

RYLR890

868/915 MHz LoRa
Low Power Long Range
Transceiver Module

Datasheet



13mm*11mm*2.2mm



产品介绍

RYLR890 收发模块的特点在于采用 LoRa 长距离调制解调器,提供超长距离扩频通信和高抗干扰性,并同时最大限度地降低其电流消耗。

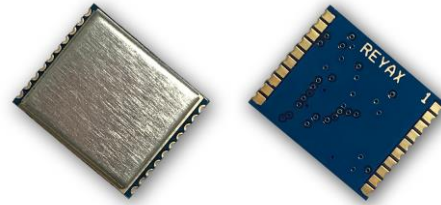
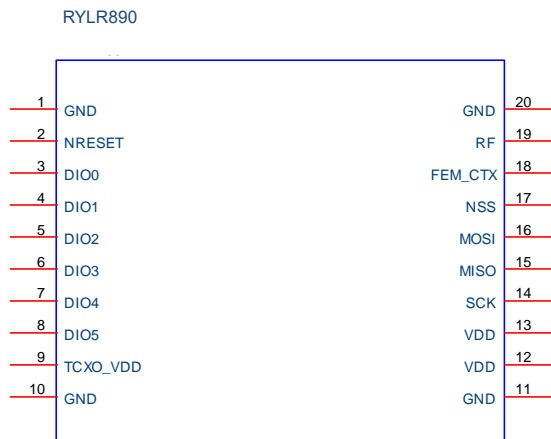
功能与特色

- Semtech SX1276 核心
- 高效能功率放大器
- 优异的隔绝干扰抑制
- 低接收电流
- 高灵敏度
- 127 dB RSSI 动态范围

应用范围

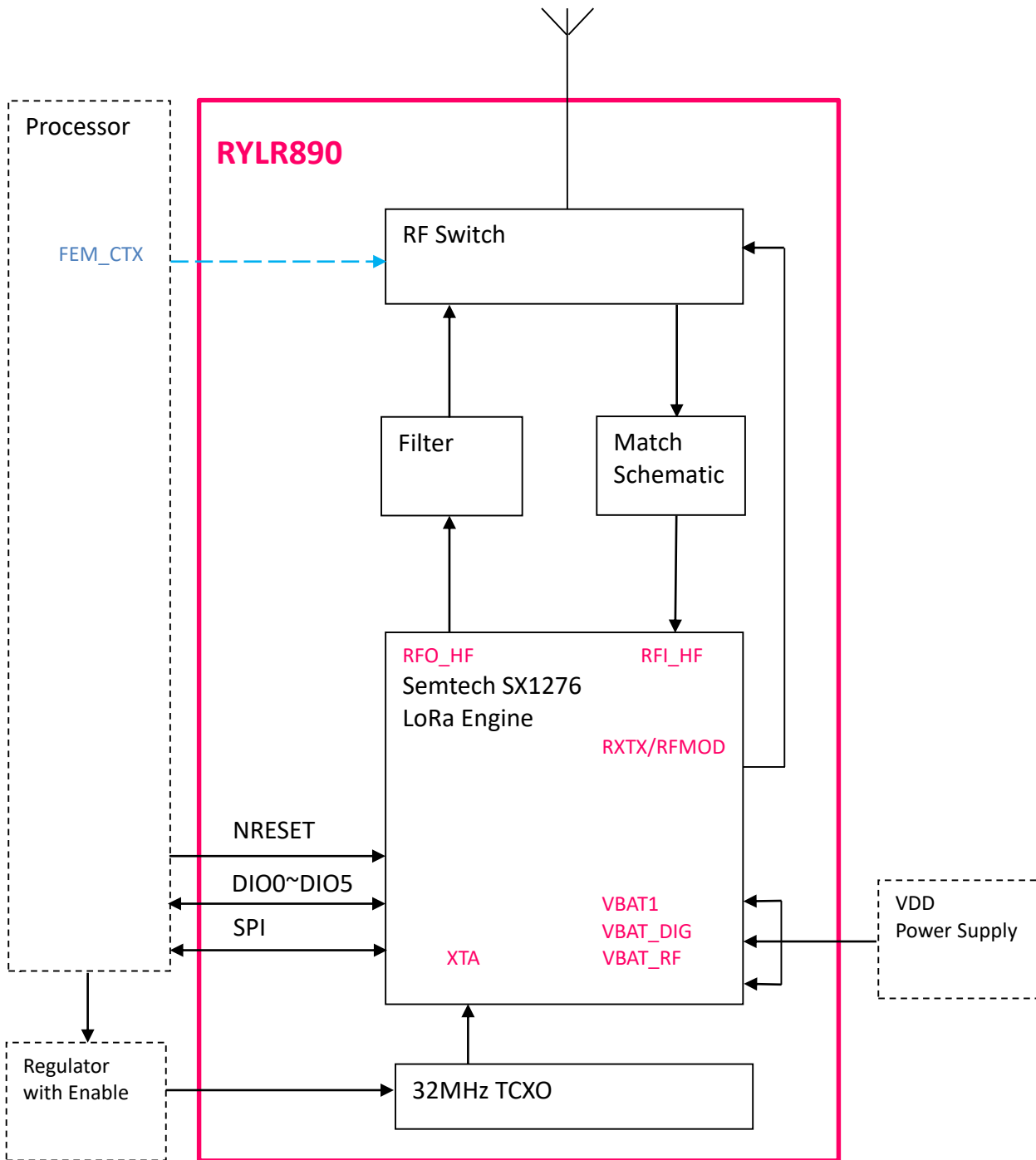
- 物联网应用
- 移动设备
- 家庭保全
- 工业监控和控制设备
- 汽车警报

