REYAX
TECHNOLOGY CORPORATION, LTD

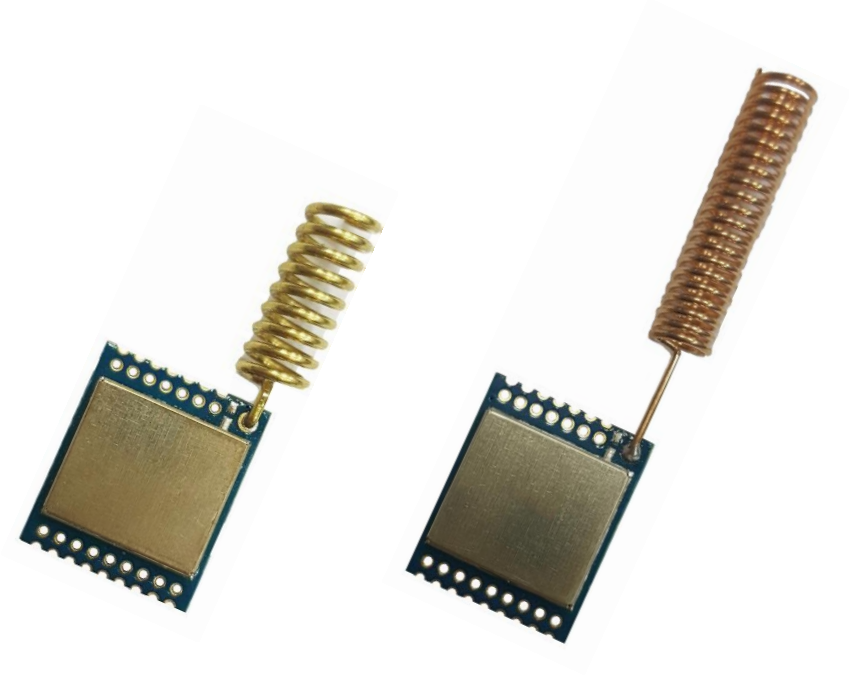
13-DEC-2018 56312E31

RYFAxxx Series

433/868/915MHz Ultra Low Power

RF Transceiver Module with Internal Antenna

Datasheet



Represented by:

first FC components

FIRST Components srl Via Cavour 69, 21020 Buguggiate (VA)

T. +39 0332 1888005 web: www.first-components.com

PRODUCT DESCRIPTION

The REYAX RYFAxxx is based on Amiccom A7129 chip. It is a monolithic low-IF architecture CMOS FSK/GFSK TRX for wireless applications in the ISM bands. This device is especially suitable for battery-powered application.

FEATURES

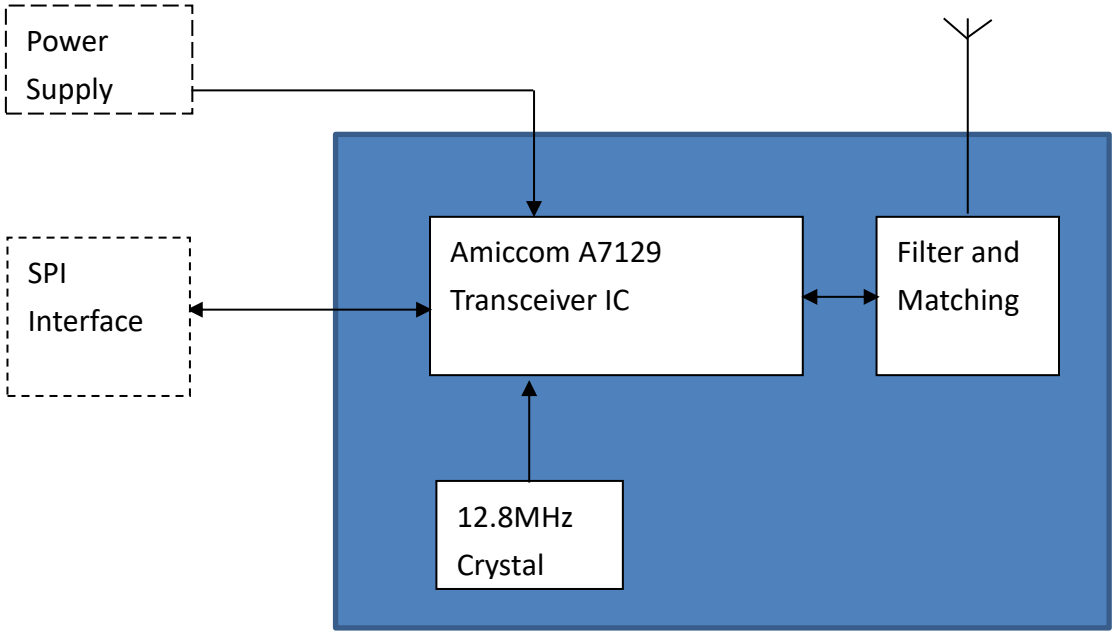
- FSK and GFSK modulation.
- Ultra Low RX Current Consumption : 4.5mA.
- High RX sensitivity, -117dBm at 2Kbps on-air data rate.
- Programmable data rate from 2Kbps to 150Kbps.
- Programmable TX power level from – 40dBm to 12dBm.
- Support 3-wire or 4-wire SPI.
- Designed with internal antenna.
- Metal cover against EMI interference

