REYAX
TECHNOLOGY CORPORATION, LTD

18-Sep-2022 56312E39

RYUW122

UART Interface
6.5 GHz and 8 GHz UWB Antenna Transceiver Module

Datasheet

PRODUCT DESCRIPTION

REYAX RYUW122 is designed as smart algorithm and high quality UWB(Ultra Wide Band) module, It is good for secure and precise distance measurement.

FEATURES

- Supports IEEE802.15.4-2015 UWB & IEEE802.15.4z (BPRF mode)
- Supports channels 5 & 9 (6489.6MHz & 7987.2 MHz)
- Worldwide UWB Radio Regulatory compliance
- Control easily by AT commands
- Provides precision location and data transfer simultaneously
- Designed with integrated antenna
- Integrated AES 128

APPLICATIONS

- Precision real time location systems (RTLS) using two-way ranging.
- Location aware wireless sensor Networks
- Industrial Monitoring and Control Equipment

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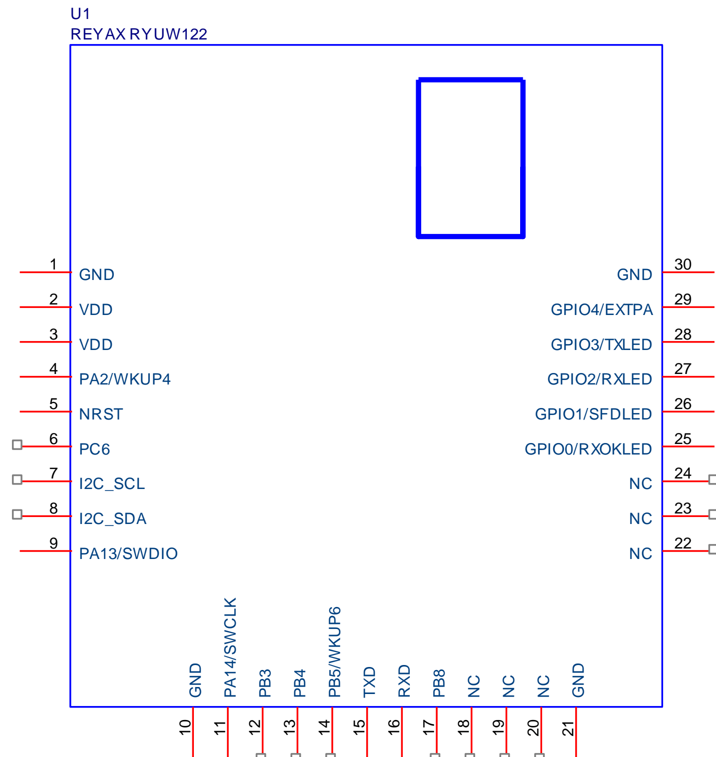
PIN DESCRIPTION



Pin	Name	I/O	Condition
1	GND	-	Ground
2	VDD	P	Power supply
3	VDD	P	Power supply
4	PA2/WKUP4	I	WAKE UP pin
5	NRST	I	Low reset trigger input
6	PC6	I/O	Not Connected, Reserved for future applications
7	I2C_SCL	I/O	Not Connected, Reserved for future applications
8	I2C_SDA	I/O	Not Connected, Reserved for future applications
9	PA13/SWDIO	I/O	Not Connected, Reserved for future applications
10	GND	-	Ground
11	PA14/SWCLK	I/O	Not Connected, Reserved for future applications
12	PB3	I/O	Not Connected, Reserved for future applications
13	PB4	I/O	Not Connected, Reserved for future applications
14	PB5/WKUP6	I	WAKE UP pin
15	TXD	O	UART Data Output
16	RXD	I	UART Data Input
17	PB8	I/O	Not Connected, Reserved for future applications
18	NC	-	Leave Unconnected.

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19	NC	-	Leave Unconnected.
20	NC	-	Leave Unconnected.
21	GND	-	Ground
22	NC	-	Leave Unconnected.
23	NC	-	Leave Unconnected.
24	NC	-	Leave Unconnected.
25	GPIO0/RXOKLED	O	Not Connected, Reserved for debug.
26	GPIO1/SFDLED	O	Not Connected, Reserved for debug.
27	GPIO2/RXLED	O	Not Connected, Reserved for debug.
28	GPIO3/TXLED	O	Not Connected, Reserved for debug.
29	GPIO4/EXTPA	O	Not Connected, Reserved for debug.
30	GND	-	Ground

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SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
VDD Power Supply	2.4	3.3	3.6	V	VDD
RF Output Power Range			-32	dBm	
RF Sensitivity		-100		dBm	
RF Input Level			14	dBm	
Frequency Range		6489.6 7987.2		GHz	Channel 5 Channel 9
Location accuracy		10		cm	
Frequency Accuracy		±10		ppm	
Communication Range				M	
Transmit Current		88		mA	
Receive Current		32		mA	
Sleep Current		1		uA	
Baud rate	38400	115200	115200	bps	8, N, 1
Digital Input Level High	0.7*VDD		VDD	V	VIH
Digital Input Level Low	0		0.3*VDD	V	VIL
Digital Output Level High	0.9		VDD	V	VOH
Digital Output Level Low			0.1	V	VOL
Weight		7		g	
Operating Temperature	-40	25	+85	˚C	

