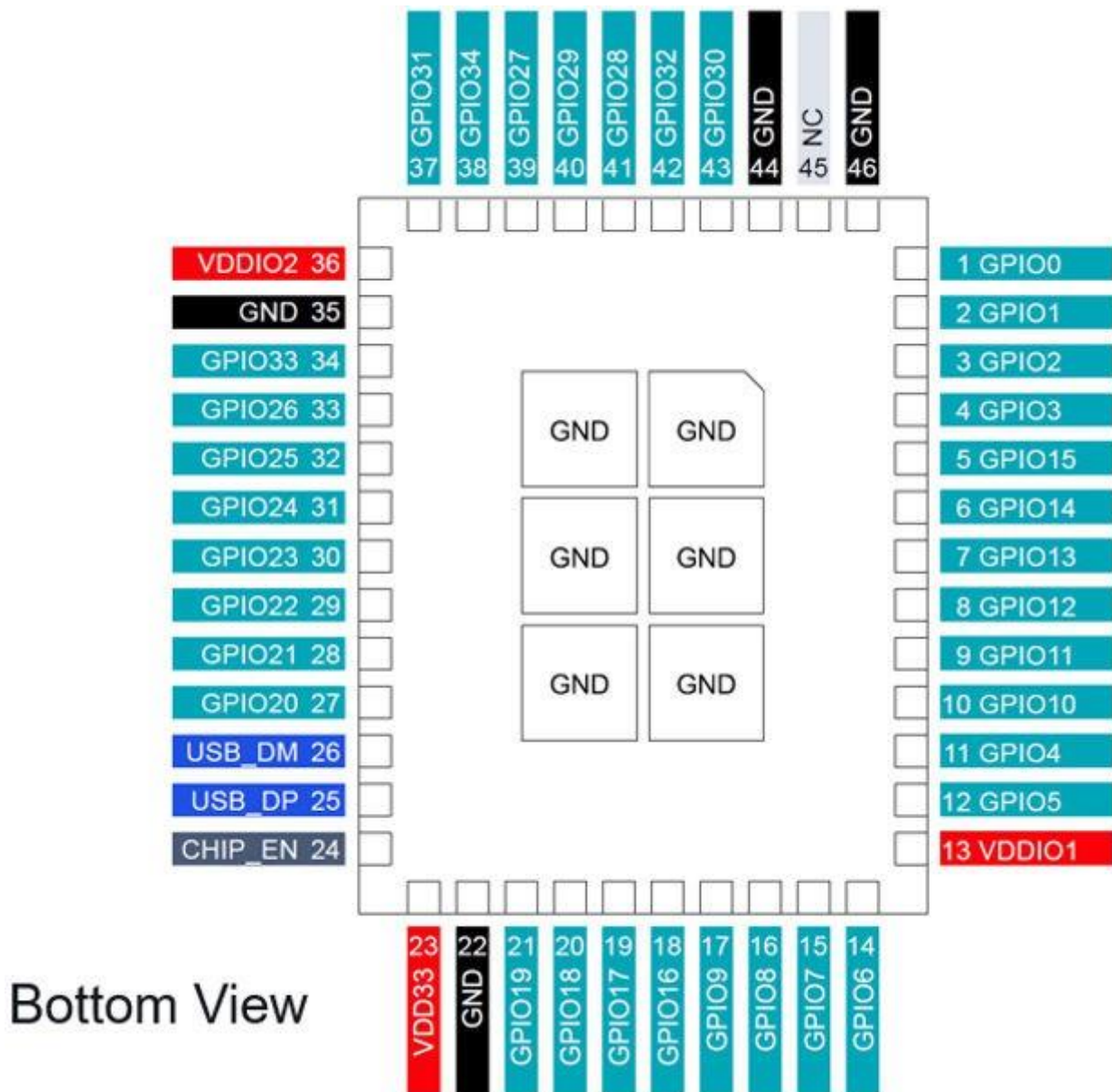


Figure 2-1QCC744M LGA module PCB antenna

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黄瑞郎

APPROVED BY : 陈振荣

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT NO.

ENS070033840-000803723857

SPEC REV.
A0

2.3 Pin definition

Pin	Pin Name	Type	Power Domain	Description
23	VDD33	PWR	—	Power input (2.97~3.63V)
13	VDDIO1	PWR	—	Host I/O voltage input GPIO0~15
36	VDDIO2	PWR	—	Host I/O voltage input GPIO20~34
22, 35, 44, 46	GND	GND	GND	Ground
45	ANT	AI/AO	—	Pin antenna for QCC744MLGA module antenna pin
	NC	—	—	NC for QCC744M LGA module antenna connector and QCC744M LGA module PCB antenna
25	USB_DP ^a	AI/AO	—	USB Data Plus
26	USB_DM ^b	AI/AO	—	USB Data Minus
24	CHIP_EN	DI	—	Chip power on
1	GPIO0	DI/DO	VDDIO1	General purpose I/O
2	GPIO1	DI/DO	VDDIO1	General purpose I/O
3	GPIO2	DI/DO	VDDIO1	General purpose I/O
4	GPIO3	DI/DO	VDDIO1	General purpose I/O
5	GPIO15	DI/DO	VDDIO1	General purpose I/O
6	GPIO14	DI/DO	VDDIO1	General purpose I/O
7	GPIO13	DI/DO	VDDIO1	General purpose I/O
8	GPIO12	DI/DO	VDDIO1	General purpose I/O
9	GPIO11	DI/DO	VDDIO1	General purpose I/O
10	GPIO10	DI/DO	VDDIO1	General purpose I/O
11	GPIO4	DI/DO	VDDIO1	General purpose I/O
12	GPIO5	DI/DO	VDDIO1	General purpose I/O
14	GPIO6	DI/DO	VDDIO1	General purpose I/O
15	GPIO7	DI/DO	VDDIO1	General purpose I/O
16	GPIO8	DI/DO	VDDIO1	General purpose I/O
17	GPIO9	DI/DO	VDDIO1	General purpose I/O
18	GPIO16	DI/DO	VDD33	General purpose I/O
19	GPIO17	DI/DO	VDD33	General purpose I/O
20	GPIO18	DI/DO	VDD33	General purpose I/O
21	GPIO19	DI/D O	VDD33	General purpose I/O
27	GPIO20	DI/D O	VDDIO2	General purpose I/O
28	GPIO21	DI/D O	VDDIO2	General purpose I/O

UNLESS OTHER SPECIFIED TOLERANCES ON :
X=N/A X.X=N/A X.XX=N/A
ANGLES=N/A HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

Pin	Pin Name	Type	Power Domain	Description
29	GPIO22	DI/DO	VDDIO2	General purpose I/O
30	GPIO23	DI/DO	VDDIO2	General purpose I/O
31	GPIO24	DI/DO	VDDIO2	General purpose I/O
32	GPIO25	DI/DO	VDDIO2	General purpose I/O
33	GPIO26	DI/DO	VDDIO2	General purpose I/O
34	GPIO33	DI/DO	VDDIO2	General purpose I/O
37	GPIO31	DI/DO	VDDIO2	General purpose I/O
38	GPIO34	DI/DO	VDDIO2	General purpose I/O
39	GPIO27	DI/DO	VDDIO2	General purpose I/O
40	GPIO29	DI/DO	VDDIO2	General purpose I/O
41	GPIO28	DI/DO	VDDIO2	General purpose I/O
42	GPIO32	DI/DO	VDDIO2	General purpose I/O
43	GPIO30	DI/DO	VDDIO2	General purpose I/O

^a USB_DP functionality will be supported in future chip-spin.

