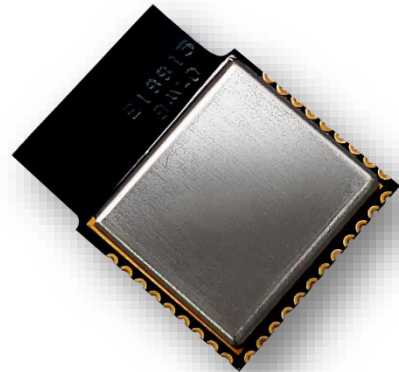


RYBM125

2.4GHz Bluetooth Low Energy Mesh Module with Integrated Antenna

Datasheet



PRODUCT DESCRIPTION

RYBM125 is a module specially designed for Bluetooth Mesh application. It can design the product quickly and easily by using the Android & iOS app source code.

FEATURES

- Bluetooth v5.0 specification compliant
- Qualcomm® CSR1020 Engine
- Bluetooth SIG mesh
- Mesh Model Bluetooth Specification v1.0.1
- Designed with PCB integrated antenna, Suitable for SMT
- Metal cover against EMI interference

APPLICATIONS

- Mesh Lighting control
- RGB LED Dimming Control
- Smart home
- Smart building
- Mesh connectivity

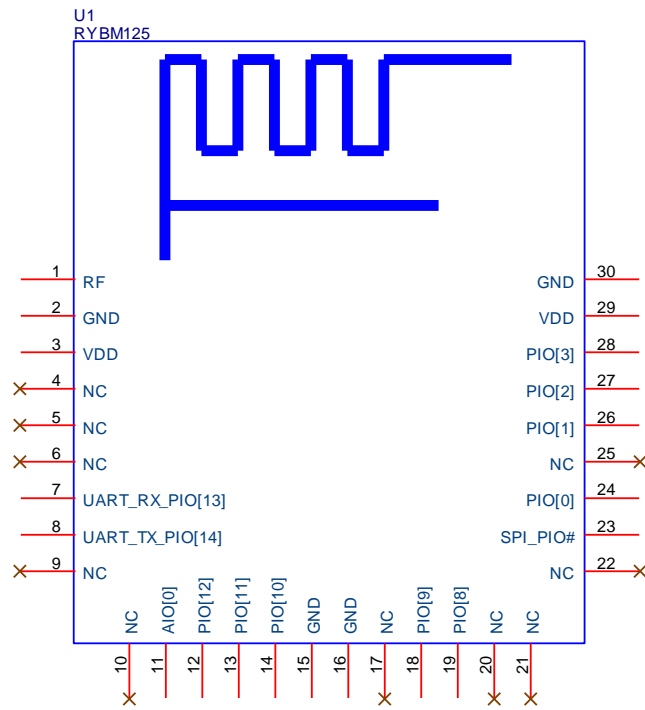
APP SUPPORT

- Android reference source code
- Apple iOS reference source code

SPECIFICATION

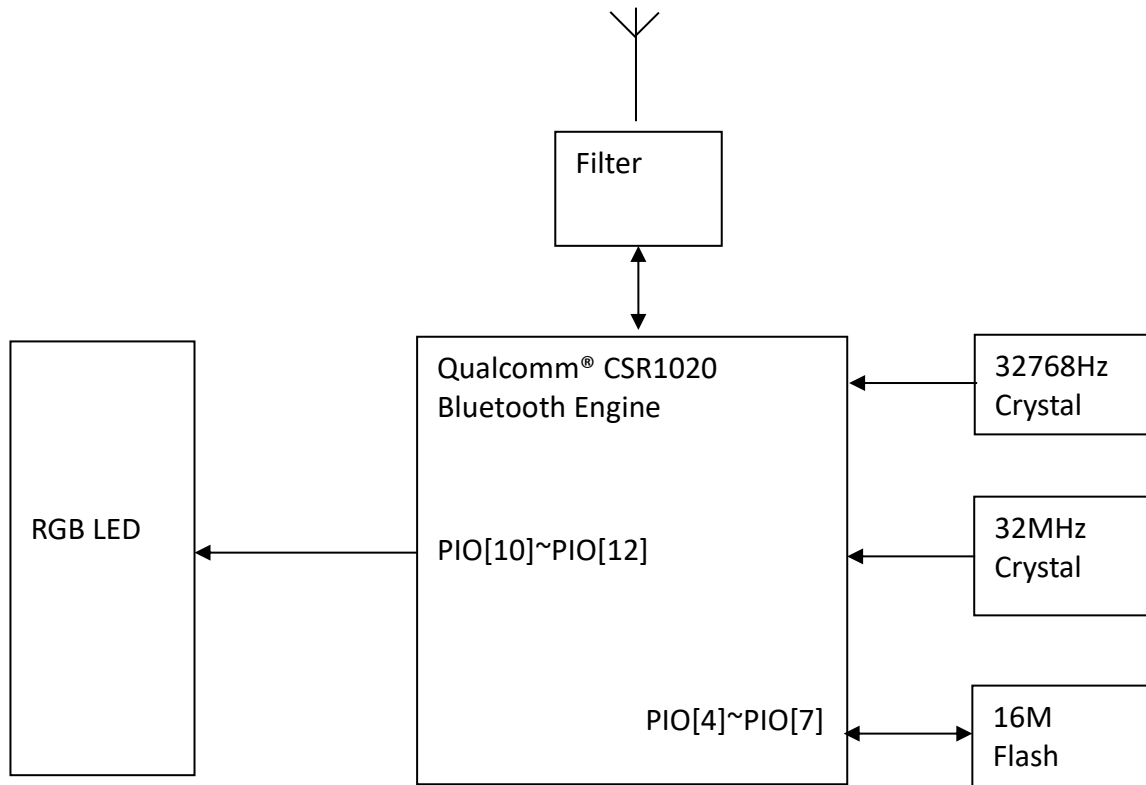
Item	Min.	Typical	Max.	Unit	Condition
Operation Voltage	1.2	3.3	3.6	V	VDD
RF Output Power		3		dBm	
RF Sensitivity	-92	-90.5		dBm	
Operation current		5		mA	
Reset Time		30		ms	
RF Frequency Range	2379		2496	MHz	
Communication Range		14		M	Open Space
Operating Temperature	-30	25	+85	°C	
Antenna					Embedded PCB Antenna
Dimensions					16.7mm*13mm*2.2mm
Weight		0.8		g	

