REYAX
TECHNOLOGY CORPORATION, LTD

09-MAR-2020 56312E39

RYLR890

868/915 MHz LoRa®
Low Power Long Range
Transceiver Module

Datasheet

13mm*11mm*2.2mm

產品介紹

RYLR890 收發模組的特點在於採用 LoRa®長距離調製解調器，提供超長距離擴頻通信和高抗干擾性，並同時最大限度地降低其電流消耗。

功能與特色

- Semtech SX1276 核心
- 高效能功率放大器
- 優異的隔絕干擾抑制
- 低接收電流
- 高靈敏度
- 127 dB RSSI 動態範圍

應用範圍

- 物聯網應用
- 移動設備
- 家庭保全
- 工業監控和控制設備
- 汽車警報

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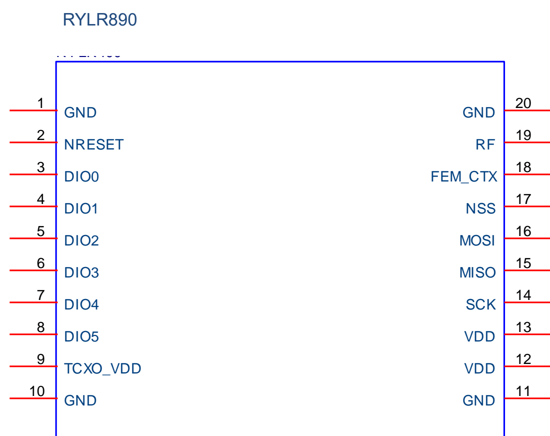
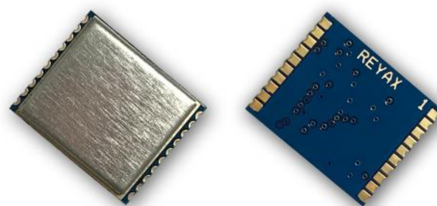
PIN DESCRIPTION





Pin	Name	I/O	Condition
1	GND	-	Ground
2	NRESET	I/O	Reset trigger input
3	DIO0	I/O	Digital I/O, software configured
4	DIO1	I/O	Digital I/O, software configured
5	DIO2	I/O	Digital I/O, software configured
6	DIO3	I/O	Digital I/O, software configured
7	DIO4	I/O	Digital I/O, software configured
8	DIO5	I/O	Digital I/O, software configured
9	TCXO_VDD	I	TCXO Power Supply
10	GND	-	Ground
11	GND	-	Ground
12	VDD	I	Power Supply
13	VDD	I	Power Supply
14	SCK	I	SPI Clock input
15	MISO	O	SPI Data output
16	MOSI	I	SPI Data input
17	NSS	I	SPI Chip select input
18	FEM_CTX	I	Optional RF Switch control Leave Unconnected.
19	RF	I/O	RF Input/Output
20	GND	-	Ground

