

3B32_V102

Hardware Specification



Shenzhen RF-star Technology Co.,Ltd

Index

Index.....	2
Module Parameters.....	3
Pin Definition.....	4
PCB Package Size.....	6
Schematic Diagram.....	7
Layout Proposals.....	8
Recommended Operating Conditions.....	9
Reflow Conditions.....	10
Electrostatic Discharge Warnings.....	11
Contact Us.....	12

RF-STAR

● Module Parameters

MCU	Silicon Labs: EFR32MG1B232F256GM32-C0
Supply Voltage	2.3V ~ 3.6V, 3.3V will be recommended
Frequency	2400 MHz ~ 2483.5MHz
Tx Power	-30dBm ~ +19.5 dBm
Sensitivity	-98 dBm
Frequency Error	± 20 kHz
FLASH	256KB
RAM	32KB
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +125°C
Module Size	20.4*14.8*1.9mm

● Pin Definition

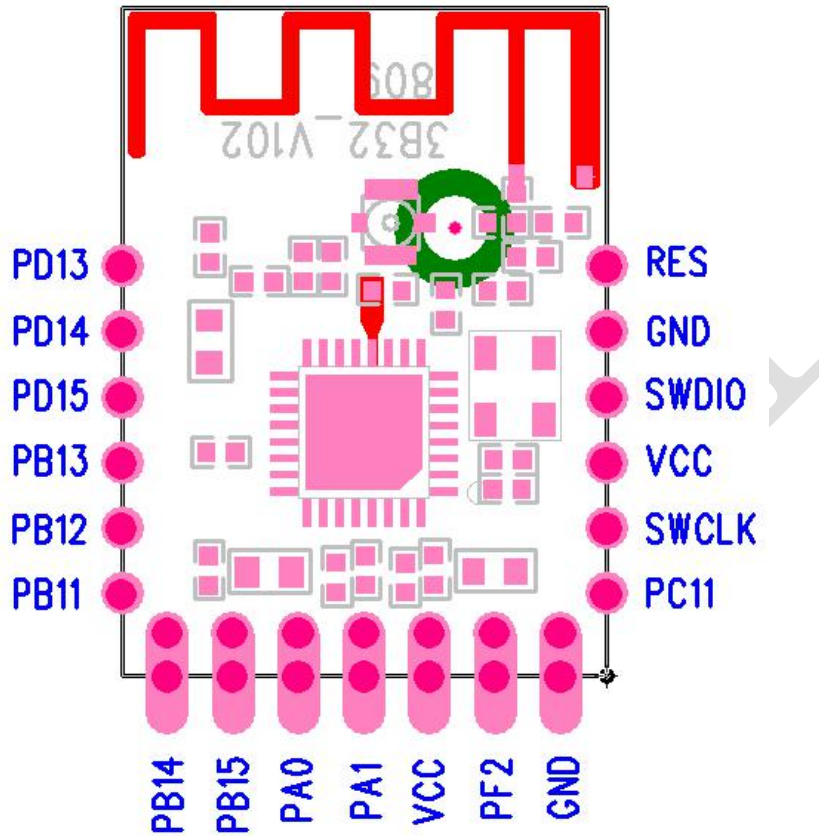


Figure 1 Pin Definition

Pin No.	Pin Name	Function	Remarks
Pin1	PD13	I/O	
Pin2	PD14	I/O	
Pin3	PD15	I/O	
Pin4	PB13	I/O	
Pin5	PB12	I/O	
Pin6	PB11	I/O	
Pin7	PB14	I/O	
Pin8	PB15	I/O	
Pin9	PA0	I/O	
Pin10	PA1	I/O	
Pin11	VCC	VCC	Power supply, (2.3V to 3.6 V)3. 3V will be recommended
Pin12	PF2	I/O	
Pin13	GND	Groud	Grounding

Pin14	PC11	I/O	
Pin15	SWCLK	SWCLK	Connect the J-Link simulator SWCLK
Pin16	VCC	VCC	Power supply, (2.3V to 3.6 V)3. 3V will be recommended
Pin17	SWDIO	SWDIO	Connect the J-Link simulaor SWDIO
Pin18	GND	Groud	Grounding
Pin19	RES	RESET	Active when set low level

● PCB Package Size

Thickness of the module is 1.9 ± 0.2 mm.