PIN DESCRIPTION

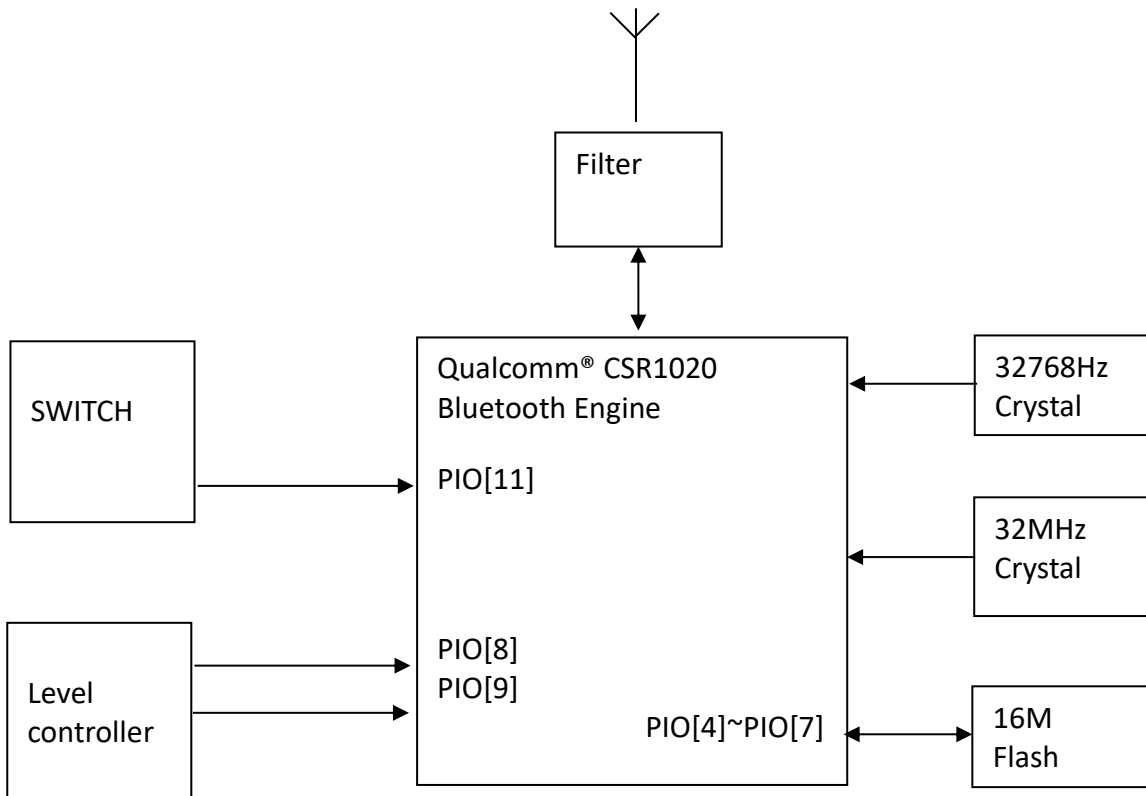


Pin	Name	I/O	Condition
1	RF		External Antenna Version Used
2	GND	-	Ground
3	VDD	I	Power Supply
4	NC	-	Leave Unconnected.
5	NC	-	Leave Unconnected.
6	NC	-	Leave Unconnected.
7	UART_RX_PIO[13]	I	Reserved PIN
8	UART_TX_PIO[14]	O	Reserved PIN
9	NC	-	Leave Unconnected.
10	NC	-	Leave Unconnected.
11	AIO[0]	I/O	Reserved PIN
12	PIO[12]	O	PWM3 Blue LED control output
13	PIO[11]	I/O	RYBM125 : PWM2 Red LED control output RYBM125_SW : ON/OFF Switch Input Low : ON , High : OFF
14	PIO[10]	O	PWM1 Green LED control output
15	GND	-	Ground
16	GND	-	Ground
17	NC	-	Leave Unconnected.
18	PIO[9]	I/O	RYBM125 : Reserved PIN RYBM125_SW : Level controller “-“
19	PIO[8]	I/O	Mesh Provisioned Reset, Keep low for more than 6 seconds. RYBM125_SW : Level controller “-“
20	NC	-	Leave Unconnected.
21	NC	-	Leave Unconnected.
22	NC	-	Leave Unconnected.
23	SPI_PIO#	I/O	Reserved PIN
24	PIO[0]	I/O	Reserved PIN
25	NC	-	Leave Unconnected.
26	PIO[1]	I/O	Reserved PIN
27	PIO[2]	I/O	Reserved PIN
28	PIO[3]	I	Reserved PIN
29	VDD	I	Power Supply
30	GND	-	Ground