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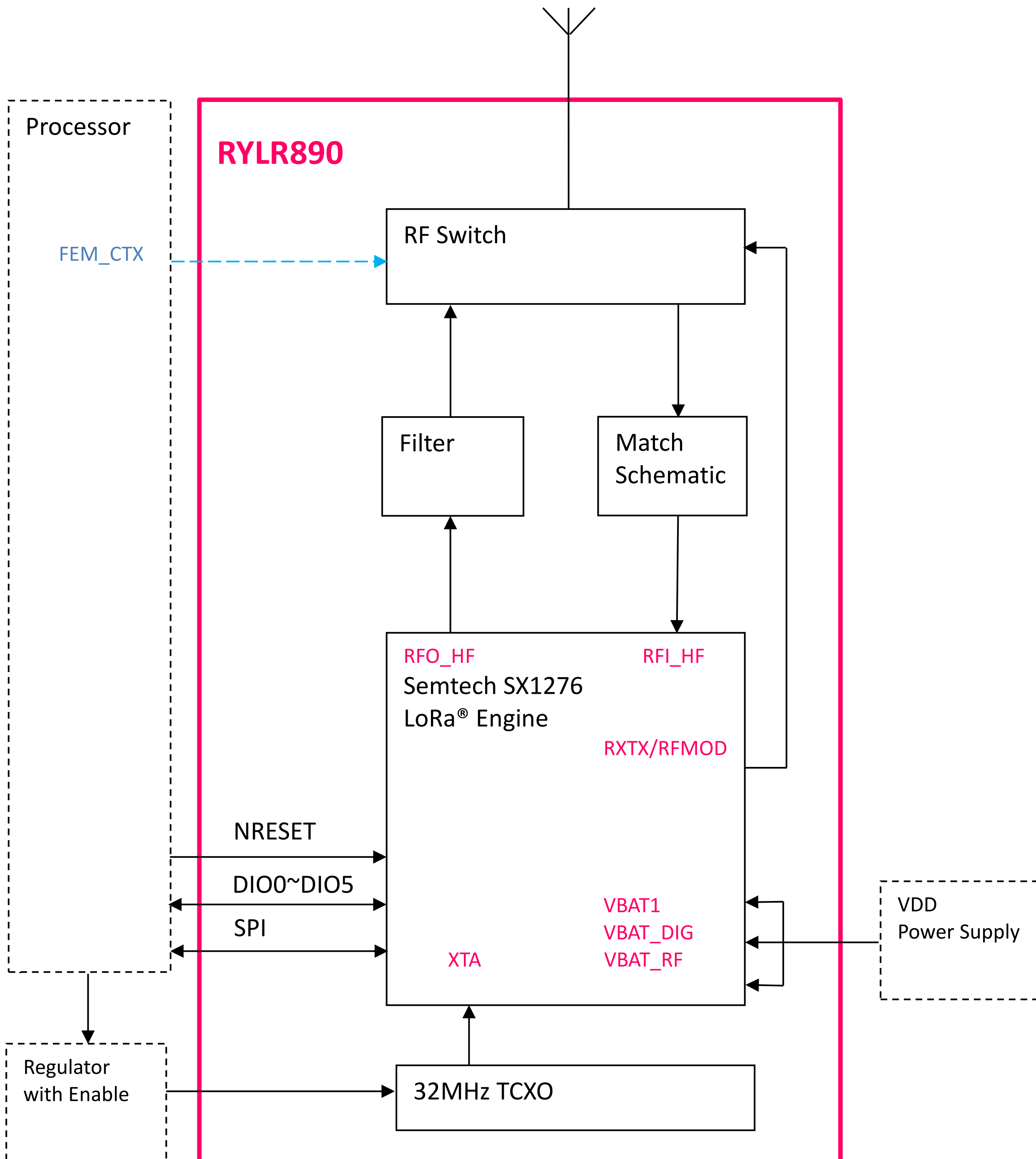
BLOCK DIAGRAM



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SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
VDD Power Supply	1.8	3.3	3.6	V	
TCXO Power Supply	1.7		3.3	V	
TCXO Accuracy		±2		ppm	
TCXO Long-term Frequency Stability		±1		ppm /Year	
TCXO Rise time		3		ms	
RF Output Power Range	-4		15	dBm	
Filter insertion loss	1	2	3	dB	
Harmonic			-36	dBm	
RF sensitivity	-148			dBm	
RF Input Level			10	dBm	
Frequency Range	862	868/915	1020	MHz	
SX1276 Transmit Current		29		mA	RFOP = +13 dBm
SX1276 Receive Current		11.5		mA	LNA Boost On
Sleep Current		0.2		uA	
RF Switch Current		10		uA	
TCXO Current		2.5		mA	
Communication Range		4		KM	Open Space 125KHz
Digital input level high	0.8		VDD	V	VIH
Digital input level low			0.2	V	VIL
Digital output level high	0.9			V	VOH Imax = 1 mA
Digital output level low			0.1	V	VOL Imax = -1 mA
Operating Temperature	-40	25	+85	˚C	
Dimensions					13mm*11mm*2.2mm
Weight		1		g	

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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

