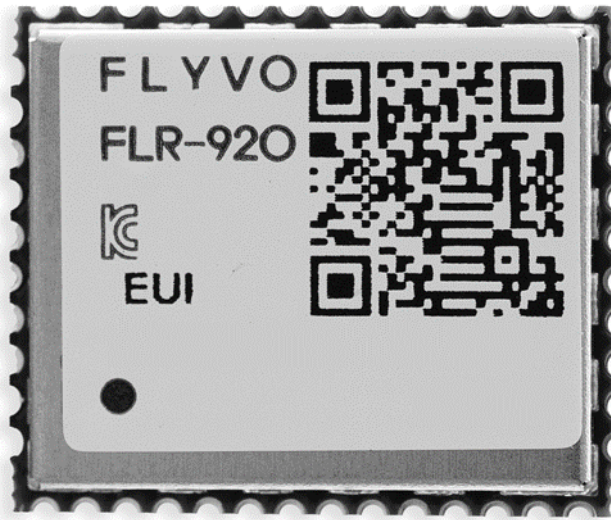


FLR-920

LoRa Module SPECIFICATIONS



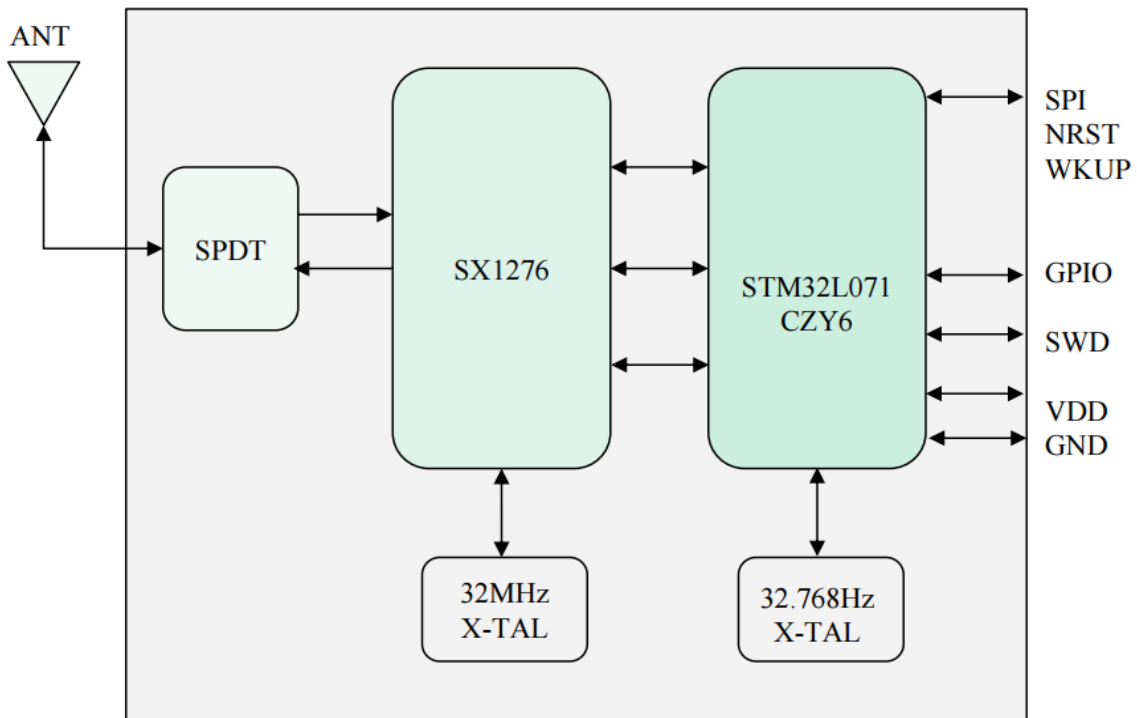
R&D : Flyvo / Sales : eWBM e-Mail : iot@ewbm.com

1. 제품 소개

FLR-920은 LoRa™ 변조 기술을 사용하는 소형, 저전력, 양방향 RF 모듈입니다.

이 모듈은 보안 시스템을 지원하는 스마트 트래킹, 센서 및 각종 장치의 제어 솔루션에 적용 가능한 효율적인 제품입니다.