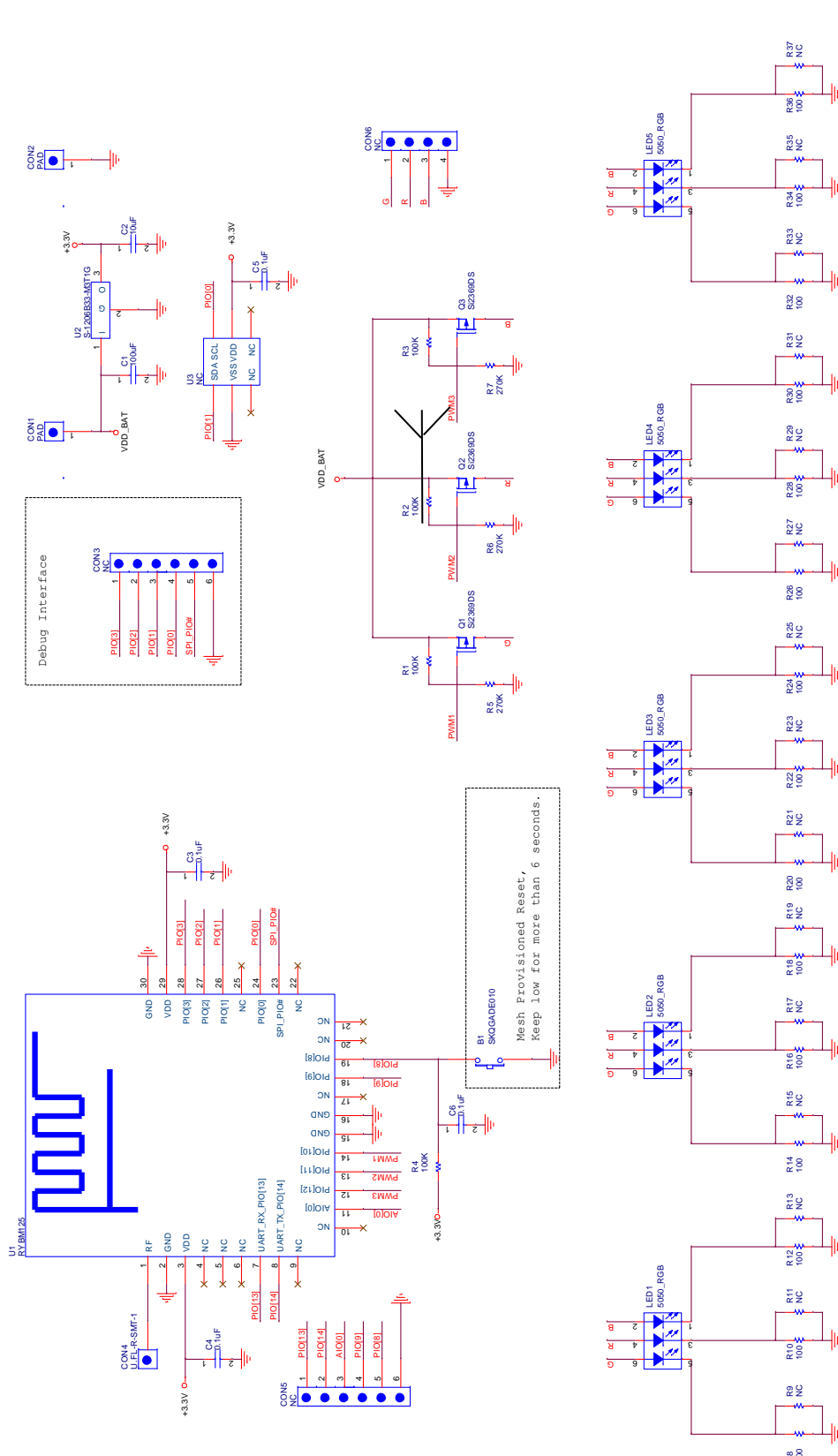
RYBM125 BLOCK DIAGRAM



RYBM125_SW BLOCK DIAGRAM

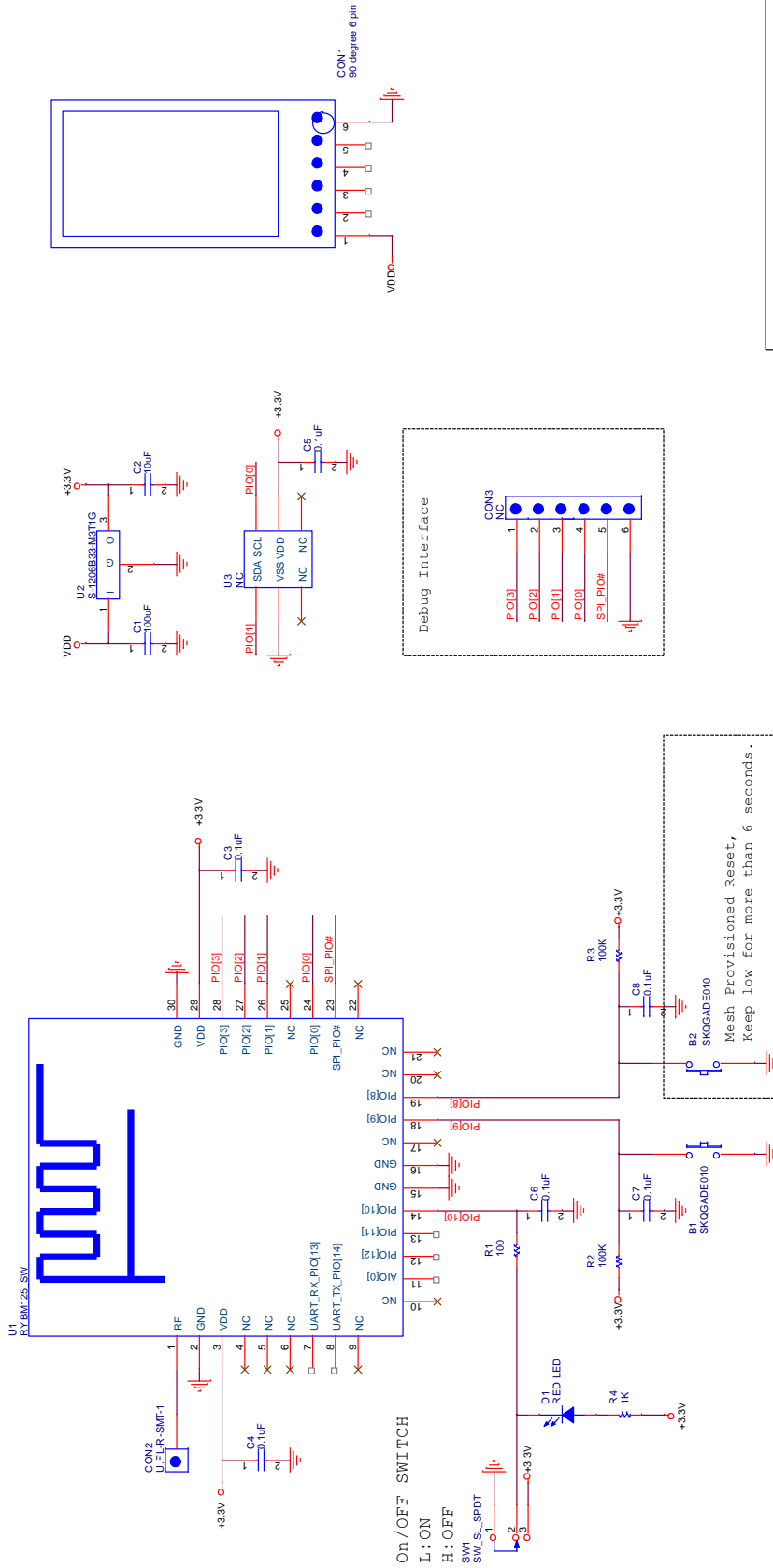


RYBM125 APPLICATION SCHEMATIC



Title		REYAX RYBM125_EVB
Size	Document Number	Rev 1.1
Date:	Created/Doc>	1 of 1
	Modified/June_05_2020	Sheet

RYBM125_SW APPLICATION SCHEMATIC



Title		REYAX RYBM125 SW EVB
Size	Document Number	Rev
	CustomerDoc-	1.0
Date:	Saturday, June 13, 2020	Sheet 1 of 1

REFLOW SOLDERING

Consider the "IPC-7530 Guidelines for temperature profiling for mass soldering (reflow and wave) processes, published 2001.

Preheat phase

Initial heating of component leads and balls. Residual humidity will be dried out. Please note that this preheat phase will not replace prior baking procedures.

- Temperature rise rate: max. 3 °C/s If the temperature rise is too rapid in the preheat phase it may cause excessive slumping.
- Time: 60 - 120 s If the preheat is insufficient, rather large solder balls tend to be generated. Conversely, if performed excessively, fine balls and large balls will be generated in clusters.
- End Temperature: 150 - 200 °C If the temperature is too low, non-melting tends to be caused in areas containing large heat capacity.