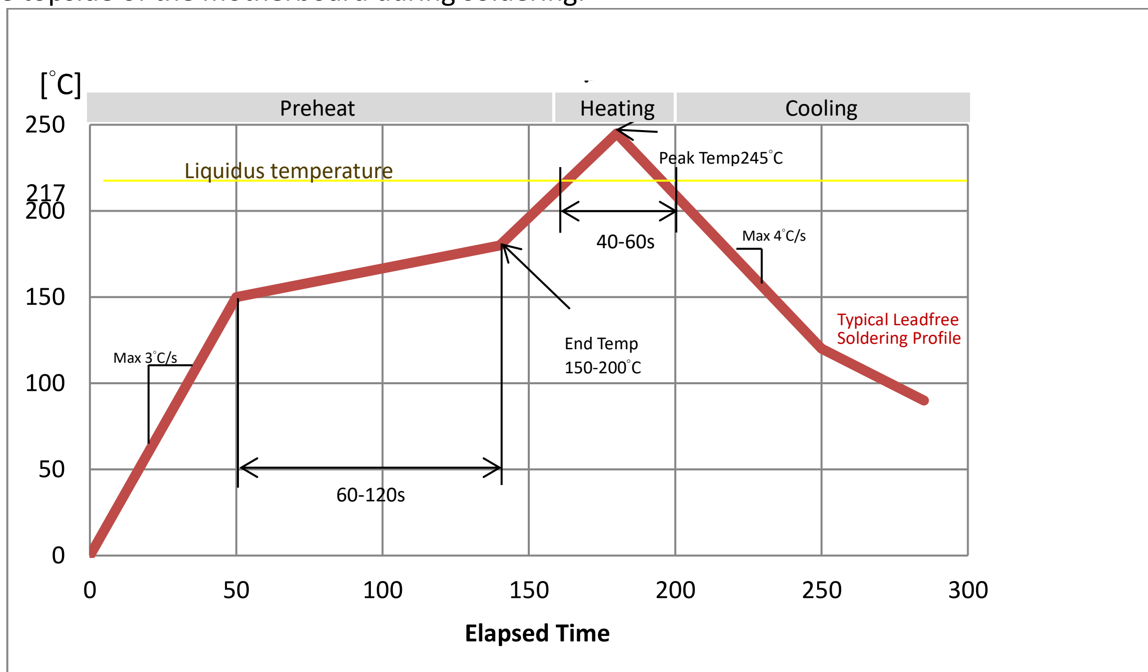
The temperature rises above the liquidus temperature of 217°C. Avoid a sudden rise in temperature as the slump of the paste could become worse.

- 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 RYB070I module should be placed on the topside of the motherboard during soldering.