^b USB_DM functionality will be supported in future chip-spin.

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF
INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED
OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF
APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

ENS070033840-000803723857

SPEC REV.
A0

2.4 GPIO pin mux table

GPIO	QSPI	SDIO	SDH	SPI	I2C (0/1)	UART (0/1)	I2S	PWM	CAN	ADC	DAC	EMAC	DVP	DBI	JTAG
GPIO0	–	–	–	CS	SCL	RTS/CTS/TX/RX	BCLK	CH0P/CH0P	TX/RX	CH9	–	–	CAM1_VSYNC	–	TMS
GPIO1	–	–	–	CLK	SDA	RTS/CTS/TX/RX	FS	CH1P/CH0N	TX/RX	CH8	–	–	CAM1_HSYNC	–	TCK
GPIO2	–	–	–	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH1P	TX/RX	CH2	–	–	–	–	TDO
GPIO3	–	–	–	MOSI	SDA	RTS/CTS/TX/RX	DO	CH3P/CH1N	TX/RX	CH3	–	–	CAM1_DAT0	–	TDI
GPIO10	SCL	DAT2	DAT1	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH1P	TX/RX	CH7	–	–	CAM1_DAT1	B_DB2/ C_SDA0	TDO
GPIO11	CS	DAT3	DAT0	MOSI	SDA	RTS/CTS/TX/RX	DO	CH3P/CH1N	TX/RX	–	–	–	CAM1_DAT2	B_DB3/ C_DCn	TDI
GPIO12	SDA0	CMD	CLK	CS	SCL	RTS/CTS/TX/RX	BCLK	CH0P/CH2P	TX/RX	CH6	–	–	CAM1_DAT3	B_DB4/ C_SCL	TMS
GPIO13	SDA1	CLK	CMD	CLK	SDA	RTS/CTS/TX/RX	FS	CH1P/CH2N	TX/RX	CH5	–	–	CAM1_CLK	B_DB5/ C_CSn	TCK
GPIO14	SDA2	DAT0	DAT3	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH3P	TX/RX	CH4	A_PWM_P	–	CAM1_DAT4	B_DB6/ C_SDA0	TDO
GPIO15	SDA3	DAT1	DAT2	MOSI	SDA	RTS/CTS/TX/RX	DO	CH3P/CH3N	TX/RX	–	A_PWM_N	–	CAM1_DAT5	B_DB7/ C_DCn	TDI
GPIO16	–	–	–	CS	SCL	RTS/CTS/TX/RX	BCLK	CH0P/CH0P	TX/RX	–	–	–	CAM1_DAT6	–	TMS
GPIO17	–	–	–	CLK	SDA	RTS/CTS/TX/RX	FS	CH1P/CH0N	TX/RX	–	–	–	CAM1_DAT7	–	TCK
GPIO18	–	–	–	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH1P	TX/RX	–	–	–	–	–	TDO
GPIO19	–	–	–	MOSI	SDA	RTS/CTS/TX/RX	DO	CH3P/CH1N	TX/RX	CH1	–	–	–	–	TDI
GPIO20	–	–	–	CS	SCL	RTS/CTS/TX/RX	BCLK	CH0P/CH2P	TX/RX	CH0/ACH0	–	–	–	–	TMS
GPIO21	–	–	–	CLK	SDA	RTS/CTS/TX/RX	FS	CH1P/CH2N	TX/RX	ACH1	–	–	–	–	TCK
GPIO22	–	–	–	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH3P	TX/RX	ACH2	A_PWM_P	–	–	–	TDO
GPIO23	–	–	–	MOSI	SDA	RTS/CTS/TX/RX	DO	CH3P/CH3N	TX/RX	ACH3	A_PWN_N	–	–	–	TDI
GPIO24	–	–	–	CS	SCL	RTS/CTS/TX/RX	BCLK	CH0P/CH0P	TX/RX	–	–	–	CAM0_DAT0	–	TMS
GPIO25	–	–	–	CLK	SDA	RTS/CTS/TX/RX	FS	CH1P/CH0N	TX/RX	–	–	REF_CLK	CAM0_DAT1	–	TCK
GPIO26	–	–	–	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH1P	TX/RX	–	–	TXD[0]	CAM0_DAT2	–	TDO
GPIO27	–	–	–	MOSI	SDA	RTS/CTS/TX/RX	DO	CH3P/CH1N	TX/RX	CH10/ ACH4	A_PWN_N	TXD[1]	CAM0_DAT3	–	TDI
GPIO28	–	–	–	CS	SCL	RTS/CTS/TX/RX	BCLK	CH0P/CH2P	TX/RX	CH11/ ACH5	A_PWM_P	RXD[0]	CAM0_HSYNC	–	TMS
GPIO29	–	–	–	CLK	SDA	RTS/CTS/TX/RX	FS	CH1P/CH2N	TX/RX	ACH6	–	RXD[1]	CAM0_VSYNC	–	TCK
GPIO30	–	–	–	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH3P	TX/RX	ACH7	–	RXERR	CAM0_CLK	–	TDO

GPIO	QSPI	SDIO	SDH	SPI	I2C (0/1)	UART (0/1)	I2S	PWM	CAN	ADC	DAC	EMAC	DVP	DBI	JTAG
GPIO31	–	–	–	MOSI	SDA	RTS/CTS/TX/RX	DO	CH3P/CH3N	TX/RX	–	–	TX_EN	CAM0_DAT4	–	TDI
GPIO32	–	–	–	CS	SCL	RTS/CTS/TX/RX	BCLK	CH0P/CH0P	TX/RX	–	–	RX_DV	CAM0_DAT5	–	TMS
GPIO33	–	–	–	CLK	SDA	RTS/CTS/TX/RX	FS	CH1P/CH0N	TX/RX	–	–	MDC	CAM0_DAT6	–	TCK
GPIO34	–	–	–	MISO	SCL	RTS/CTS/TX/RX	DI	CH2P/CH1P	TX/RX	–	–	MDIO	CAM0_DAT7	–	TDO

