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SR001

2.4 G transceiver

Datasheet

V100

NO.623, Block B1, Huayuan Technology Innovation Park, Baoyuan Rd, Baoan District,
Shenzhen City, Guangdong Province, China

1. Outline

SR001 is a low cost, high integrated 2.4GHZ SOC transceiver;
It use GFSK modulation and demodulation technology, It has a strong anti-interference ability;

Transmit power can be adjusted, and the max transmit power is up to 6DBM;

The receiver with low IF structure, the receive sensitivity can be -96dBm@62.5Kbps。Also, the RSSI can be detected ;

The MCU with a low power consumption, Wakeup enable, 2K flash coding room;

The sleep current can be less than 5UA, and the lowest working voltage is up to 2.2V;

SR001 has a very low cost application, single side board can ensure the function and performance, it support the 33MM wire antenna;

SOP16 footprint, compatible RoHS standard;

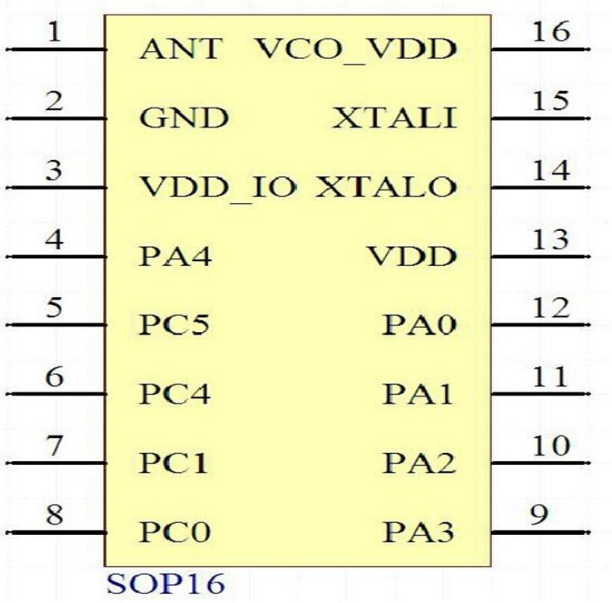
1.1 Performance

- 2.4G SOC transceiver
- SOP16 footprint
- Support single side board
- Communication distance up to 100 m
- Support 33 mm wire antenna
- 9 GPIO
- 16 bit instruction
- 2K x 14-bit FLASH Program Memory
- 256x8b data EEPROM
- 128x8b SRAM
- 7 CH 10 bit A/D
- Low voltage reset, low voltage detect

1.2 Typical application

- Remote
- Wireless key and mouse
- Wireless net
- Smart home
- Industrial and commerce short distance communication;
- IP telephone, Cordless phone