Recommended soldering profile

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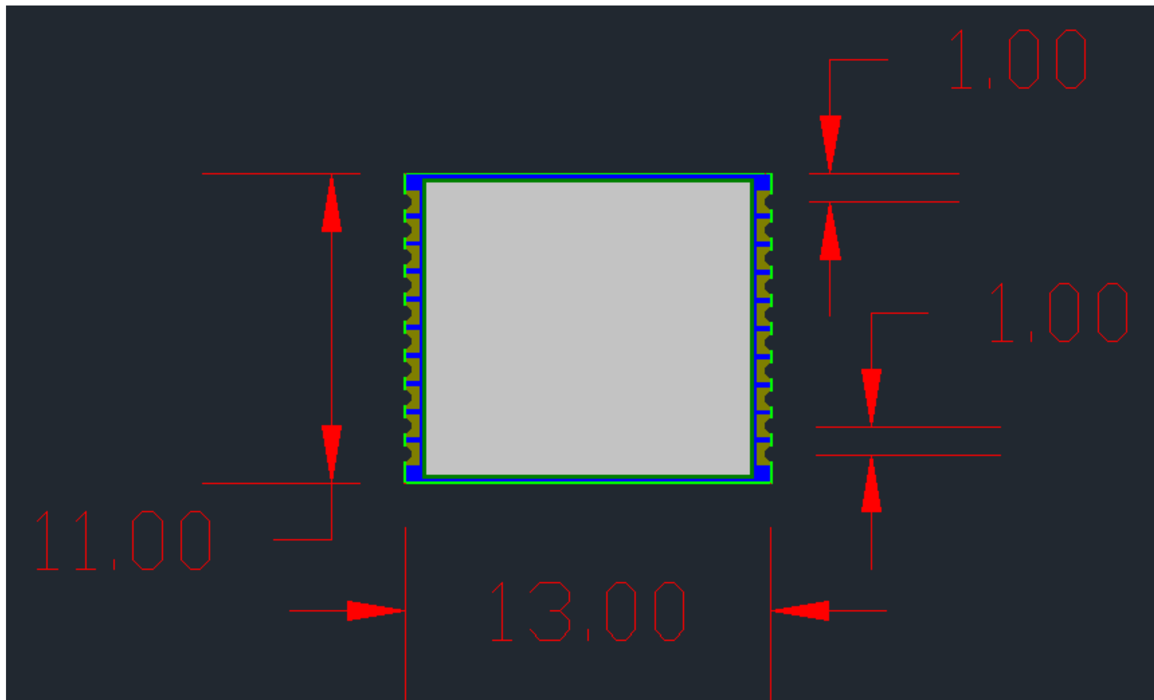
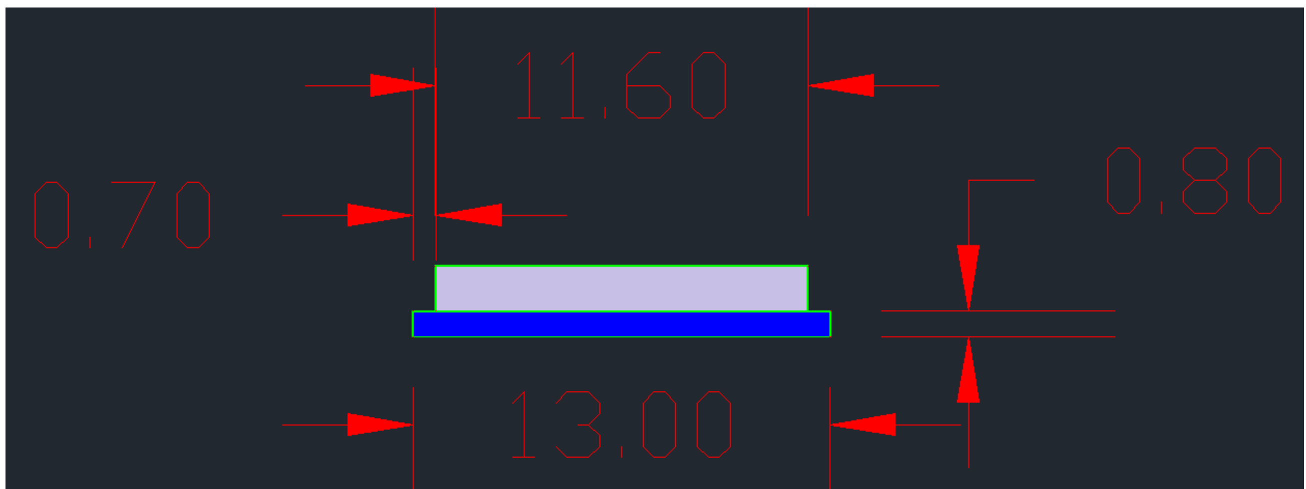
DIMENSIONS





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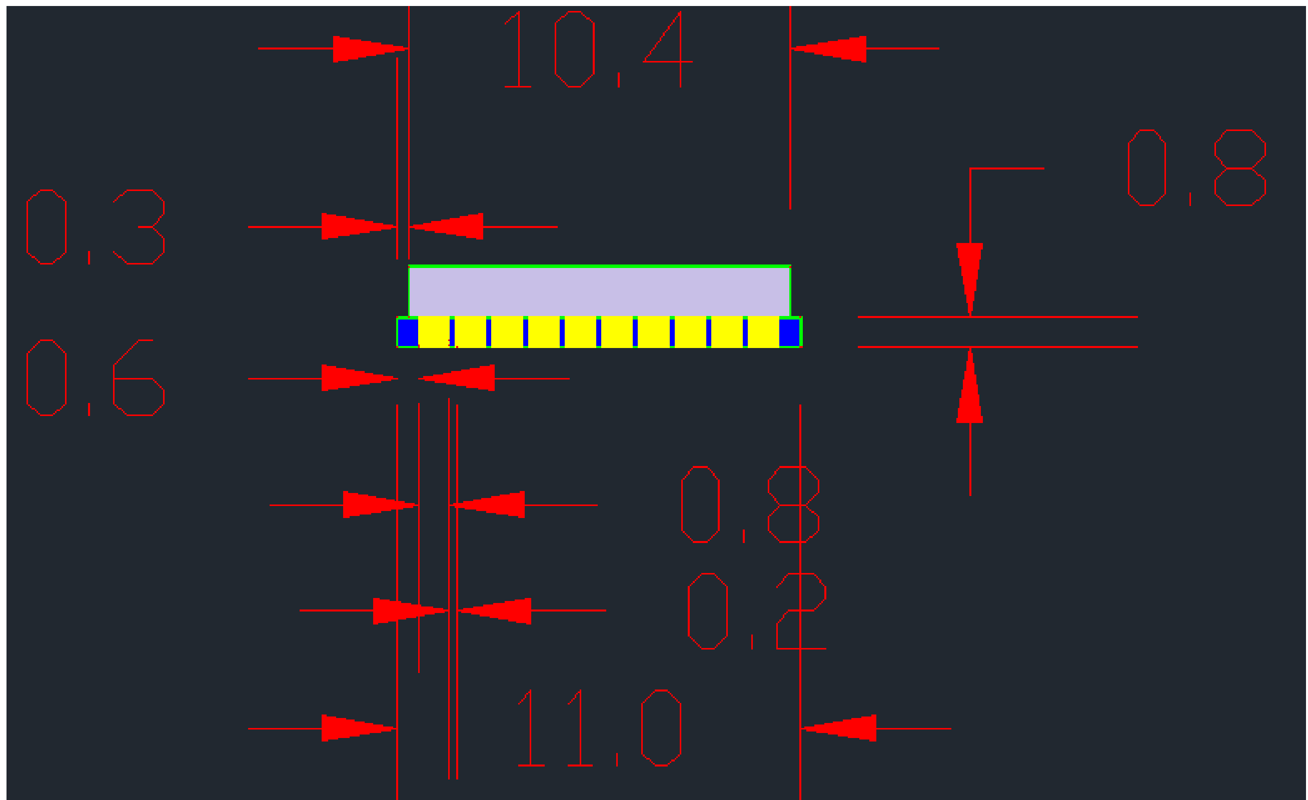