Heating/ Reflow phase

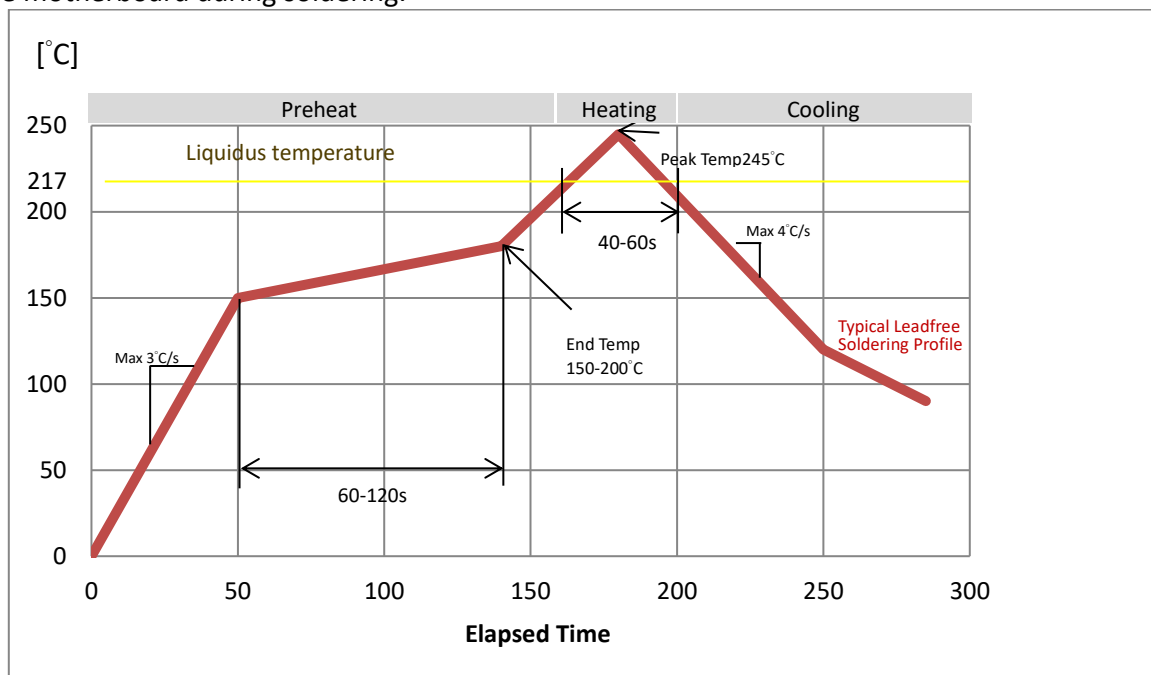
The temperature rises above the liquidus temperature of 217°C. Avoid a sudden rise in temperature as the slump of the paste could become worse.

- Limit time above 217 °C liquidus temperature: 40 - 60 s
- Peak reflow temperature: 245 °C