2 Pin assignment:

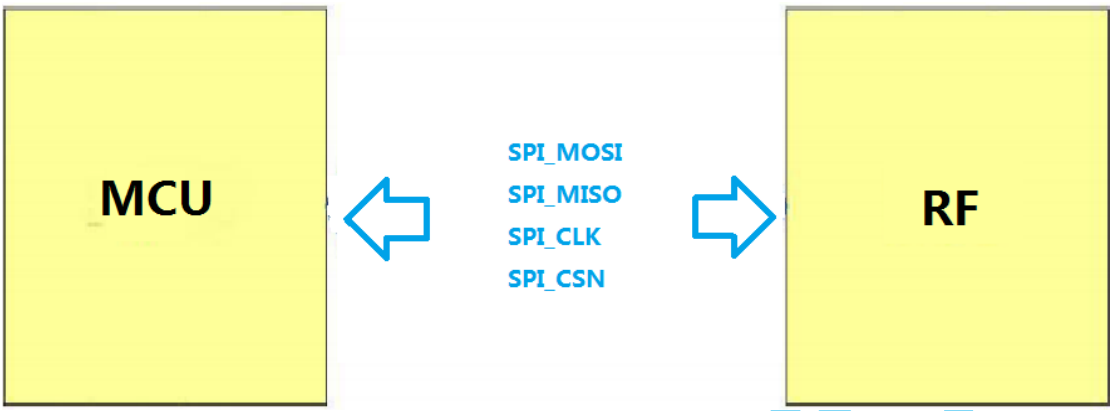


2.1 pin function description

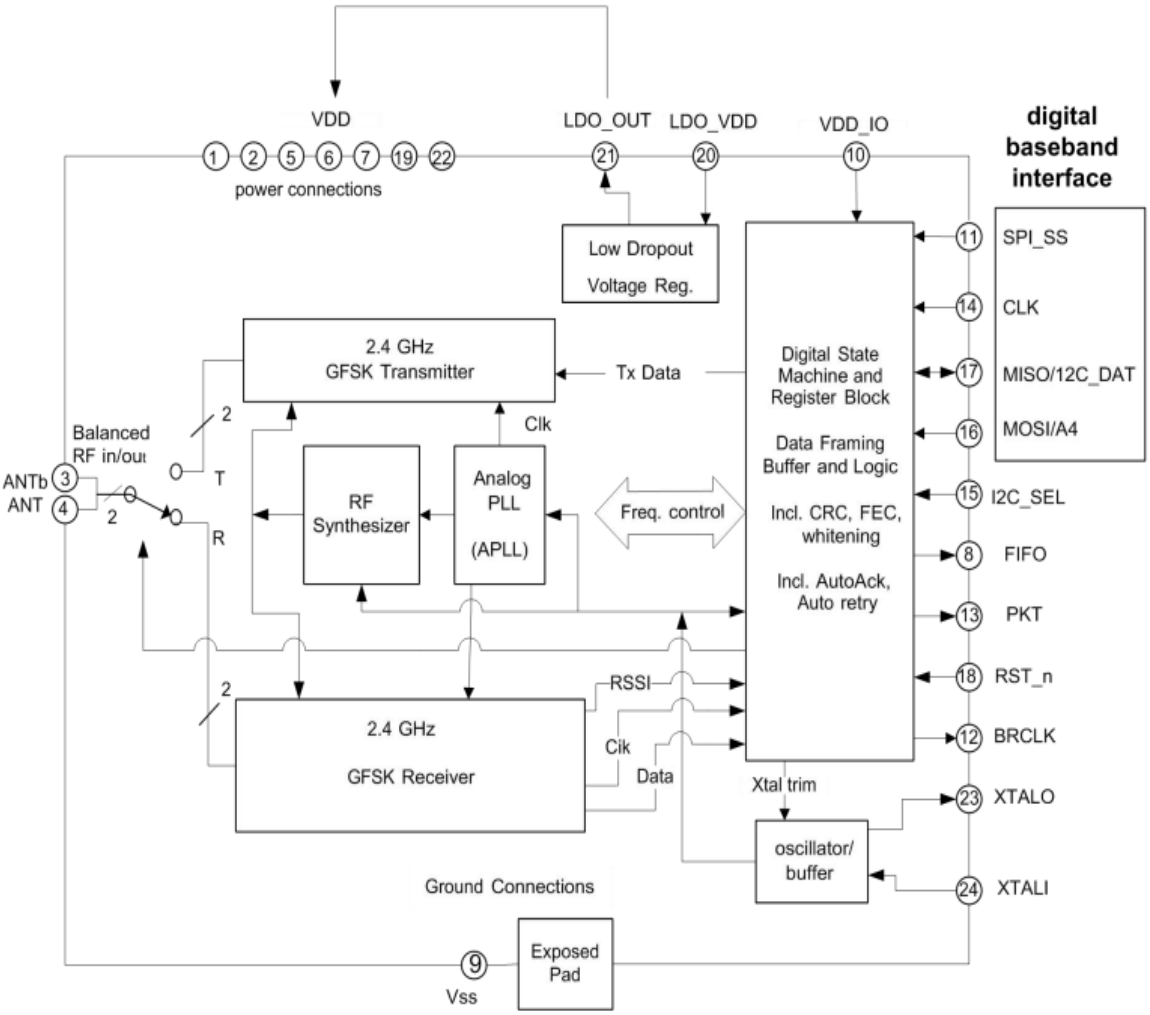
Pin No	Pin Name	Type	Description
1	ANT	Balanced RF	Rf input/output
2	GND	GND	GND
3	VDD_IO	Power	Power for mcu
4	PA4	I/O	GPIO
5	PC5	I/O	GPIO
6	PC4	I/O	GPIO
7	PC1	Power	GPIO
8	PC0	I/O	GPIO
9	PA3	I/O	GPIO
10	PA2	I/O	GPIO
11	PA1	I/O	GPIO
12	PA0	I/O	GPIO
13	VDD	I/O	VDD for RF
14	XTALO	XO	XTAL Output
15	XTALI	XI	XTAL input
16	VCO_VDD	Power	Power for VCO