2. System Block diagram

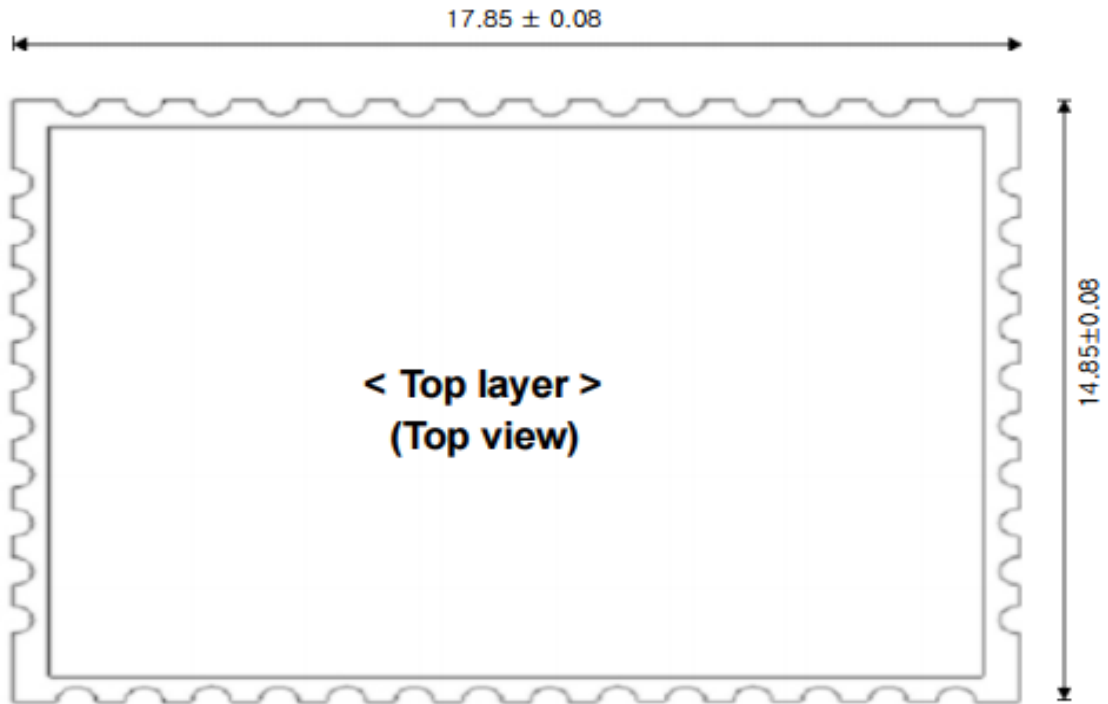


3. 기능 지원 사양

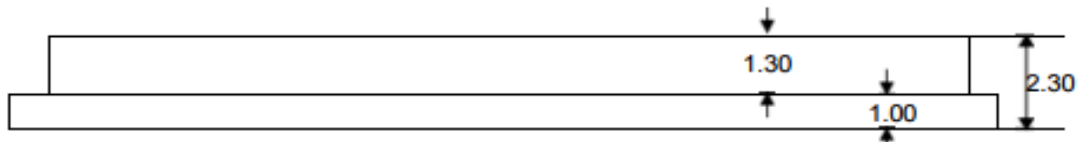
- 1) LoRa Modulation technology.
- 2) Use the 'STM32L071CZY6' MCU with security system.
- 3) FLR-920 support UART, SPI interface.
- 4) 917MHz ISM band operates.
- 5) Module outline dimension : 14.85 x 17.85 x Max. 2.30 (mm)
- 6) 32.768kHz and 32MHz crystal embedded.

4. Mechanical Dimensions

Dimension	14.85mm(W) x 17.85mm(L) x Max 2.3mm(H)
-----------	--



<Side View>



(Unit : mm)

5. 전기적인 특성

1) Recommended Operating Rating

Parameter	Min	Max	Unit
Operating Temperature	-30	70	°C
Supply Voltage (VDD)	3.0	3.6	V