3 Electrical specifications

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
VDD33	Power input voltage	-0.3	3.63	V
VDDIO1, VDDIO 2	I/O port voltage	-0.3	3.63	V
ESD Protection (HBM)	—	—	2,000	V
Storage temperature	—	-40	135	°C

3.2 Operating conditions

Pin	Parameter	Min	TYP	Max	Unit
VDD33	Power input voltage	2.97	3.3	3.63	V
VDDIO1, VDDIO 2 (3.3V)	I/O port voltage	2.97	3.3	3.63	V
VDDIO1, VDDIO 2 (1.8V)	I/O port voltage	1.62	1.8	1.98	V

3.3 Radio performance

The radio performance for Wi-Fi, Bluetooth and 802.15.4 are shown in the table below:

UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A X.X=N/A X.XX=N/A ANGLES=N/A HOLEDIA=N/A			INPAQ TECHNOLOGY CO., LTD.	
SCALE : N/A	UNIT : mm			
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION		
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮			
TITLE : RFIQM0744010NB001		DOCUMENT NO.		SPEC REV.
				A0
PAGE 16 OF 34				

3.3.1 802.11b/g/n/ax

Standard	PHY	Modulation	MCS Index	Data Rate (Mbps)		Max Tx Power (dBm)		Rx Sensitivity (dBm)	
				HT20	HT40	HT20	HT40	HT20	HT40
802.11b	CCK (DSSS)	DBPSK	—	1	—	22	—	—	—
	CCK (DSSS)	DQPSK	—	2	—	—	—	—	—
	CCK (DSSS)	B/DQPSK	—	5.5	—	—	—	—	—
	CCK (DSSS)	Q/DQPSK	—	11	—	22	—	—	—
802.11g	OFDM	BPSK	—	6	—	21	—	—	—
	OFDM	BPSK	—	9	—	—	—	—	—
	OFDM	QPSK	—	12	—	—	—	—	—
	OFDM	QPSK	—	18	—	—	—	—	—
	OFDM	16QAM	—	24	—	—	—	—	—
	OFDM	16QAM	—	36	—	—	—	—	—
	OFDM	64QAM	—	48	—	—	—	—	—
	OFDM	64QAM	—	54	—	19	—	—	—
802.11n	OFDM	BPSK	MCS0	7.2	15	20	20	-93	-89.5
	OFDM	QPSK	MCS1	14.4	30	—	—	-91	-88
	OFDM	QPSK	MCS2	21.7	45	—	—	-89	-86
	OFDM	16QAM	MCS3	28.9	60	—	—	-86.5	-83.5
	OFDM	16QAM	MCS4	43.3	90	—	—	-83	-80.5
	OFDM	64QAM	MCS5	57.8	120	—	—	-79	-76.5
	OFDM	64QAM	MCS6	65	135	—	—	-77.5	-75
	OFDM	64QAM	MCS7	72.2	150	19	18	-76	-73
802.11ax	OFDMA	BPSK	MCS0	8.6	17.2	20	20	-93	-89.5
	OFDMA	QPSK	MCS1	17.2	34.4	—	—	-91	-88
	OFDMA	QPSK	MCS2	25.8	51.6	—	—	-89	-86.5
	OFDMA	16QAM	MCS3	34.4	68.8	—	—	-86	-83.5
	OFDMA	16QAM	MCS4	51.6	103.2	—	—	-83	-80
	OFDMA	64QAM	MCS5	68.8	137.6	—	—	-79	-76.5
	OFDMA	64QAM	MCS6	77.4	154.9	—	—	-77.5	-75
	OFDMA	64QAM	MCS7	86	172.1	—	—	-75.5	-73
	OFDMA	256QAM	MCS8	103.2	206.5	—	—	-72	-69
	OFDMA	256QAM	MCS9	114.7	229.4	18	16	-70	-67

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT NO.

SPEC REV.
A0

3.3.2 Bluetooth

Standard	Topology	PHY	Modulation	Data Rate	Max Tx Power (dBm)	Rx Sensitivity (dBm)
BT Classic	P2P	BR	GFSK	1Mbps	+10	-94
		EDR	$\pi/4$ DQPSK	2Mbps	+8	-96
		EDR	8DPSK	3Mbps	+8	-90
BLE	P2P Broadcast Mesh	LE 2M	GFSK	2Mbps	+10	-97
		LE 1M	GFSK	1Mbps	+10	-99
		LE Coded (S=2)	GFSK	500Kbps	+10	-102
		LE Coded (S=8)	GFSK	125Kbps	+10	-105

3.3.3 802.15.4

This information will be included in future revisions of this document.

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

SPEC REV.
A0

3.4 Power consumption

QCC744M can operate in four power states as shown below to maximize power saving:

- Active – Continuous transmitting or receiving on connection to AP
- Idle – No active transmitting or receiving. CPU is in idle state.
- Deep Sleep – Wi-Fi/USB/CPU/Peripherals power off. This is DTIM power saving mode
- Hibernation – No connection to AP.
- Shut down – the chip is completed shut down
- The power consumption for each state is listed in the table below:

Operation Mode	State	Typical	Unit	Comments
Active	MCU Active & Rx Active	38	mA	MCU 160MHz, XCLK 40MHz, BCLK 80MHz, Flash 40MHz
	Tx Active	266	mA	MCS0, Tx Power = +18 dBm
Power Saving	Deep Sleep	64	μA	Wi-Fi/USB/CPU/Peripherals Power Off. This is DTIM PS mode
	Hibernation	2.1	μA	4KB RAM retained
	Shut Down	0.15	μA	–
DTIM	DTIM 1	476	μA	Xtal32k
		524	μA	RC 32k
	DTIM 3	179	μA	Xtal32k
		227	μA	RC 32k
	DTIM 5	119	μA	Xtal32k
		167	μA	RC 32k
	DTIM 10	75	μA	Xtal32k
		123	μA	RC 32k