APPLICATIONS

- Wireless Sensor Networking
- Wireless Remote Controller
- Home Security
- AMR (Auto Metering Reading)

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BLOCK DIAGRAM



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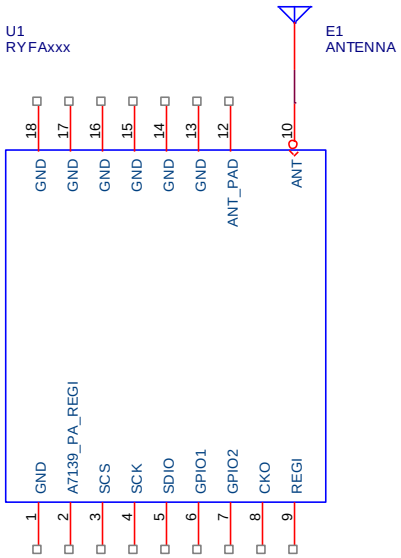
SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
Supply Voltage	1.9	3.3	3.6	V	VDD
Current Consumption		0.3		uA	Deep Sleep Mode (no register retention)
434MHz TX12.8dBm		36		mA	
868MHz TX12.5dBm		36		mA	
915MHz TX11dBm		36		mA	
RX		4.5		mA	
Maximum Output Power			13	dBm	
RF Frequency Accuracy		10		ppm	
RX Sensitivity		-117		dBm	@BER=0.1% high gain mode 2kbps (IFBW=50KHz)
RF Sensitivity	-118			dBm	
Data rate	2		150	Kbps	
High Level Input Voltage	0.8VDD		VDD	V	VIH
Low Level Input Voltage	0		0.2VDD	V	VIL
High Level Output Voltage	VDD-0.4		VDD	V	VOH
Low Level Output Voltage	0		0.4	V	VOL
Operating Temperature	-40	25	+85	˚C	VDD
Weight		6		g	