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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

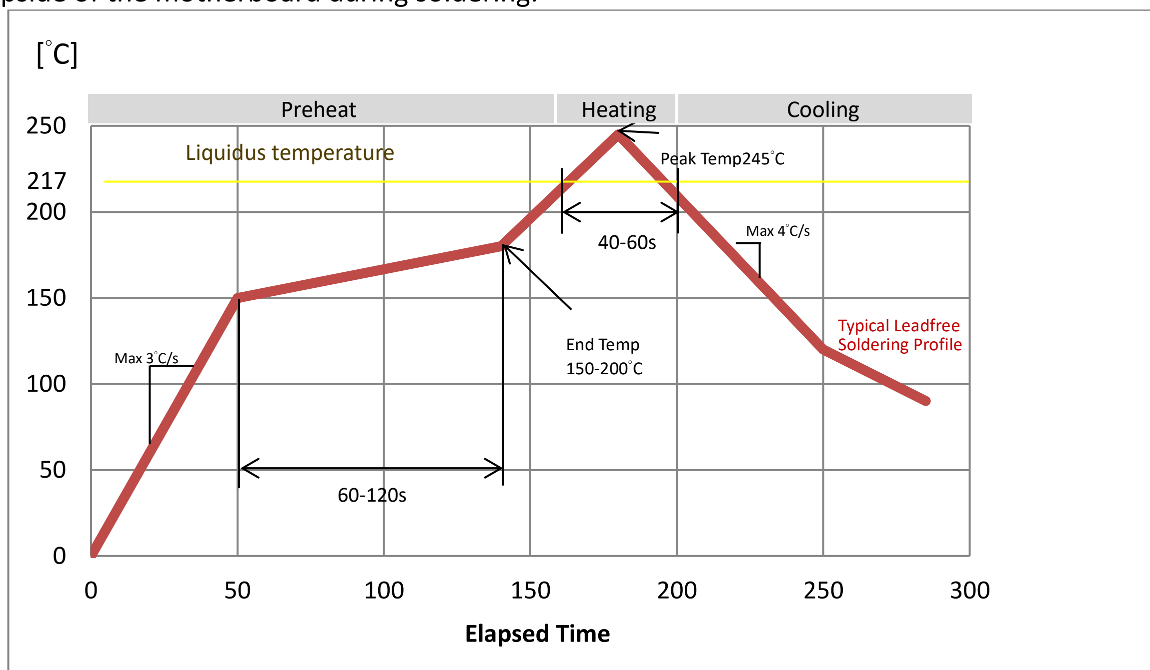
The temperature rises above the liquidus temperature of 217°C. Avoid a sudden rise in temperature as the slump of the paste could become worse.

- 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 REYAX module should be placed on the topside of the motherboard during soldering.