Unit : mm

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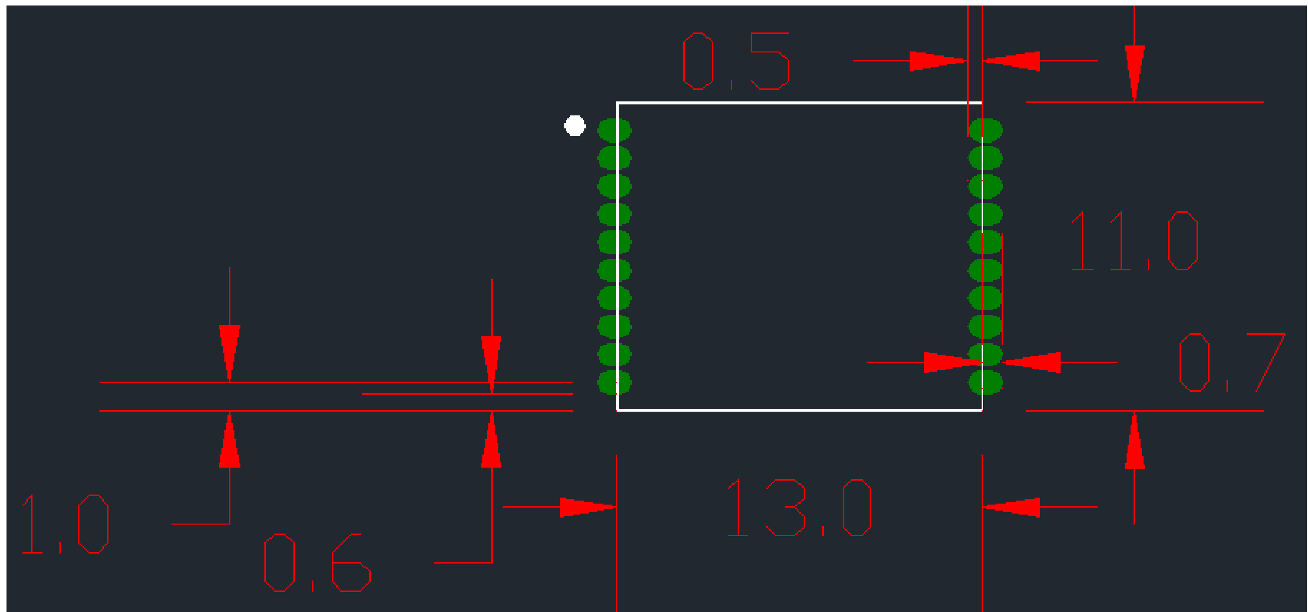
LAYOUT FOOTPRINT RECOMMENDATIONS



Unit : mm

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