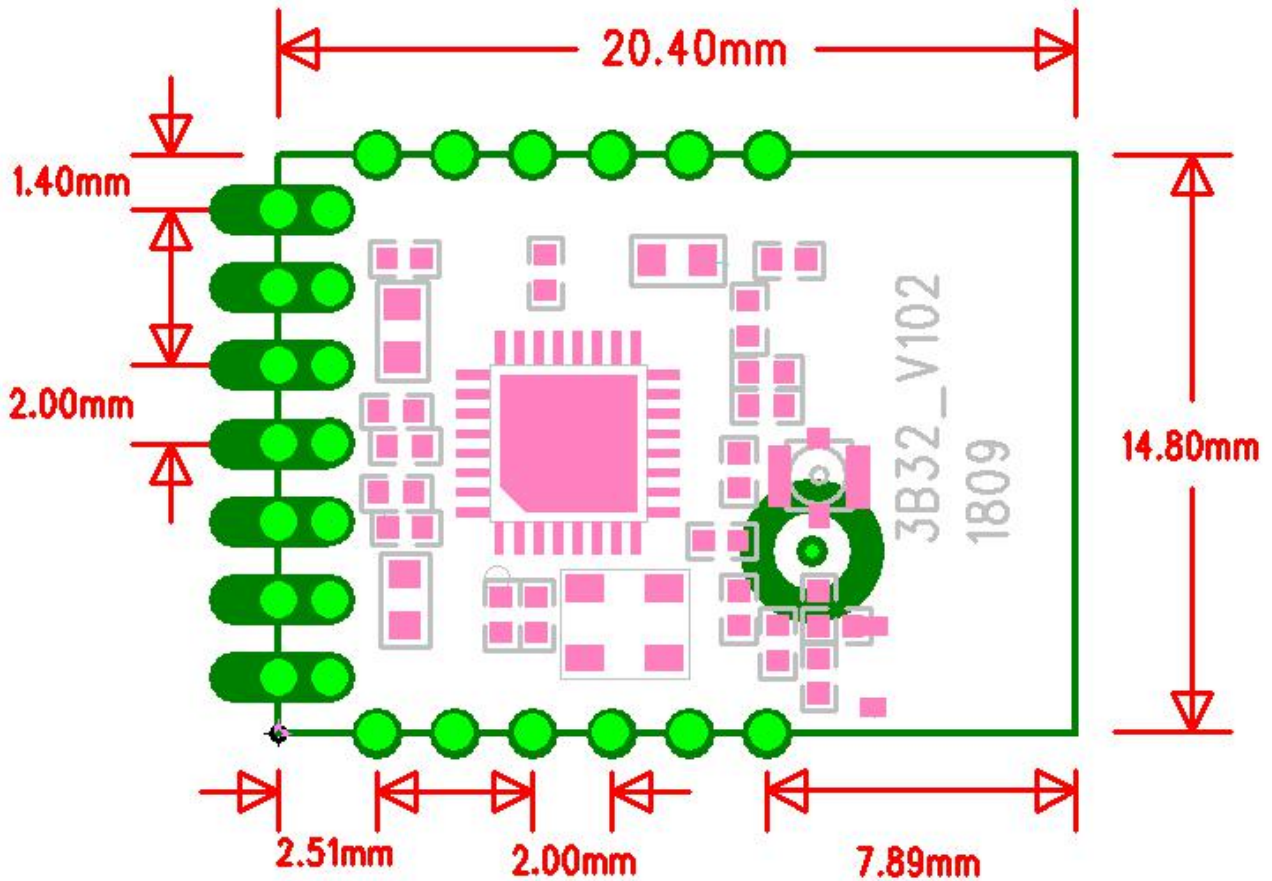


Figure 2 Module Size

● Schematic Diagram

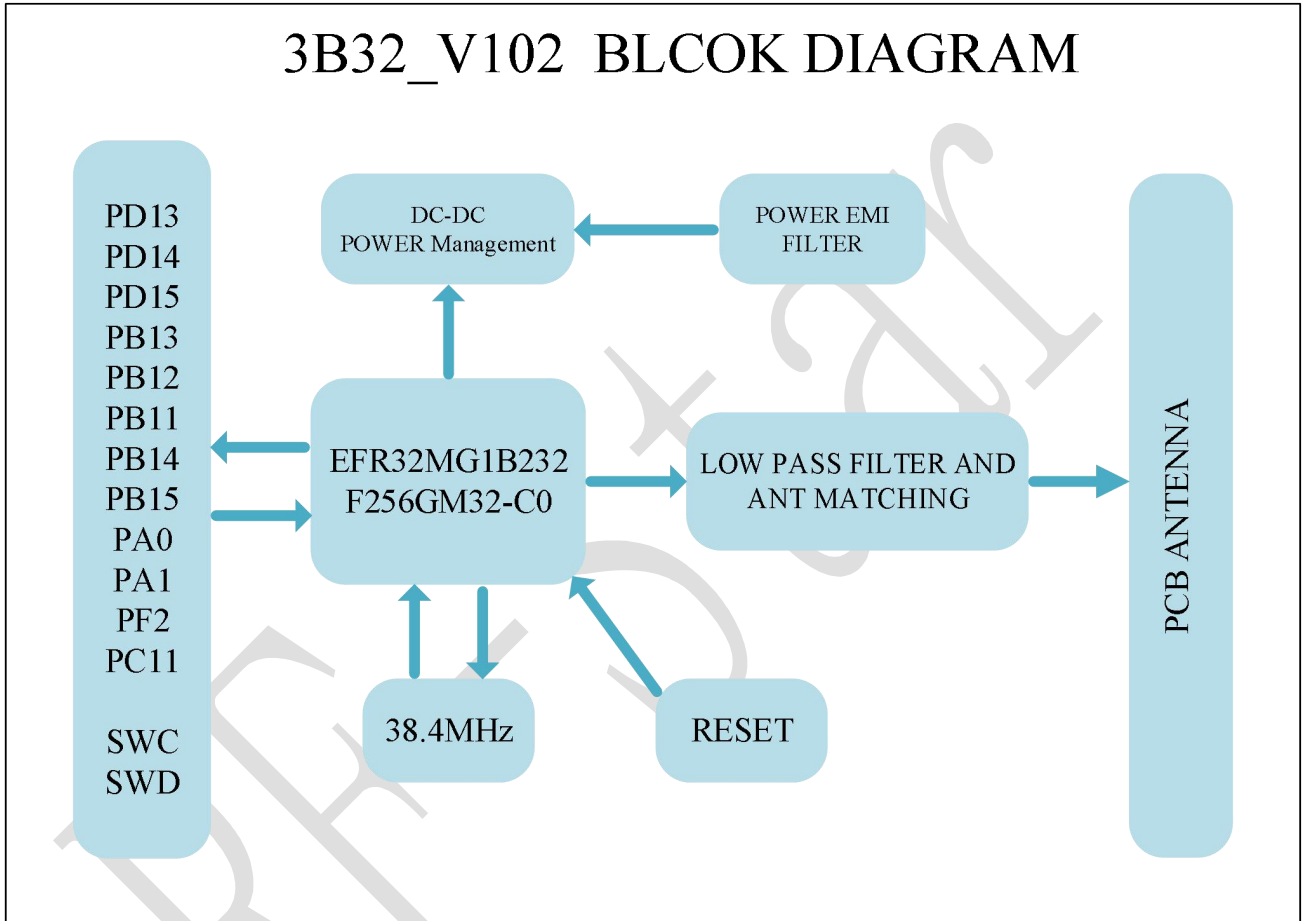


Figure 3 Schematic Diagram

● Layout Proposals

The serpentine antenna on PCB is free space electromagnetic radiation. The place and layout range are keys to enhance the data rate and transmit range.