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

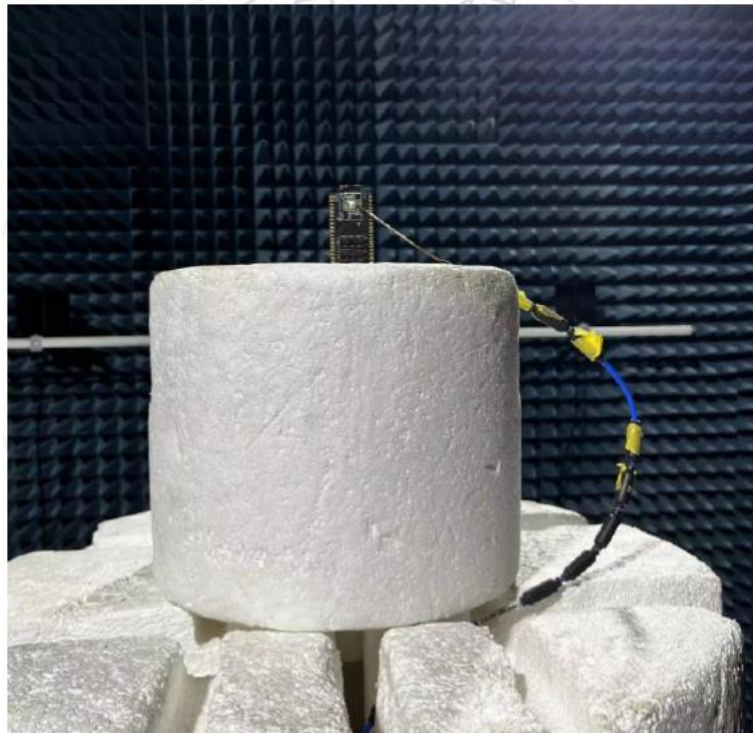
DOCUMENT
NO.

SPEC REV.
A0

4 Antenna Electrical specifications

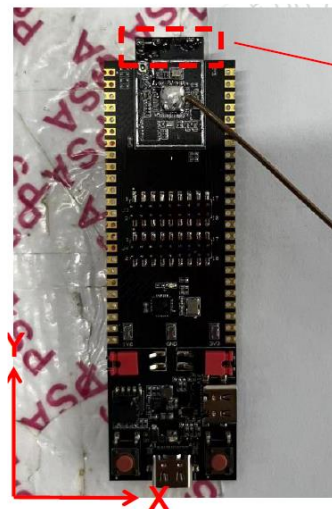
4.1 Measurement Information

4.1.1 Experimental Setup



UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A X.X=N/A X.XX=N/A ANGLES=N/A HOLEDIA=N/A			INPAQ TECHNOLOGY CO., LTD.			
SCALE : N/A	UNIT : mm					
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION				
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮					
TITLE : RFIQM0744010NB001		DOCUMENT NO.			SPEC REV.	
					A0	
			PAGE	20	OF	34

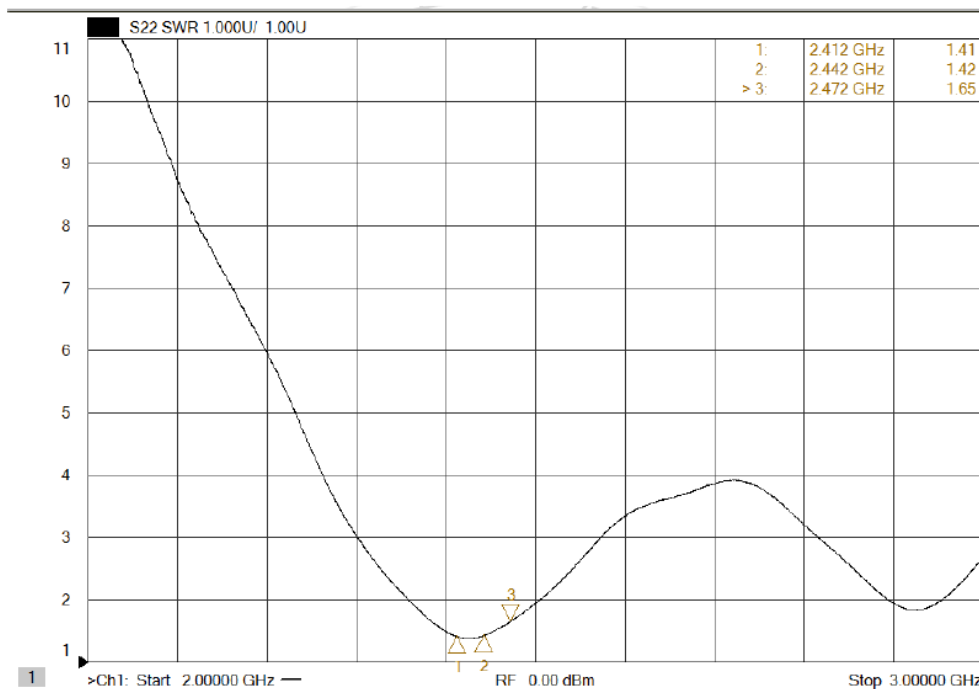
4.1.2 Antenna Solution Detail



Printed antenna design
Tiny height: 5mm
Good performance

4.2 Antenna Characteristics: Passive and Active

4.2.1 VSWR



UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

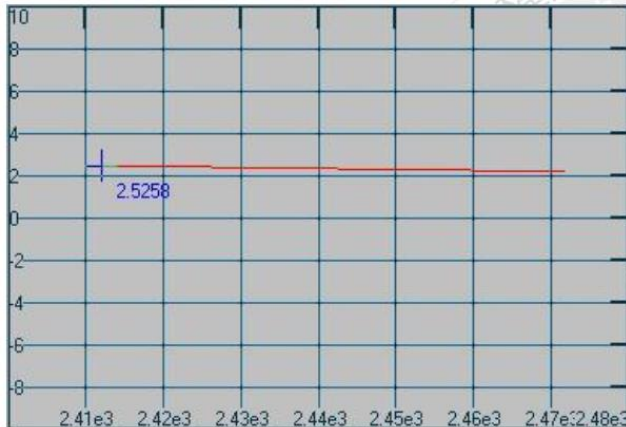
THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

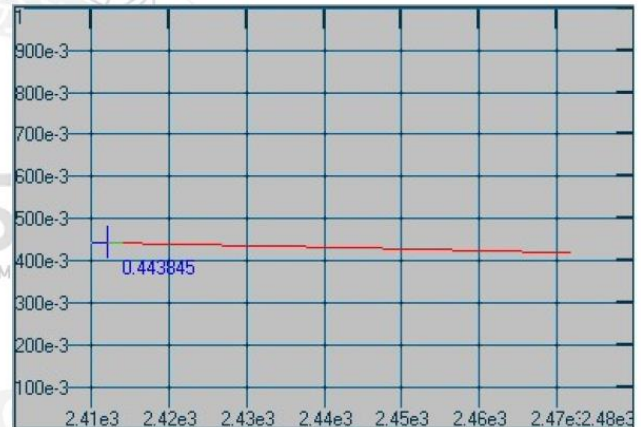
DOCUMENT
NO.