3 IC Block diagram

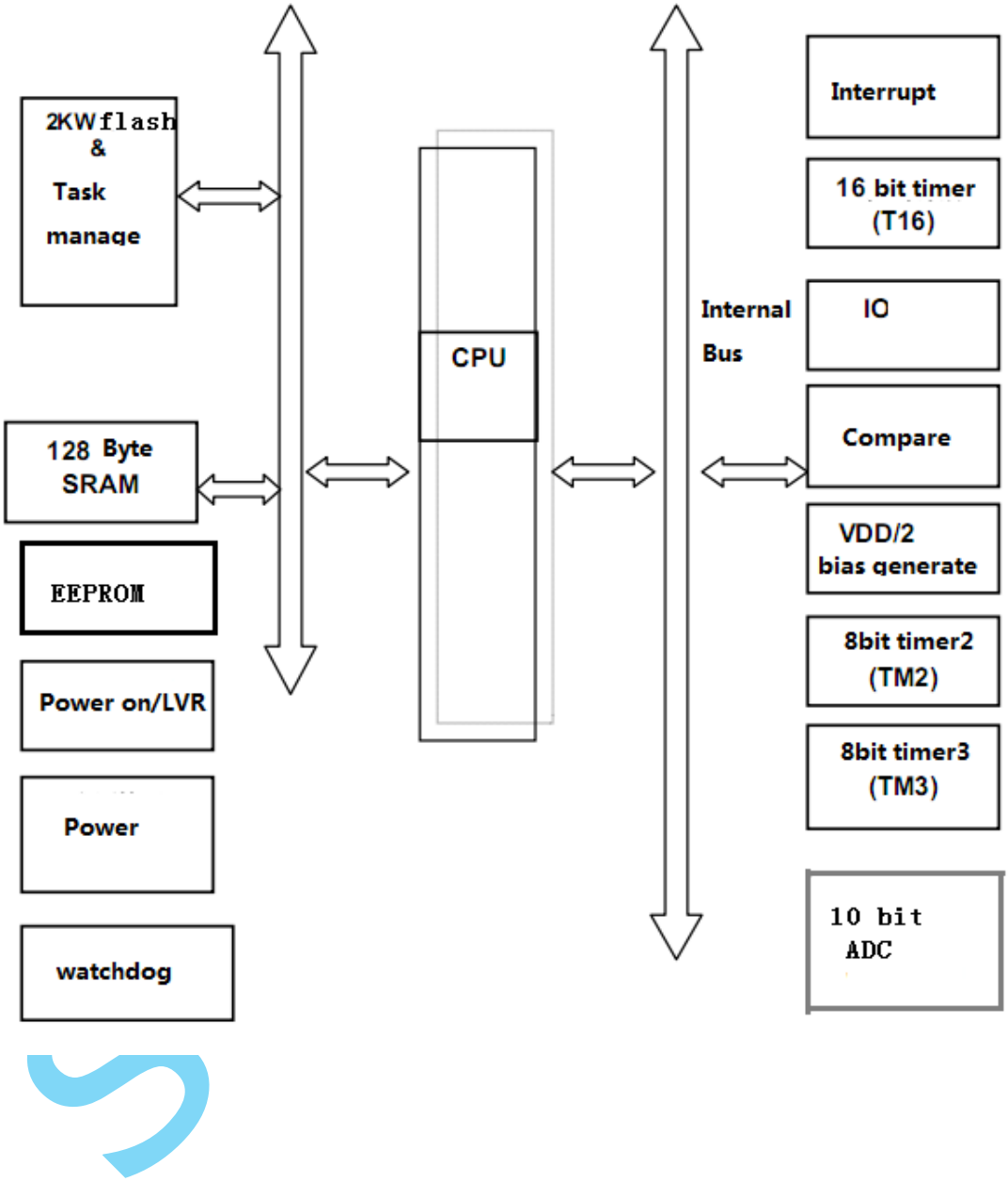
3.1 IC internal interface



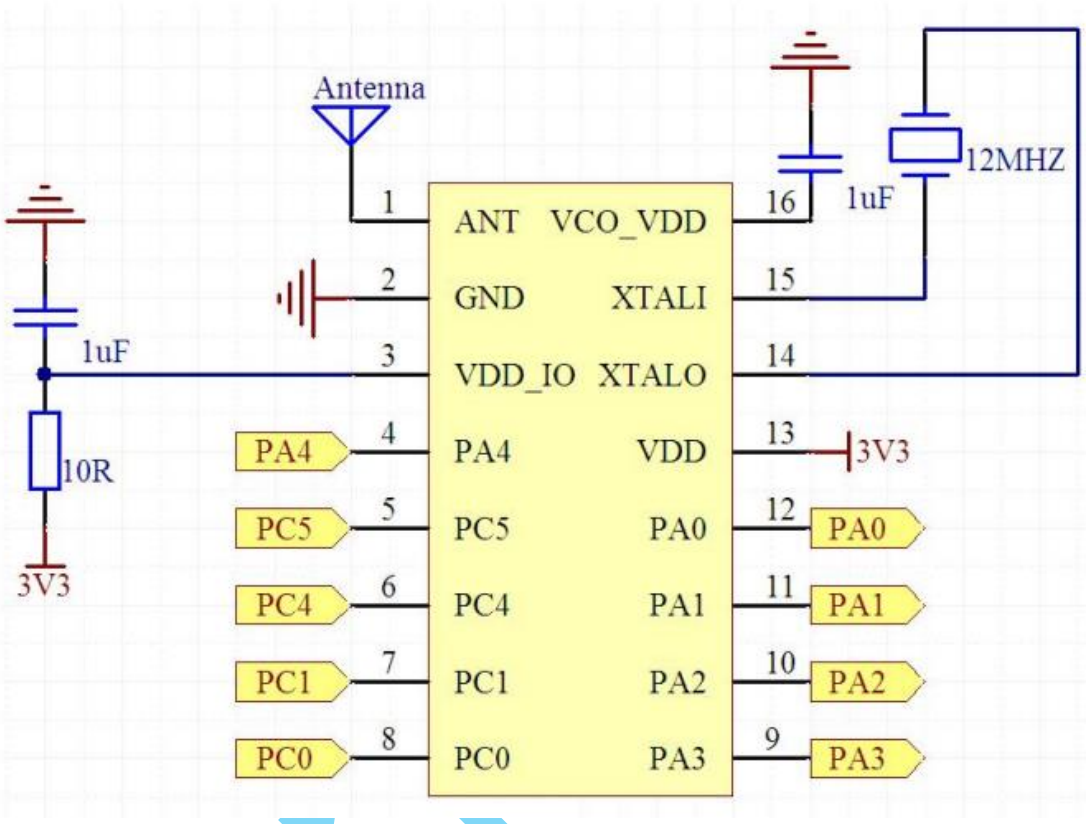
3.2 RF Block diagram



3.3 MCU block diagram



4 Typical application circuit



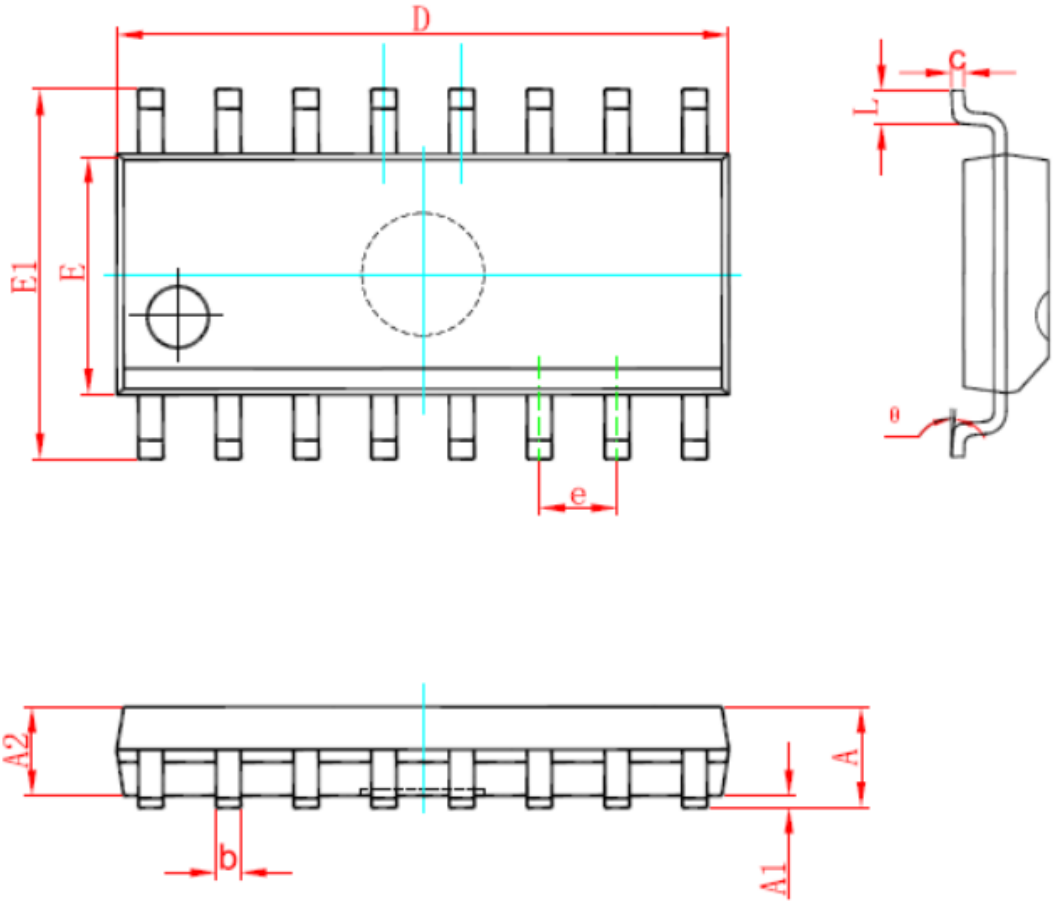
5. Transmit performance

Transmit Section							Measured using 50 Ohm balun3:
Transmit power		PAV			6	dBm	
Second harmonic				-50		dBm	Conducted to ANT pin.
Third harmonic				-50		dBm	Conducted to ANT pin.
modulating characteristic							
Modulation offset	00001111 pattern	Δf1avg		280		kHz	
	01010101 pattern	Δf2max		225		kHz	
In band radiation							