***For more detail, please refer to the Amiccom A7129 datasheet.**

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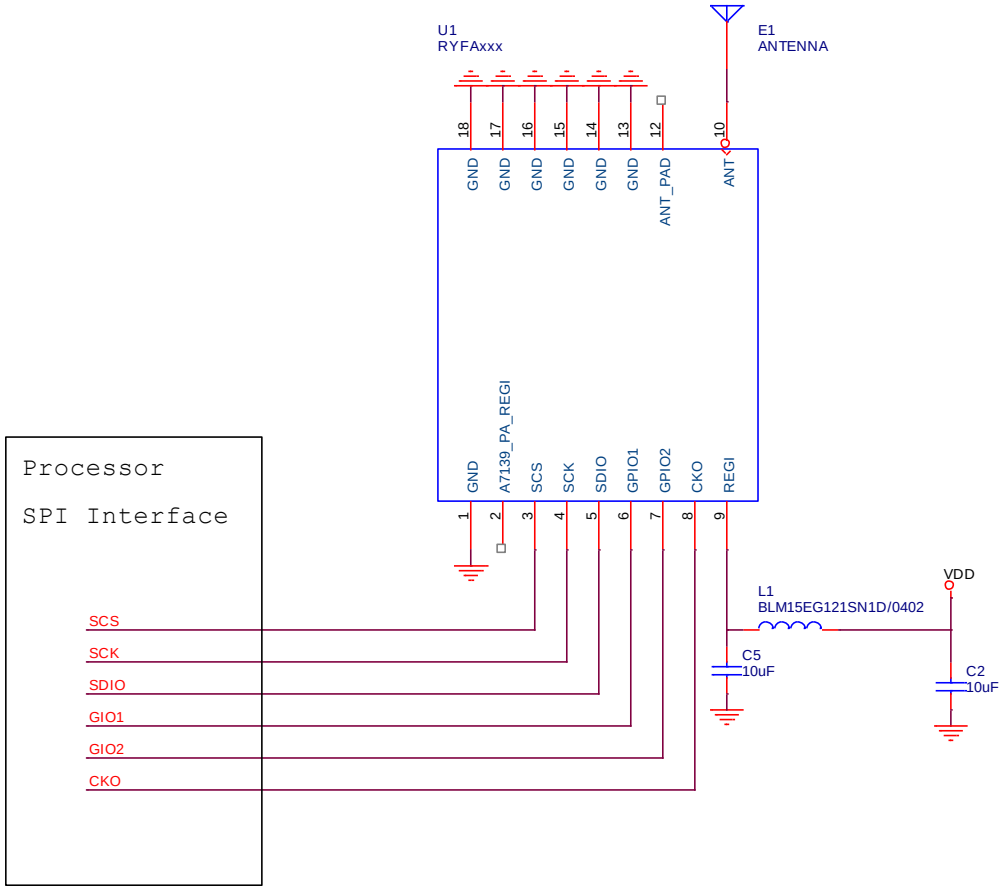
PIN DESCRIPTION



Pin	Name	I/O	Condition
1	GND	-	Ground
2	NC	-	Leave Unconnected.
3	SCS	I	SPI chip select input.
4	SCK	I	SPI clock input.
5	SDIO	I/O	SPI data IO.
6	GIO1	I/O	Multi-function IO 1 / SPI data output
7	GIO2	I/O	Multi-function IO 2 / SPI data output
8	CKO	O	Multi-function clock output.
9	REGI	I	Regulator input. Connect to VDD supply.
10	ANT	-	ANTENNA
12	ANT_PAD	-	External Antenna Version Used
13	GND	-	Ground
14	GND	-	Ground
15	GND	-	Ground
16	GND	-	Ground
17	GND	-	Ground
18	GND	-	Ground

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APPLICATION SCHEMATIC



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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

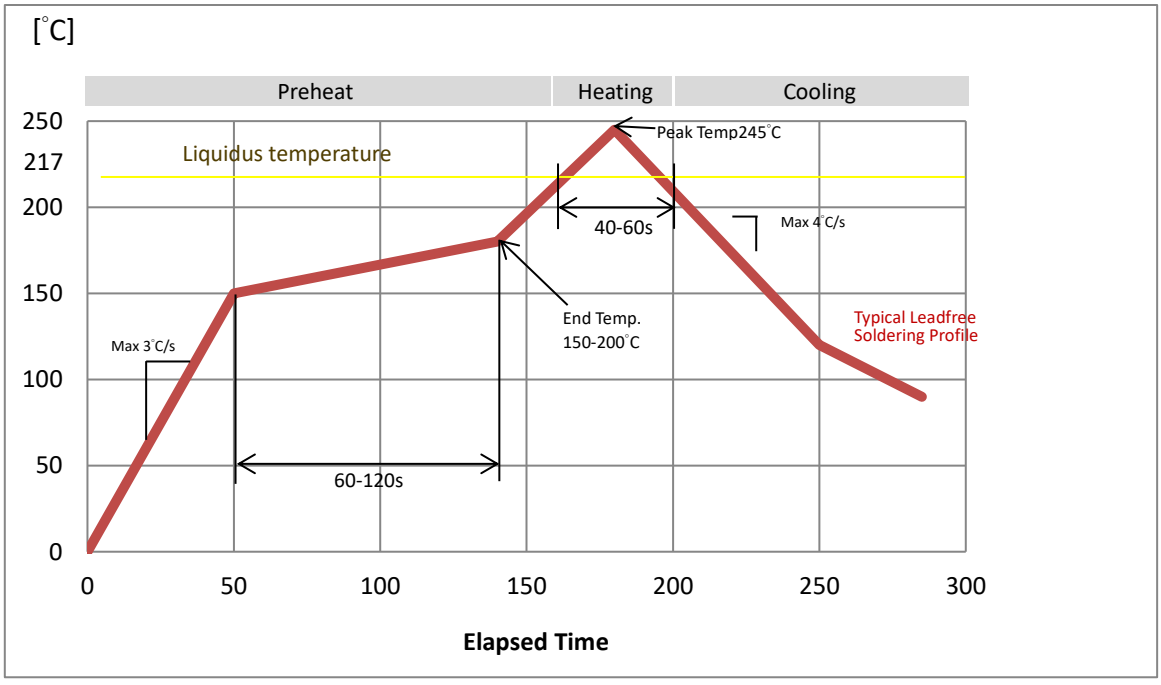
The temperature rises above the liquidus temperature of 217°C. Avoid a sudden rise in temperature as the slump of the paste could become worse.