SPEC REV.
A0

4.2.2 Antenna Efficiency and Peak Gain



Maximum Peak Gain at 2412 MHz : 2.52dBi



Maximum Efficiency at 2412 MHz : 44.38%

Frequency(MHz)	Efficiency(%)	Peak gain(dBi)
2412	44.38	2.52
2417	44.21	2.50
2422	44.01	2.48
2427	43.84	2.46
2432	43.66	2.43
2437	43.48	2.41
2442	43.29	2.38
2447	43.08	2.36
2452	42.88	2.34
2457	42.67	2.32
2462	42.44	2.29
2467	42.24	2.27
2472	42.03	2.24
2484	41.94	2.22

UNLESS OTHER SPECIFIED TOLERANCES ON :
 X = N/A X.X = N/A X.XX = N/A
 ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

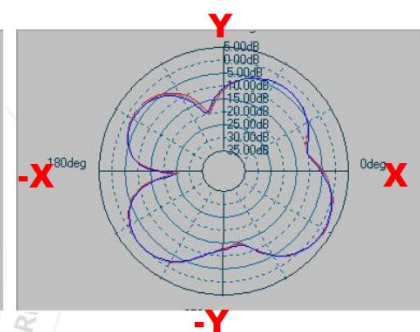
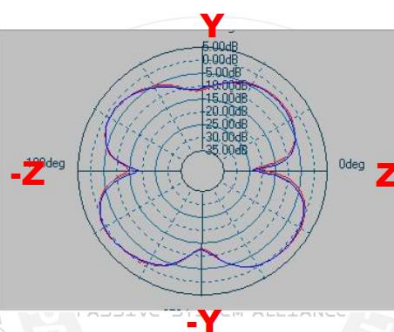
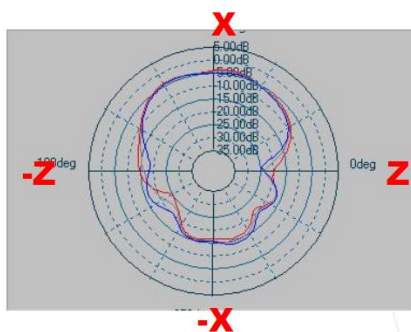
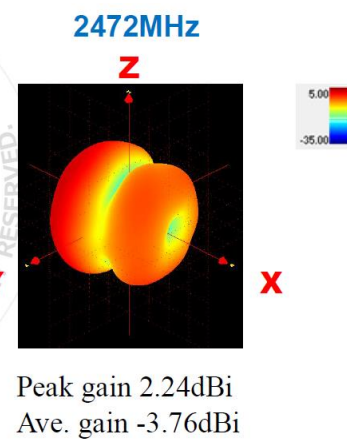
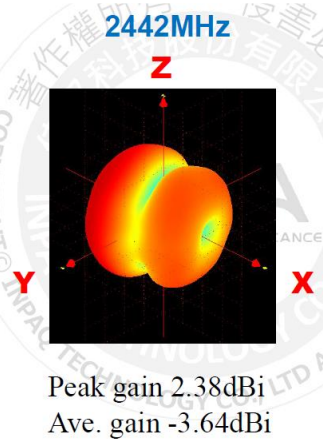
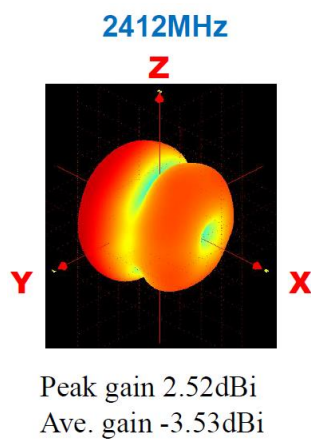
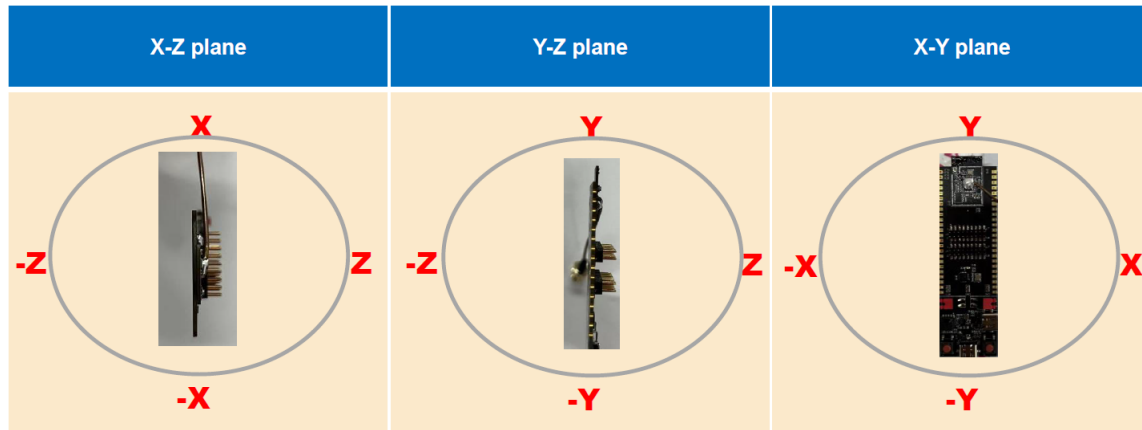
TITLE : RFIQM0744010NB001

DOCUMENT
NO.

SPEC REV.
A0

4.2.3 3D Pattern & 3 views of antenna & 2D Radiation

Patterns



	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
2412	-4.05	-9.62	1.19	-3.27	2.45	-3.65
2442	-4.38	-9.91	0.91	-3.46	2.36	-3.74
2472	-4.87	-10.20	0.79	-3.56	2.05	-3.98

UNLESS OTHER SPECIFIED TOLERANCES ON :
 X = N/A X.X = N/A X.XX = N/A
 ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