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

BLOCK DIAGRAM



SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
VDD Power Supply	2.8	3.3	3.6	V	
TCXO Power Supply	1.7		3.3	V	1.7mA
TCXO Accuracy		±2.5		ppm	
TCXO Long-term Frequency Stability		±1		ppm /Year	
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	820	868/915	1020	MHz	
Transmit Current		29		mA	RFOP = +13 dBm
Receive Current		11.5		mA	LNA Boost On
Standby Current		1.6		mA	Crystal oscillator enabled
Sleep Current		0.2		uA	
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 I _{max} = 1 mA
Digital output level low			0.1	V	VOL I _{max} = -1 mA
Operating Temperature	-40	25	+85	°C	
Dimensions					13mm*11mm*2.2mm
Weight		1		g	

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

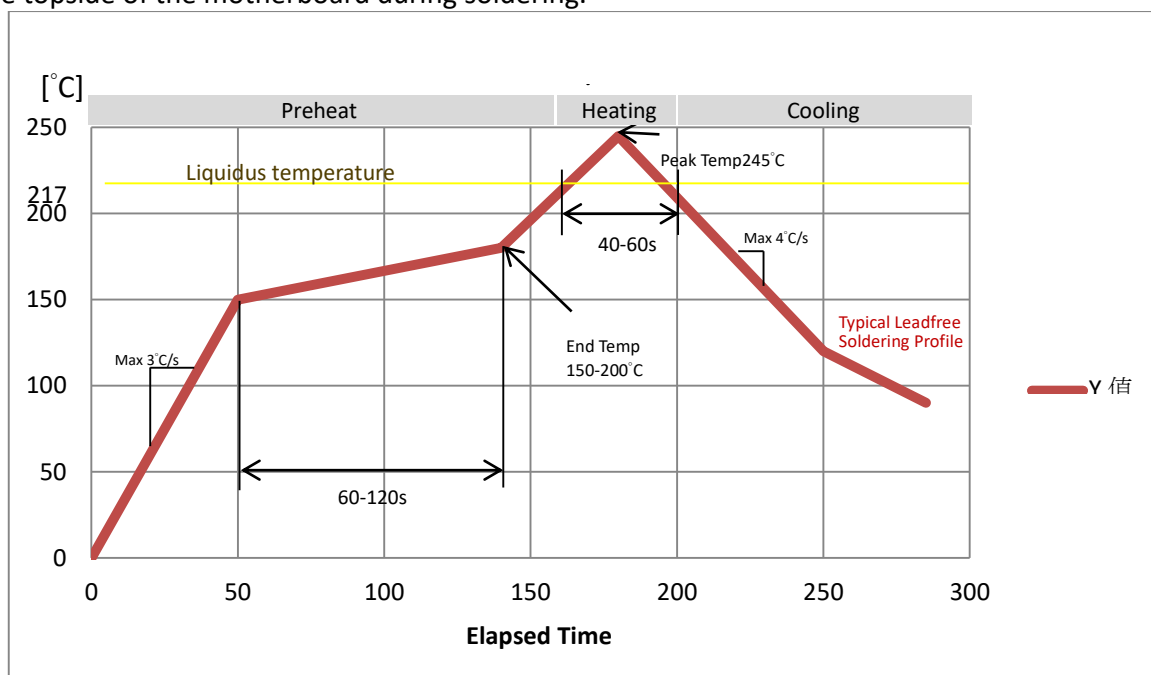
The temperature rises above the liquidus temperature of 217°C. Avoid a sudden rise in temperature as the slump of the paste could become worse.