Cooling phase

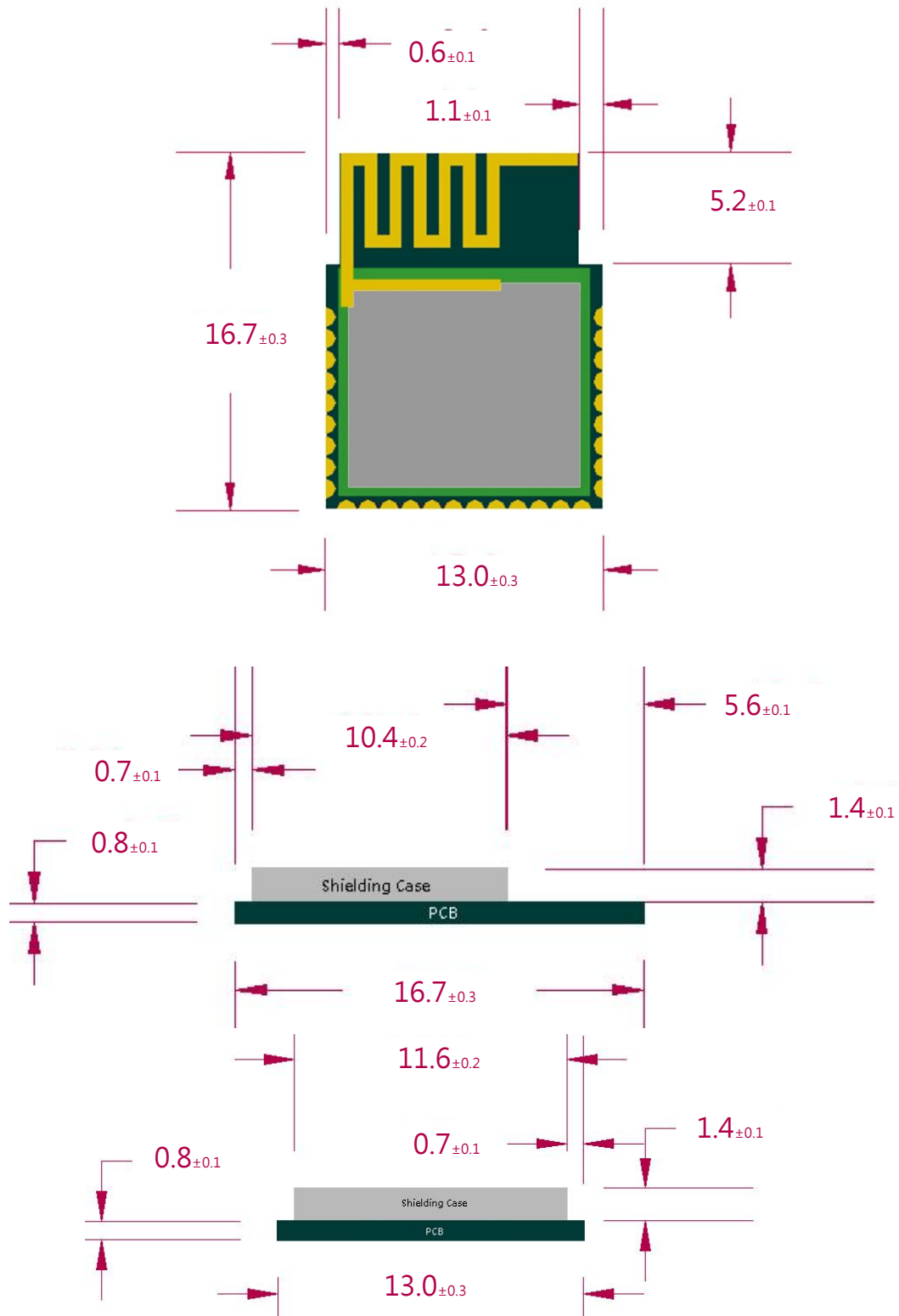
A controlled cooling avoids negative metallurgical effects (solder becomes more brittle) of the solder and possible mechanical tensions in the products. Controlled cooling helps to achieve bright solder fillets with a good shape and low contact angle.