SPEC REV.
A0

5 Mechanical information

5.1 Device physical dimensions

5.1.1 QCC744M LGA module PCB antenna

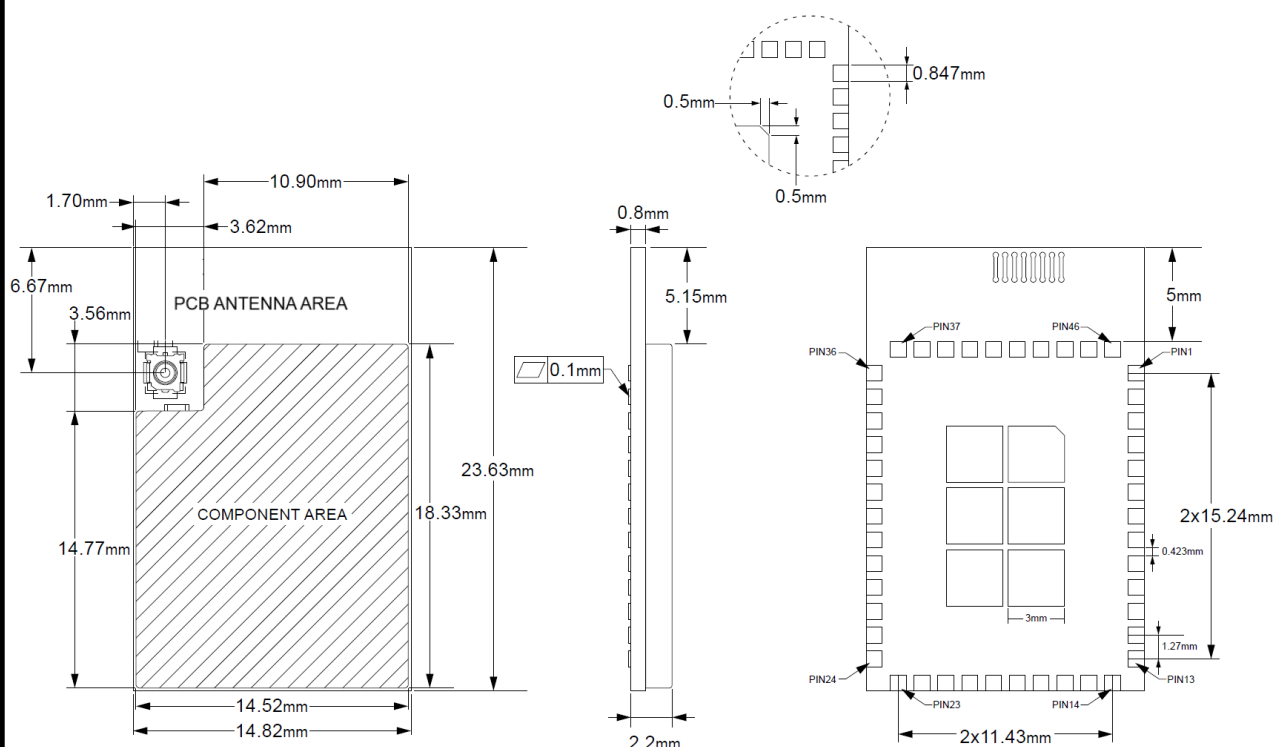


Figure 5-1QCC744M LGA module PCB antenna dimension

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

SPEC REV.

A0

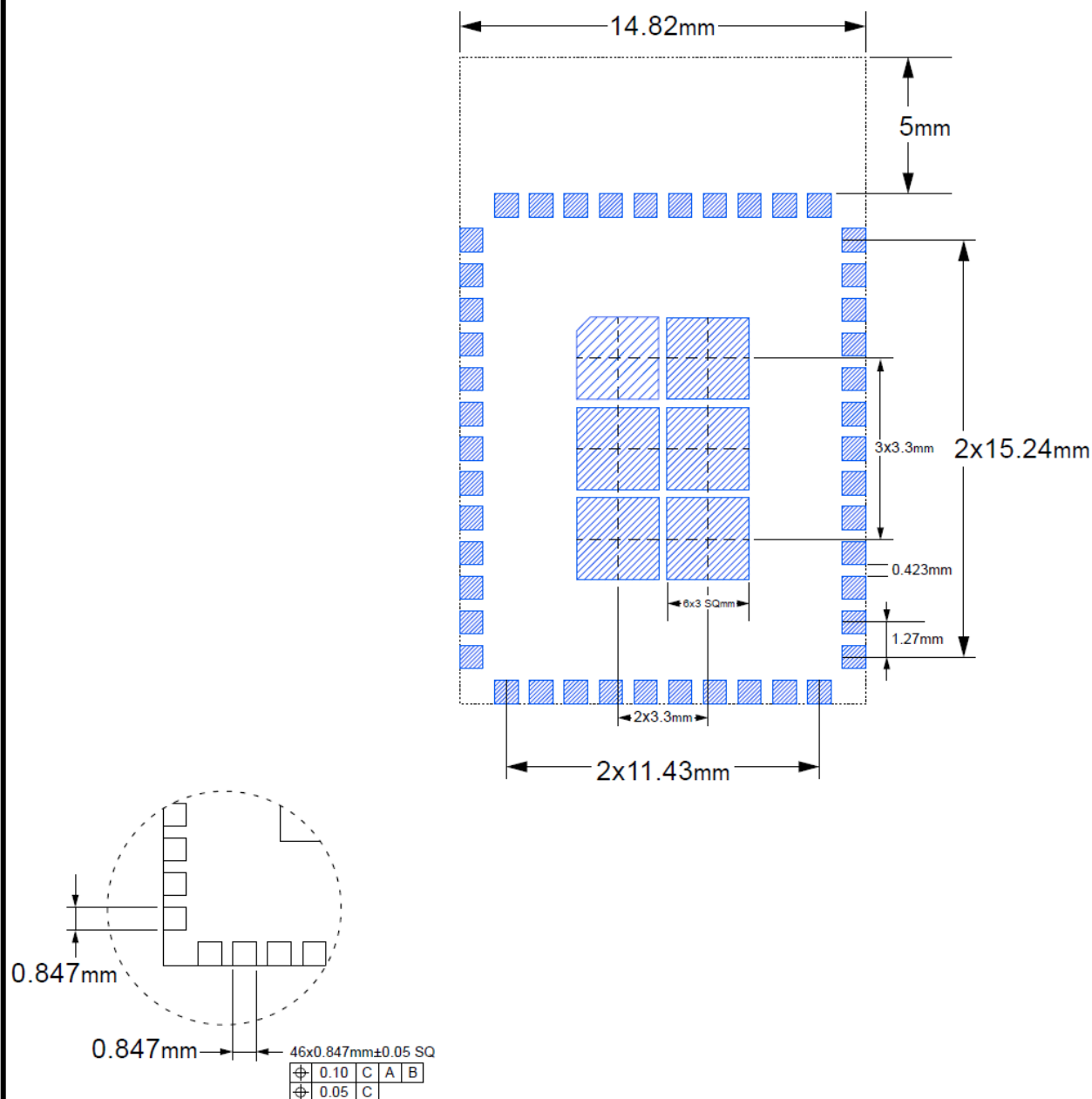


Figure 5-2QCC744M LGA module PCB antenna landing pad

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF
INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED
OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF
APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.SPEC REV.
A0

5.2 Part marking

This information will be included in future revisions of this document.

5.3 Device ordering information

This information will be included in future revisions of this document.

UNLESS OTHER SPECIFIED TOLERANCES ON :				INPAQ TECHNOLOGY CO., LTD.
X=N/A X.X=N/A X.XX=N/A				
ANGLES=N/A HOLEDIA=N/A				
SCALE : N/A		UNIT : mm	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
DRAWN BY : 詹惠雯		CHECKED BY : 詹惠雯		
DESIGNED BY : 黃瑞郎		APPROVED BY : 陳振榮		
TITLE : RFIQM0744010NB001			DOCUMENT NO.	SPEC REV.
				A0
PAGE 26 OF 34				

6 Carrier, storage, and handling information

This information will be included in future revisions of this document.

UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A X.X=N/A X.XX=N/A ANGLES=N/A HOLEDIA=N/A			INPAQ TECHNOLOGY CO., LTD.		
SCALE : N/A	UNIT : mm				
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION			
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮				
TITLE : RFIQM0744010NB001		DOCUMENT NO.			SPEC REV.
					A0
		PAGE 27 OF 34			

7 Manufacturing guidelines

7.1 Power layout guideline

QCC744M 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.

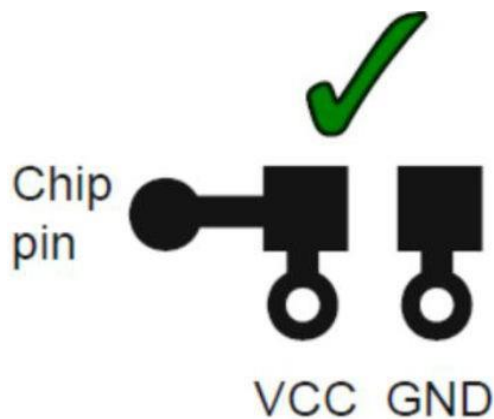


Figure 7-1 Power layout guideline

UNLESS OTHER SPECIFIED TOLERANCES ON : X = N/A X.X = N/A X.XX = N/A ANGLES = N/A HOLEDIA = N/A		 INPAQ TECHNOLOGY CO., LTD.	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
SCALE : N/A	UNIT : mm			
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯			
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮			
TITLE : RFIQM0744010NB001		DOCUMENT NO.		SPEC REV. A0
		PAGE	28	OF 34

7.2 RF layout guideline

To optimize antenna performance, place QCC744M 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.

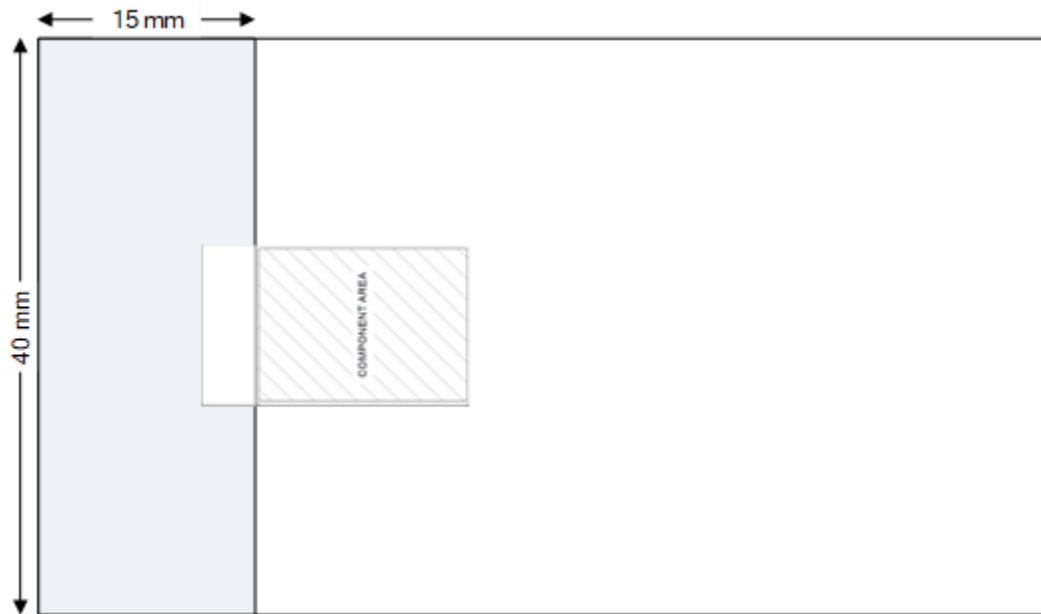


Figure 7-2 RF layout guideline

UNLESS OTHER SPECIFIED TOLERANCES ON : X = N/A X.X = N/A X.XX = N/A ANGLES = N/A HOLEDIA = N/A		 INPAQ TECHNOLOGY CO., LTD.	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
SCALE : N/A	UNIT : mm			
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯			
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮			
TITLE : RFIQM0744010NB001		DOCUMENT NO.		SPEC REV. A0
PAGE 29 OF 34				

7.3 Soldering guideline

QCC744M can be SMT on the board following the temperature curve graph:

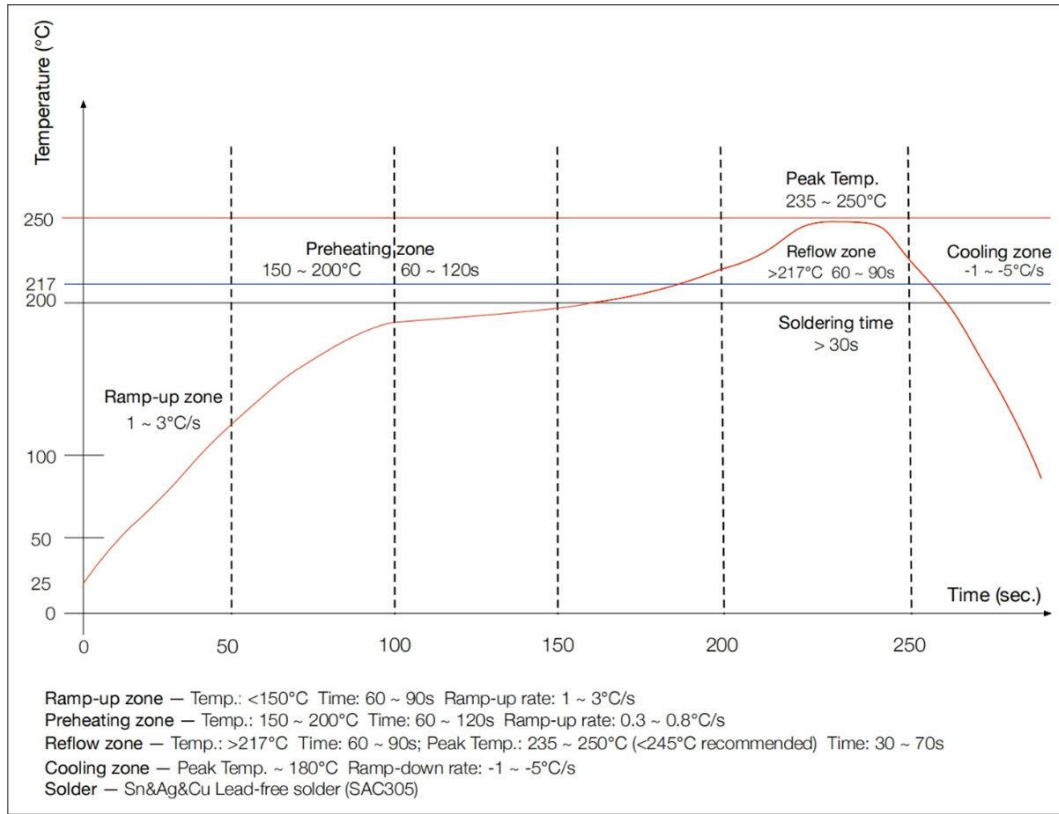


Figure 7-3 QCC744M soldering guideline

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

SPEC REV.
A0

8 Part reliability

This information will be included in future revisions of this document.