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

Cooling phase

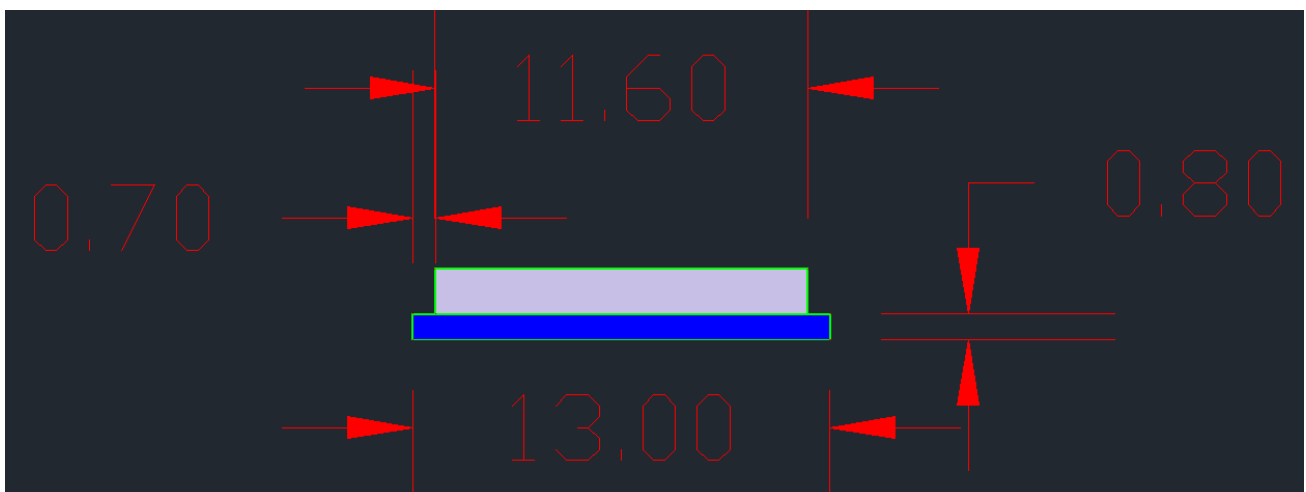
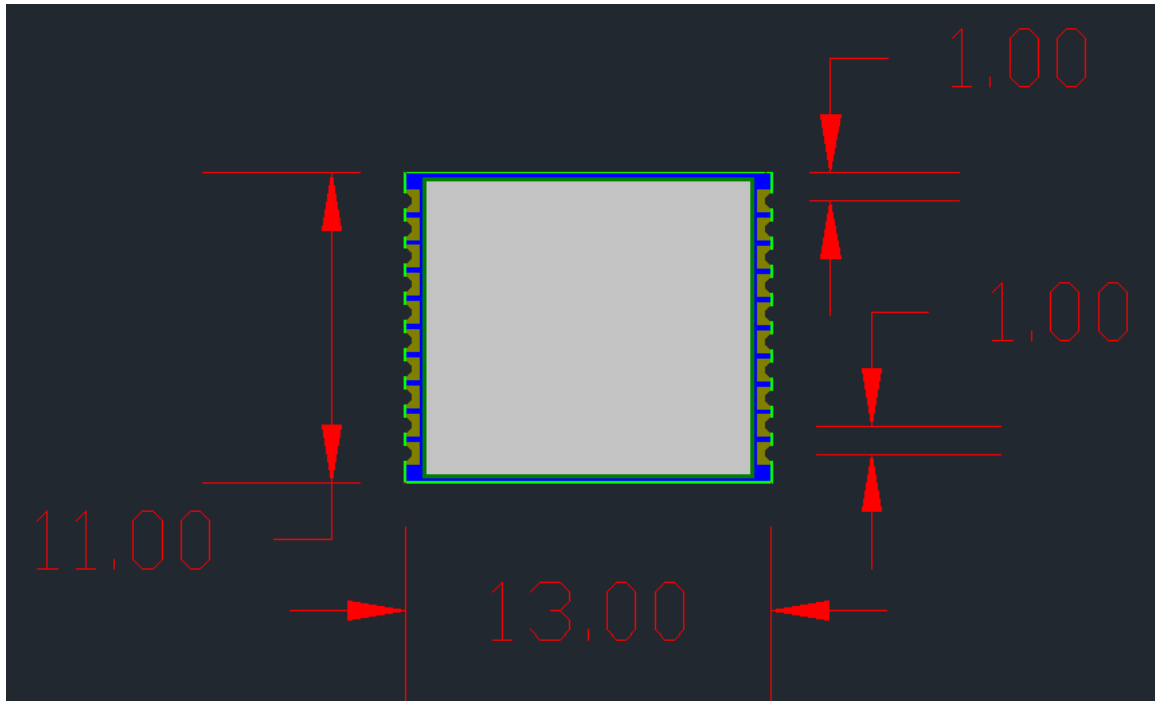
A controlled cooling avoids negative metallurgical effects (solder becomes more brittle) of the solder and possible mechanical tensions in the products. Controlled cooling helps to achieve bright solder fillets with a good shape and low contact angle.