2MHz Modulation offset		IBS_2			-40	dBm	
>3MHz Modulation offset		IBS_3			-60	dBm	
Out of band radiation		OBS_O_1		< -60	-36	dBm	30 MHz ~ 1 GH z
		OBS_O_2		-45	-30	dBm	1 GHz ~ 12.75 GH z, e xcludes desired signal and harmonics.
		OBS_O_3		< -60	-47	dBm	1.8 GHz ~ 1.9 GH z
		OBS_O_4		< -65	-47	dBm	5.15 GHz ~ 5.3 GHz

6. Receiver performance

Parameter	Symbol	MIN	TYP	MAX	Unis	Test Condition and Notes
Receive Section						Measured using 50 Ohm balun. For BER ≤ 0.1%:
receiver sensitivity			-87		dBm	1Mbps
			-90		dBm	250Kbps
			-93		dBm	125Kbps
			-96		dBm	62.5Kbps
max input power		-20	1		dBm	
data symbol	Ts		1		us	
anti interference						For BER ≤ 0.1%
Co channel interference	CI_cochannel		+9		dB	-60 dBm desired signal.
1MHz adjacent interference	CI_1		+6		dB	-60 dBm desired signal.
2MHz adjacent interference	CI_2		-12		dB	-60 dBm desired signal.
3MHz adjacent interference	CI_3		-24		dB	-67 dBm desired signal.
Out of band interference	OBB_1	-10			dBm	30 MHz to 2000 MHz
	OBB_2	-27			dBm	2000 MHz to 2400 MHz
	OBB_3	-27			dBm	2500 MHz to 3000 MHz
	OBB_4	-10			dBm	3000 MHz to 12.75 GHz

7. PACKAGE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	9.800	10.200	0.386	0.402
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°