UNLESS OTHER SPECIFIED TOLERANCES ON :			INPAQ TECHNOLOGY CO., LTD.		
X=N/A X.X=N/A X.XX=N/A					
ANGLES=N/A HOLEDIA=N/A		THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION			
SCALE : N/A	UNIT : mm				
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯				
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮				
TITLE : RFIQM0744010NB001		DOCUMENT NO.			SPEC REV.
					A0
PAGE 31 OF 34					

Revision history

Revision	Date	Description
AA	Aug 2024	Initial release

UNLESS OTHER SPECIFIED TOLERANCES ON :
X = N/A X.X = N/A X.XX = N/A
ANGLES = N/A HOLEDIA = N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF
INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED
OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF
APPARATUS OR DEVICES WITHOUT PERMISSION

TITLE : RFIQM0744010NB001

DOCUMENT
NO.

SPEC REV.
A0

LEGAL INFORMATION

Your access to and use of this material, along with any documents, software, specifications, reference board files, drawings, diagnostics and other information contained herein (collectively this “Material”), is subject to your (including the corporation or other legal entity you represent, collectively “You” or “Your”) acceptance of the terms and conditions (“Terms of Use”) set forth below. If You do not agree to these Terms of Use, you may not use this Material and shall immediately destroy any copy thereof.

1) Legal Notice.

This Material is being made available to You solely for Your internal use with those products and service offerings of Qualcomm Technologies, Inc. (“Qualcomm Technologies”), its affiliates and/or licensors described in this Material, and shall not be used for any other purposes. If this Material is marked as “Qualcomm Internal Use Only”, no license is granted to You herein, and You must immediately (a) destroy or return this Material to Qualcomm Technologies, and (b) report Your receipt of this Material to qualcomm.support@qti.qualcomm.com. This Material may not be altered, edited, or modified in any way without Qualcomm Technologies’ prior written approval, nor may it be used for any machine learning or artificial intelligence development purpose which results, whether directly or indirectly, in the creation or development of an automated device, program, tool, algorithm, process, methodology, product and/or other output. Unauthorized use or disclosure of this Material or the information contained herein is strictly prohibited, and You agree to indemnify Qualcomm Technologies, its affiliates and licensors for any damages or losses suffered by Qualcomm Technologies, its affiliates and/or licensors for any such unauthorized uses or disclosures of this Material, in whole or part.

Qualcomm Technologies, its affiliates and/or licensors retain all rights and ownership in and to this Material. No license to any trademark, patent, copyright, mask work protection right or any other intellectual property right is either granted or implied by this Material or any information disclosed herein, including, but not limited to, any license to make, use, import or sell any product, service or technology offering embodying any of the information in this Material.

THIS MATERIAL IS BEING PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE. TO THE MAXIMUM EXTENT PERMITTED BY LAW, QUALCOMM TECHNOLOGIES, ITS AFFILIATES AND/OR LICENSORS SPECIFICALLY DISCLAIM ALL WARRANTIES OF TITLE, MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, COMPLETENESS OR ACCURACY, AND ALL WARRANTIES ARISING OUT OF TRADE USAGE OR OUT OF A COURSE OF DEALING OR COURSE OF PERFORMANCE. MOREOVER, NEITHER QUALCOMM TECHNOLOGIES, NOR ANY OF ITS AFFILIATES AND/OR LICENSORS, SHALL BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY EXPENSES, LOSSES, USE, OR ACTIONS HOWSOEVER INCURRED OR UNDERTAKEN BY YOU IN RELIANCE ON THIS MATERIAL.

UNLESS OTHER SPECIFIED TOLERANCES ON :			INPAQ TECHNOLOGY CO., LTD.
X=N/A X.X=N/A X.XX=N/A			
ANGLES=N/A HOLEDIA=N/A			
SCALE : N/A	UNIT : mm		
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : RFIQM0744010NB001		DOCUMENT NO.	SPEC REV.
			A0
PAGE 33 OF 34			

Certain product kits, tools and other items referenced in this Material may require You to accept additional terms and conditions before accessing or using those items.

Technical data specified in this Material may be subject to U.S. and other applicable export control laws. Transmission contrary to U.S. and any other applicable law is strictly prohibited.

Nothing in this Material is an offer to sell any of the components or devices referenced herein. This Material is subject to change without further notification.

In the event of a conflict between these Terms of Use and the Website Terms of Use on www.qualcomm.com or the Qualcomm Privacy Policy referenced on www.qualcomm.com, these Terms of Use will control. In the event of a conflict between these Terms of Use and any other agreement (written or click-through, including, without limitation any non-disclosure agreement) executed by You and Qualcomm Technologies or a Qualcomm Technologies affiliate and/or licensor with respect to Your access to and use of this Material, the other agreement will control.

These Terms of Use shall be governed by and construed and enforced in accordance with the laws of the State of California, excluding the U.N. Convention on International Sale of Goods, without regard to conflict of laws principles. Any dispute, claim or controversy arising out of or relating to these Terms of Use, or the breach or validity hereof, shall be adjudicated only by a court of competent jurisdiction in the county of San Diego, State of California, and You hereby consent to the personal jurisdiction of such courts for that purpose.

2) Trademark and Product Attribution Statements.

Qualcomm is a trademark or registered trademark of Qualcomm Incorporated. Arm is a registered trademark of Arm Limited (or its subsidiaries) in the U.S. and/or elsewhere. The Bluetooth® word mark is a registered trademark owned by Bluetooth SIG, Inc. Other product and brand names referenced in this Material may be trademarks or registered trademarks of their respective owners.

Snapdragon and Qualcomm branded products referenced in this Material are products of Qualcomm Technologies, Inc. and/or its subsidiaries. Qualcomm patented technologies are licensed by Qualcomm Incorporated.

UNLESS OTHER SPECIFIED TOLERANCES ON :			INPAQ TECHNOLOGY CO., LTD.
X=N/A X.X=N/A X.XX=N/A			
ANGLES=N/A HOLEDIA=N/A			
SCALE : N/A	UNIT : mm		
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : RFIQM0744010NB001		DOCUMENT NO.	SPEC REV.
			A0
PAGE 34 OF 34			