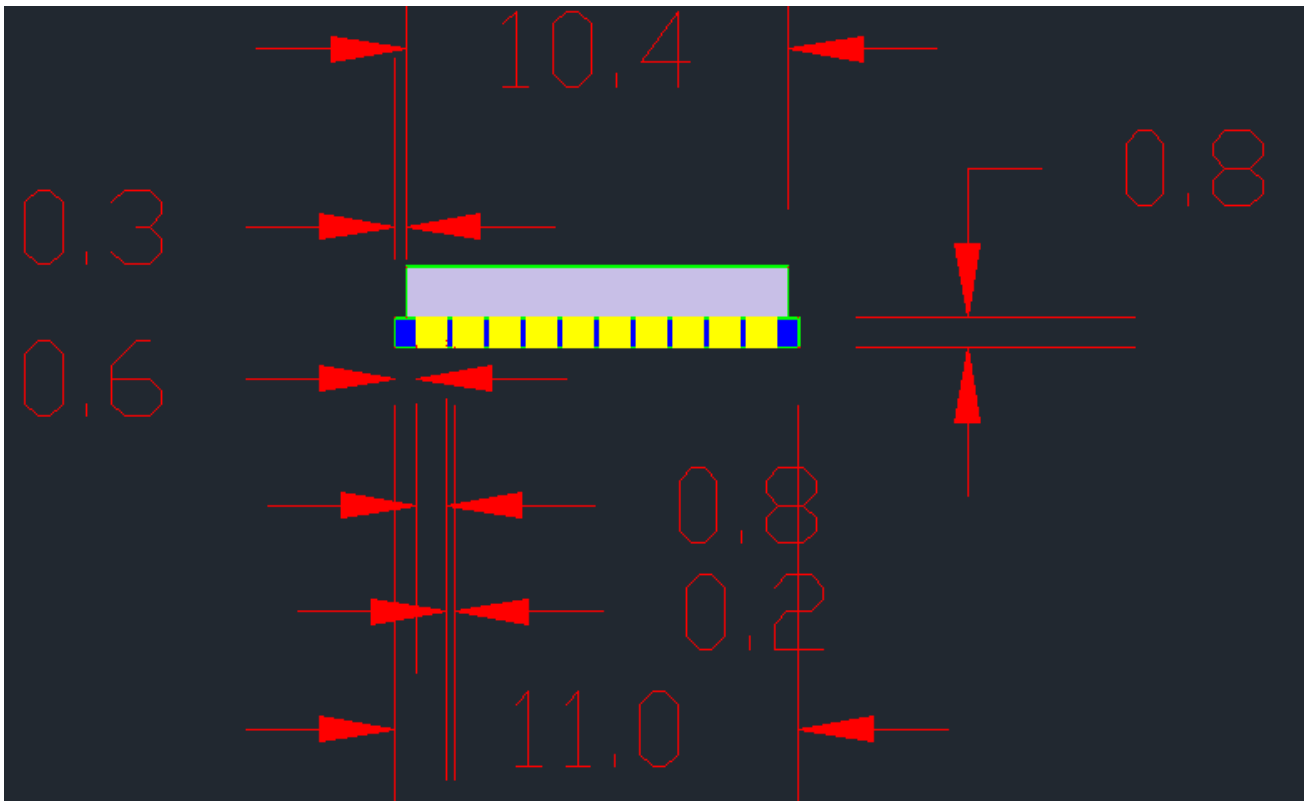
- Temperature fall rate: max 4 °C/s To avoid falling off, the REYAX RYB070I module should be placed on the topside of the motherboard during soldering.