Thus, Below are the layout proposals for antenna and route:

- 1, Place the antenna on the edge(corner) of the PCB backplane.
- 2, Make sure there is no signal or copper foil in each layer.
- 3, Hollowing out the yellow pane part (figure 4) to make less S11 interference.

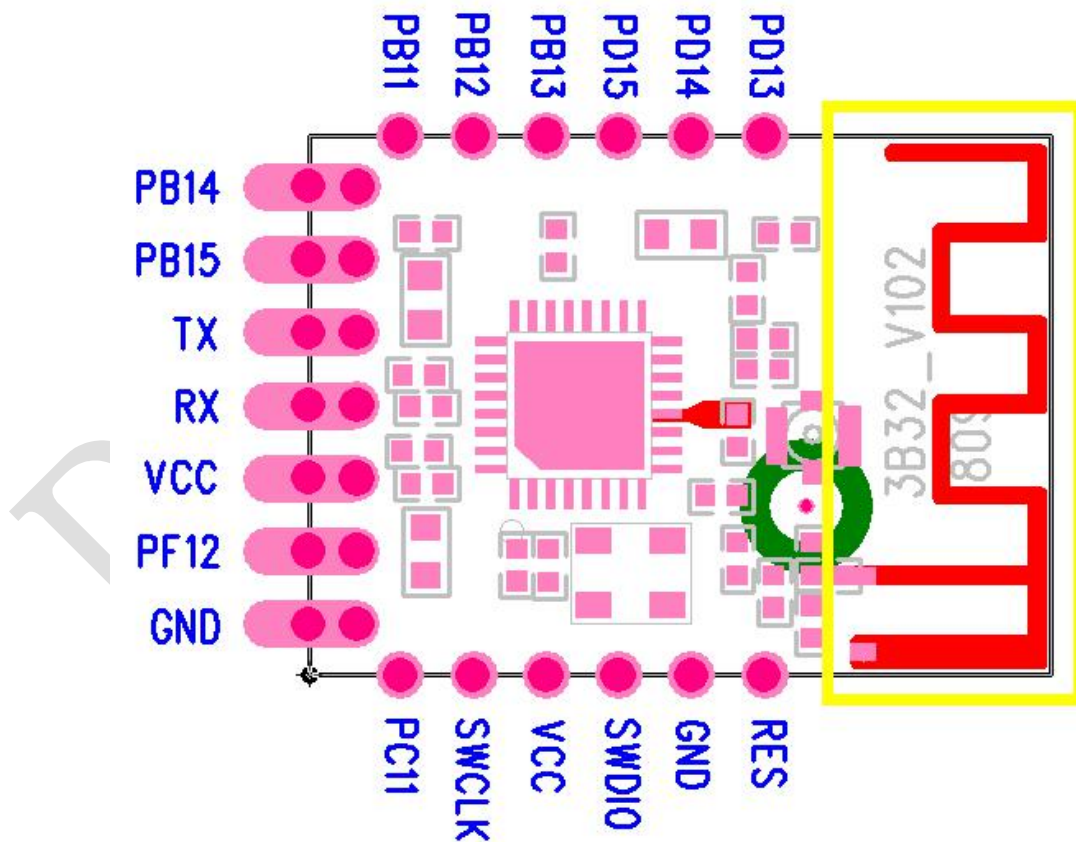


Figure 4

● Recommended Operating Conditions

Notes:

- (1) The operating temperature is limited to the change of crystal's frequency;
- (2) To ensure the RF performance, the ripple wave on the source must be less than $\pm 300\text{mV}$.