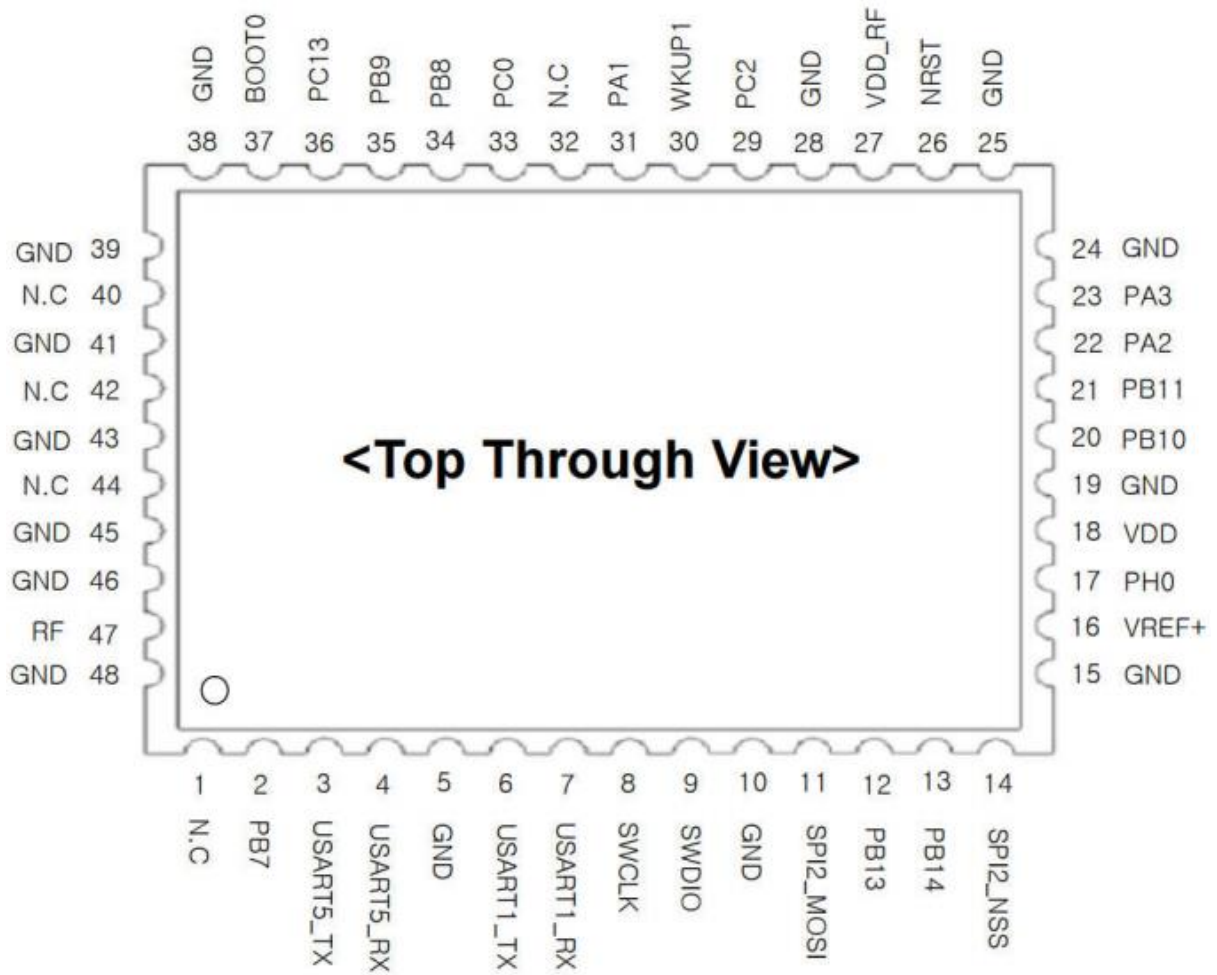
2) Current Consumption

Mode	Description	Total Typ. Current at 3.3V
Tx Mode	Tx Mode Operating (Tx power = 10dBm)	≅ 26.4mA
	Tx Mode Operating (Tx power = 14dBm)	≅ 33.9mA
Rx Mode	Rx Mode Operating	≅ 21.0mA
Sleep Mode	CLI Commend (Module Master)	≅ 18uA
Deep Sleep Mode	CLI Commend (Module Slave)	≅ 2uA

3) RF 특성

Parameter		Min	Typ	Max
TX	Frequency (MHz)	917	-	923.5
	Frequency Tolerance (KHz) , 25°C	-20	-	+20
	Output Power (dBm)	Pout ≤ 14		
RX	Receiving Sensitivity (dBm) (Conductive SF =12 , BW = 125KHz)	Sensitivity ≤ -136		

6. PIN Assignment



7. PIN Description

PIN	PIN Name	Pin Type	Description
1	N.C	-	N.C
2	PB7	I/O	Boot Loader (High Active)
3	USART5_TX	I/O	UART TX, Firmware download
4	USART5_RX	I/O	UART RX, Firmware download
5	GND	Supply	Ground connection
6	USART1_TX	I/O	N.C
7	USART1_RX	I/O	N.C
8	SWCLK	I/O	SWCLK
9	SWDIO	I/O	SWDIO
10	GND	Supply	Ground connection
11	SPI2_MOSI	I/O	N.C
12	PB13	-	N.C
13	PB14	-	N.C
14	SPI2_NSS	I/O	N.C
15	GND	Supply	Ground connection
16	VREF+	Supply	Positive reference voltage
17	PH0	-	N.C
18	VDD	Supply	Supply voltage-3.3V
19	GND	Supply	Ground connection
20	PB10	I/O	N.C
21	PB11	I/O	N.C
22	PA2	-	N.C
23	PA3	I/O	N.C
24	GND	Supply	Ground connection
25	GND	Supply	Ground connection
26	NRST	I/O	Reset
27	VDD_RF	Supply	SX1276 Supply voltage-3.3V
28	GND	Supply	Ground connection
29	PC2	I/O	N.C

30	WKUP1	I/O	Wake Up: Rising Edge
31	PA1(ADC_IN1)	-	N.C
32	N.C	-	N.C
33	PC0	-	N.C
34	PB8(I2C1_SCL)	-	N.C
35	PB9(I2C1_SDA)	-	N.C
36	PC13(WKUP2)	-	N.C
37	BOOT0	-	N.C
38	GND	Supply	Ground connection
39	GND	Supply	Ground connection
40	N.C	-	N.C
41	GND	Supply	Ground connection
42	N.C	-	N.C
43	GND	Supply	Ground connection
44	N.C	-	N.C
45	GND	Supply	Ground connection
46	GND	Supply	Ground connection
47	RF	I/O	External 50Ω port for Antenna connection
48	GND	Supply	Ground connection

8. 부품 실장 사진