Recommended soldering profile

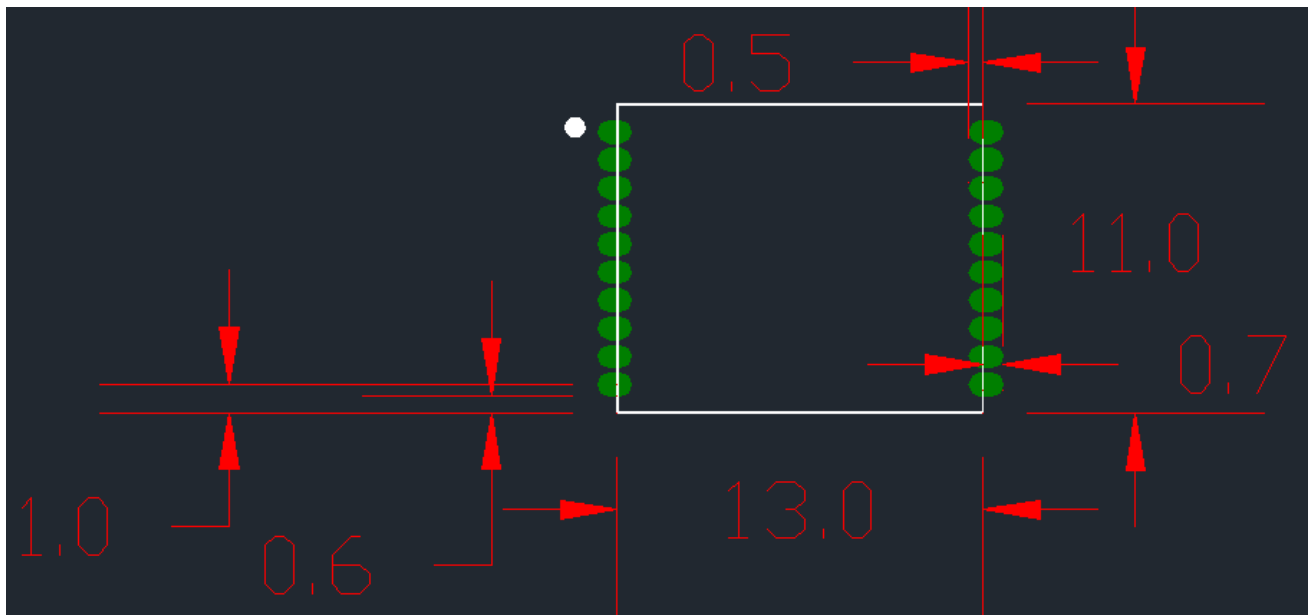
DIMENSIONS





Unit : mm

LAYOUT FOOTPRINT RECOMMENDATIONS



Unit : mm

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