Identification	Test Condition	Min	Typ	Max	Unit
Source & IO	Battery mode	2.3	3.3	3.6	V
Operating Temperature	/	-40	25	85	°C
Environmental Hot Pendulum		-20		20	°C/Min

● Reflow Conditions

1. Heating mode: conventional convection or IR convection;
2. Times allowed to reflow: 2 times, for the below reflow (conditions) (figure 5) ;
3. Temperature curve: the reflow should be in accordance with the temperature curve shown below (figure 5);
4. Highest: 245°C。

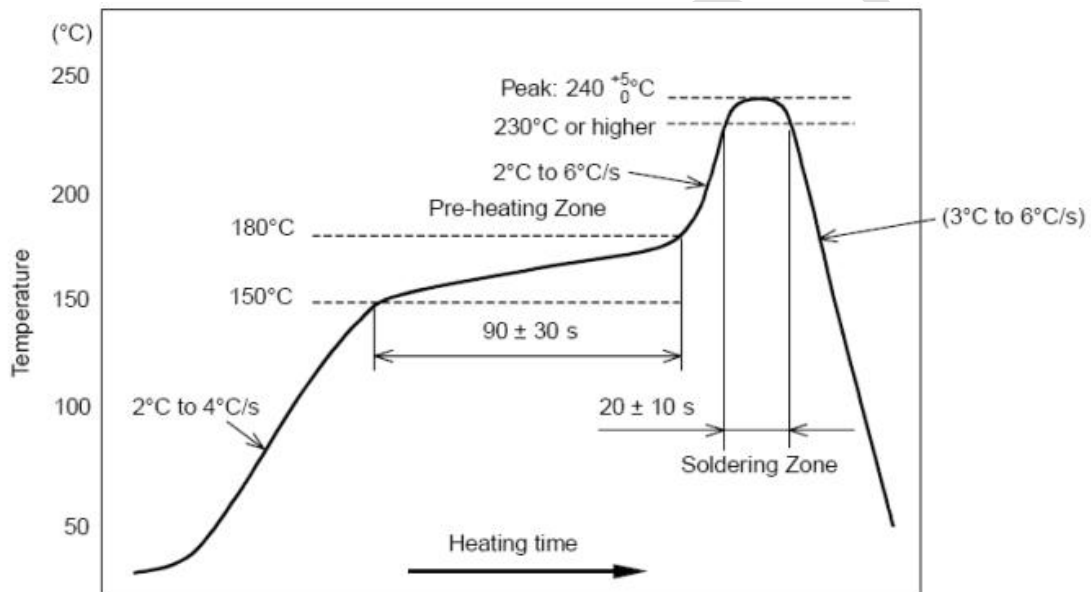


Figure 5 Parts' heat-resistance temperature curve for welding(welding point)

● Electrostatic Discharge Warnings



Module will be damaged for the discharge of static, RF star suggest that all modules should follow the 3 precautions below.:

- 1, According to the anti-static measures, bare hands are not allowed to touch modules.
- 2, Modules must be placed in anti- static areas.
- 3,Take the anti-static circuitry(when inputting HV or VHF) into consideration in product design.

Static may result in the degradation in performance of module, even causing the failure.

● Contact Us

深圳市信驰达科技有限公司

SHENZHEN RF STAR TECHNOLOGY CO.,LTD.

Tel: 0755-8632 9829 Web: www.szrfstar.com

Fax: 0755-8632 9413 E-mail: sales@szrfstar.com

地址：深圳市宝安区宝源路互联网产业基地 A 区 8 栋 2 楼

Add: 2F,Block8,Dist.A,Internet Industry Base,Baoyuan Road ,Baoan Dist,Shenzhen