- Temperature fall rate: max 4 °C/s To avoid falling off, the module should be placed on the topside of the motherboard during soldering.



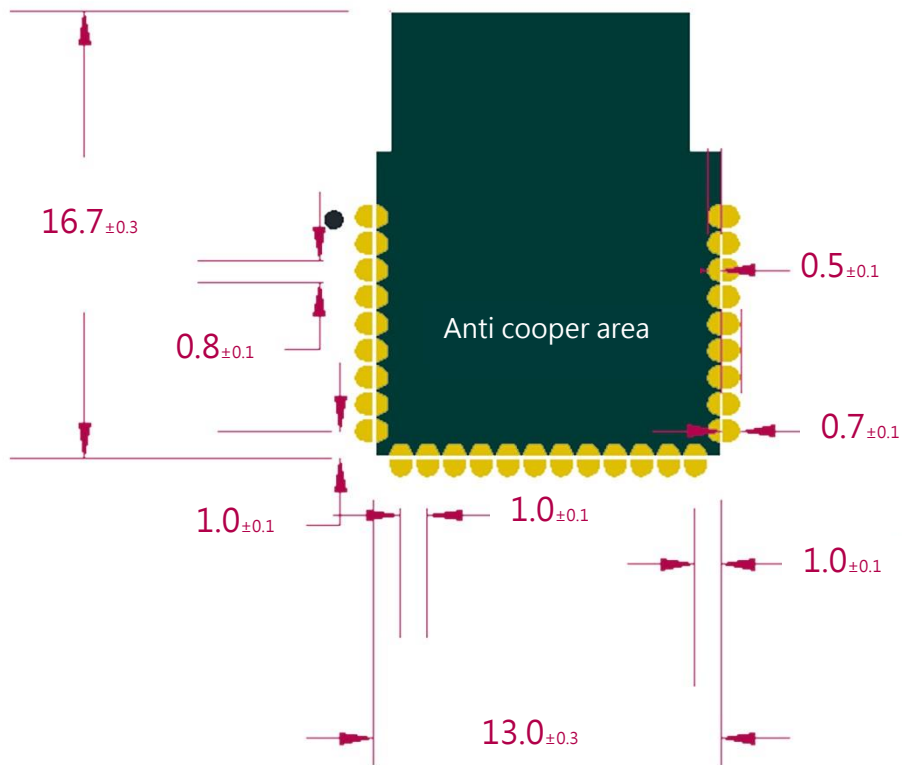
Recommended soldering profile

DIMENSIONS



Unit : mm

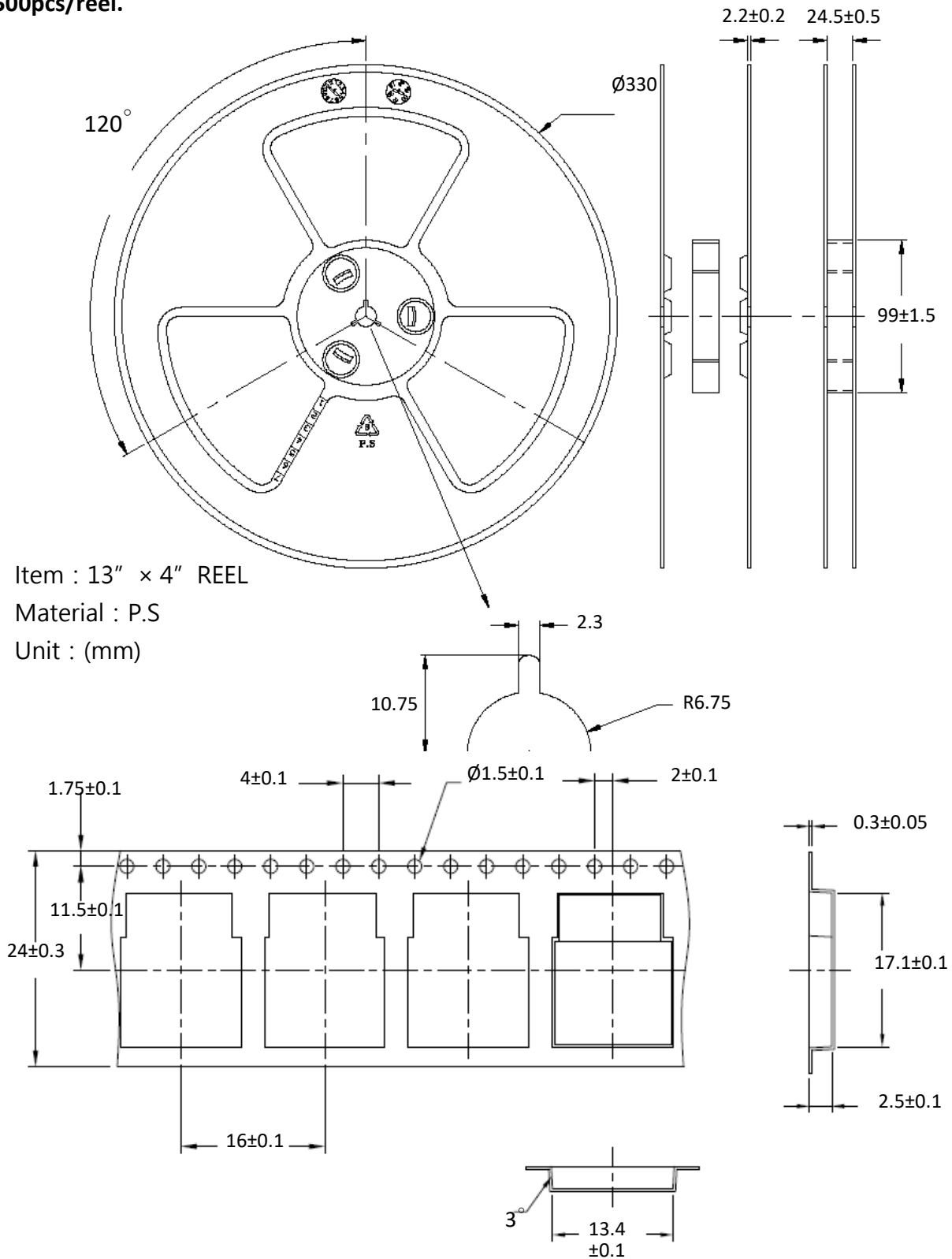
LAYOUT FOOTPRINT RECOMMENDATIONS



Unit : mm

PACKING INFORMATION

500pcs/reel.



ORDER INFORMATION

Ordering No.	Firmware version	Antenna
RYBM125	Light HSL model	Internal
RYBM125_SW	Generic On/Off client model	Internal
RYBE125	Light HSL model	External
RYBE125_SW	Generic On/Off client model	External

* If you need the other function, please contact us.



Taiwan: sales@reyax.com
China: sales@reyax.com.cn
<http://reyax.com>