Recommended soldering profile

***Note: Does not support upside-down/bottom side reflow.**

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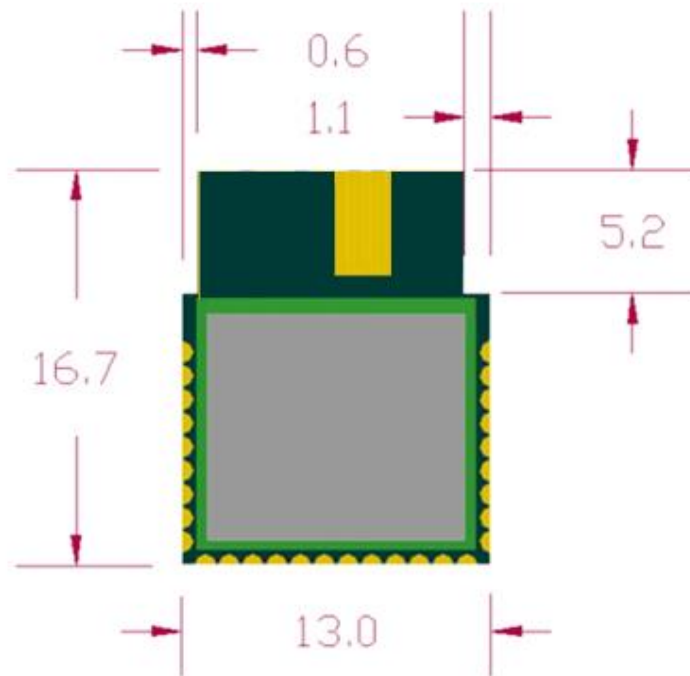
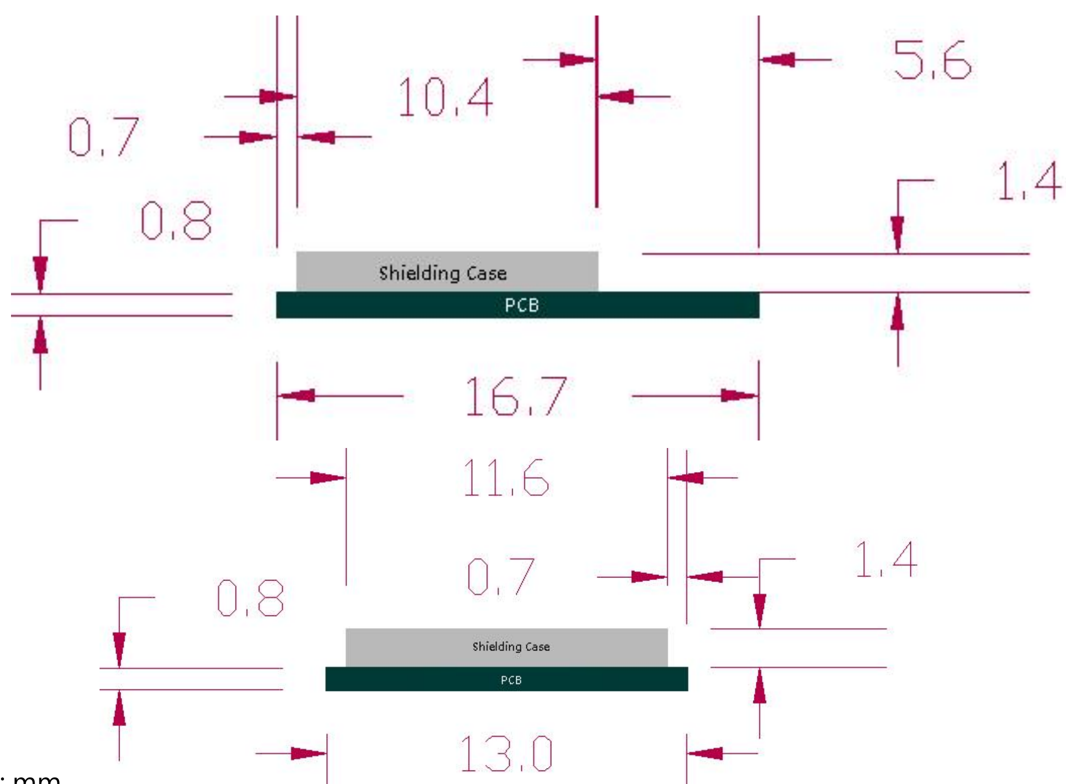
DIMENSIONS





Unit : mm

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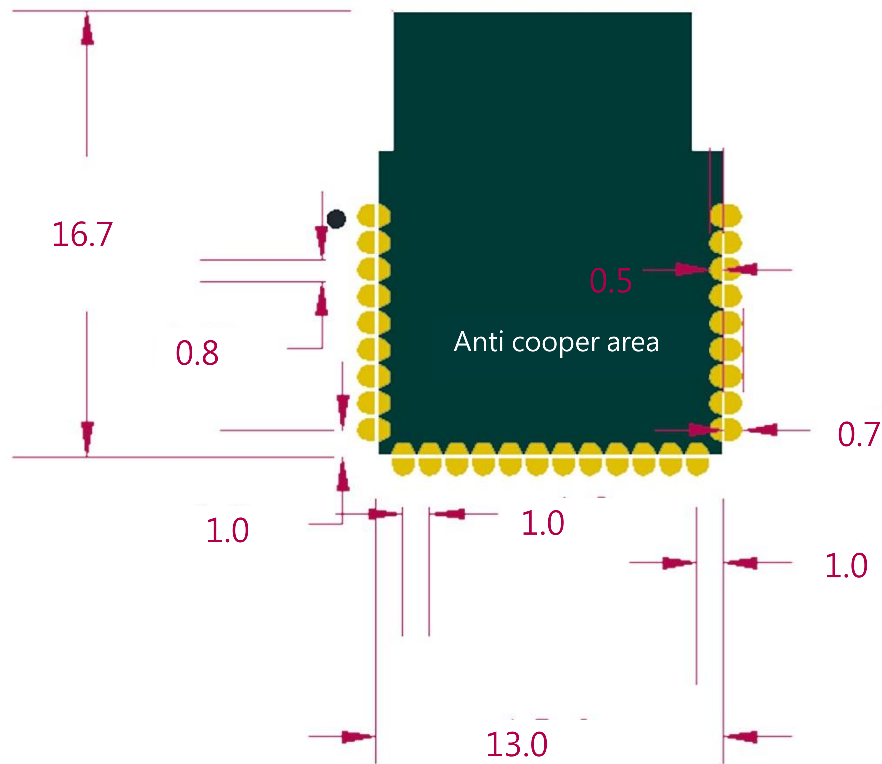
LAYOUT FOOTPRINT RECOMMENDATIONS



Unit : mm

REYAX
TECHNOLOGY CORPORATION, LTD

E-mail: sales@reyax.com
Website: http://reyax.com

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