- 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.

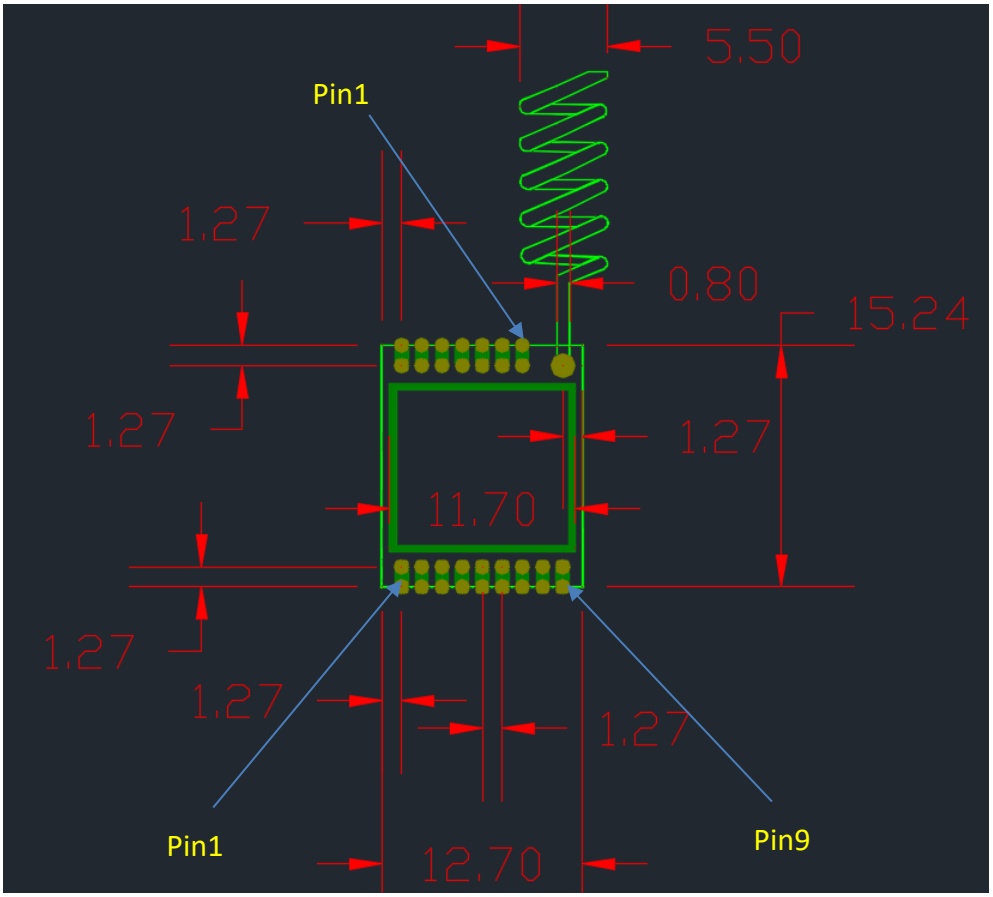


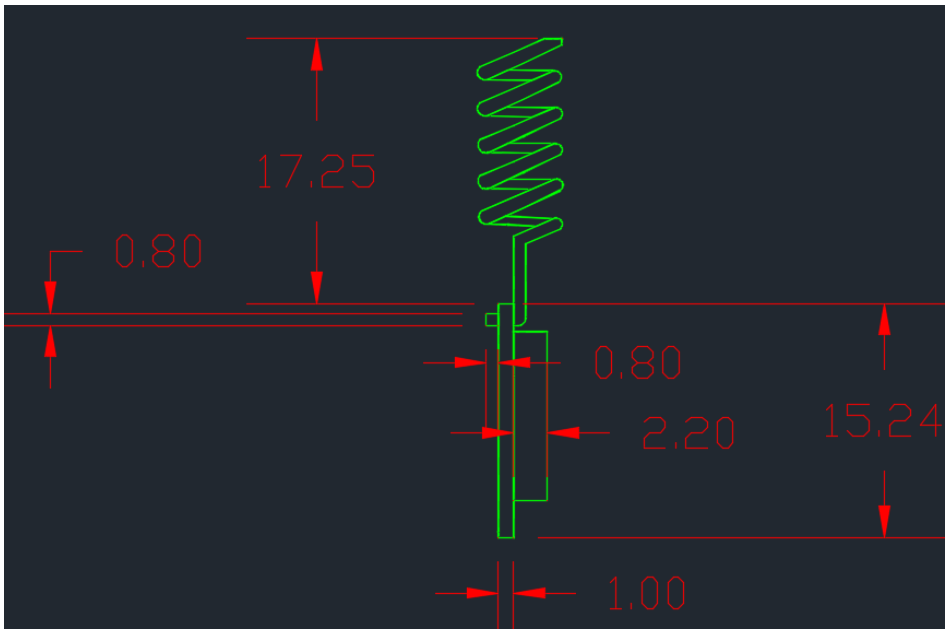
Recommended soldering profile

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DIMENSIONS

- FA868/RYFA915

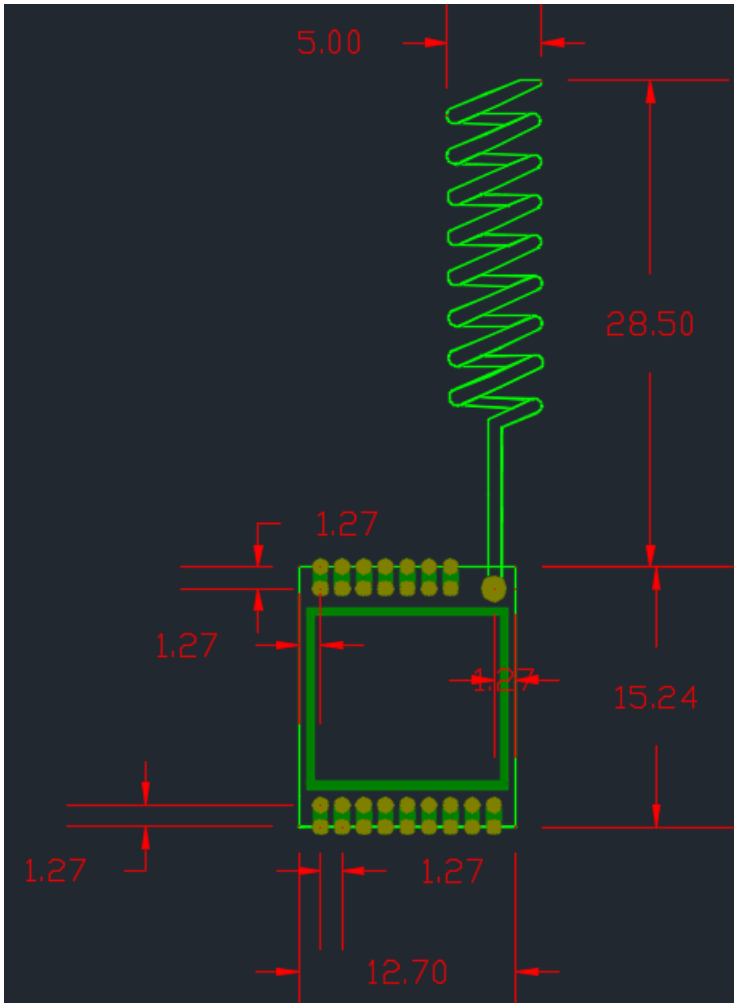




Unit: mm

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- RYFA433



ORDER INFORMATION

Ordering No.	Frequency
RYFA433	433MHz
RYFA868	868MHz
RYFA915	915MHz

REYAX
TECHNOLOGY CORPORATION, LTD

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

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