



# WT8089-SF2 规格书

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本文档为用户提供 WT8089-SF2 规格。

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## 文档修订记录

序号	版本号	变化状态	变更 (+/-) 说明	作者	日期
1	V1.0.0	C	创建文档	Fiona	2021-1-19

\*变化状态：C——创建，A——增加，M——修改，D——删除

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# 1 Overview

**WT8089-SF2** is the small size and low power module for IEEE 802.11b/g/n wireless LAN. **WT8089-SF2** is based on ESP8089 solution..

IEEE 802.11 a/b/g/n single ANT WLAN

2.4GHz internal PA

Two stream spatial multiplexing up to

150Mbps PIFA ANT (1T1R)

Use on-chip OTP (One-Time Programmable)

Application: DTV, DVR, HD DVD Player, Blue-ray Disk Player, STB .MID,OTT

# 2 Features

- 802.11 b/g/n
- Wi-Fi Direct (P2P)
- Built in TCP/IP Protocol stack
- Built in TR switch、Balun、Lan power amplifier and matching network
- Built in PLL Voltage regulator and power management module
- The output power of +18dbm under 802.11 mode
- Built in low power 32 bit cpu :can be used as an application processor
- SDIO 11、SPI、UART
- Collaborated 22 ms wake up ,within the connection and transmission of data

packets

- Standby power consumption is less than 1.0mW(DTIM3)

# 3 General Specification

**Table 1 General Specification**

Model	WT8089-SF2
Product Name	WLAN 11n SDIO1T1R module
Major Chipset	802.11b/g/n
Standard	802.11b/g/n
Data Transfer Rate	1,2,5,5.6,11,12,18,22,24,30,36,48,54,60, 72.2Mbps
Modulation Method	BPSK/ QPSK/ 16-QAM/ 64-QAM
Frequency Band	2.4~2.4835 GHz ISM Band
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum)IEEE802.11g/n:OFDM(Orthogonal Frequency Division Multiplexing)
RF Output Power	11n > 12dBm, 11g > 13dBm, 11b > 16dBm
Operation Mode	Ad hoc, Infrastructure
Receiver	11b CCK11(PER<8%) < -85dBm , 11g OFDM54(PER<10%) <

Model	WT8089-SF2
Sensitivity	-73dBm , 11n HT20 MCS7(PER<10%) < -69dBm , 11n HT40 MCS7(PER<10%) < -66dBm
Operation Range	Up to 180 meters in open space
OS Support	Linux
Security	WEP, TKIP,AES, WPA, WPA2
Interface	SDIO 2.0
Power Consumption	DC3.3V 170mA
Operating Temperature	0~ +70°C ambient temperature
Storage Temperature	-20 ~ 125°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	13.5x13x1.6mm (LxWxH) ±0.15mm

## 4 DC Characteristics

**Table 2 DC Characteristics**

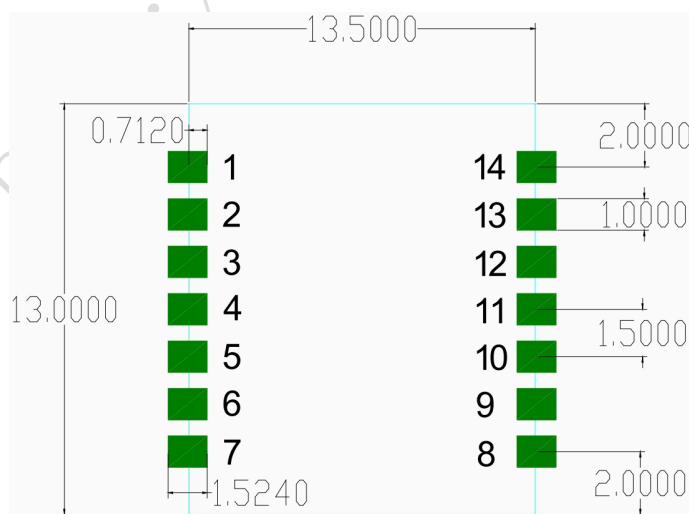
Description	TYP	Unit
Sleep mode	5	uA
RX Active,HT20,MCS7	56	mA
RX Power saving, DTIM=1	1.2	mA
TX HT20,mcs7 @13dBm	120	mA
TX CCK,11Mbps @17dBm	170	mA

Note:

All result is measured at the antenna port and VDD33 is 3.3V, 3.3V Rating Current 600mA.

## 5 Pin Description and PCB size

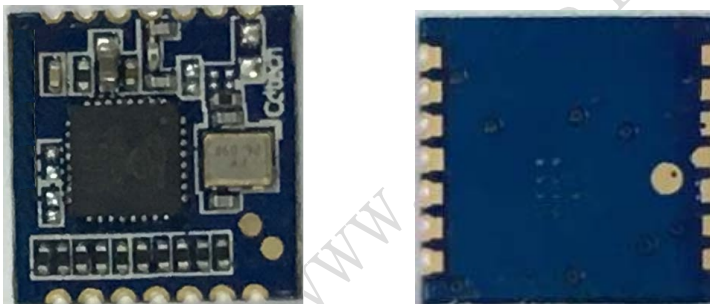
**Figure 1 PCB sizeTop view**



**Table 3Pin Description**

NO	Nam	Description
1	SD_DAT2	SDIO data line Bit[2]
2	SD_DAT3	SDIO data line Bit[3]
3	SD_CMD	SDIO command/response
4	GND	Ground connections
5	SD_CLK	SDIO clock input
6	SD_DAT0	SDIO data line Bit[0]
7	SD_DAT1	SDIO data line Bit[1]
8	+3.3V	Power supply 3.3V is required
9	PDN	Full Power-Down (active low, 模组内已有上拉电阻)
10	GND	Ground connections
11	RF	RF input /output, PI-type circuit is required
12	GND	Ground connections
13	WAKE IN	Host-to-SOC wakeup
14	WAKE OUT	SOC-to-Host wakeup

## 6 Modular photo

**Figure 2 PCBA physical photo**


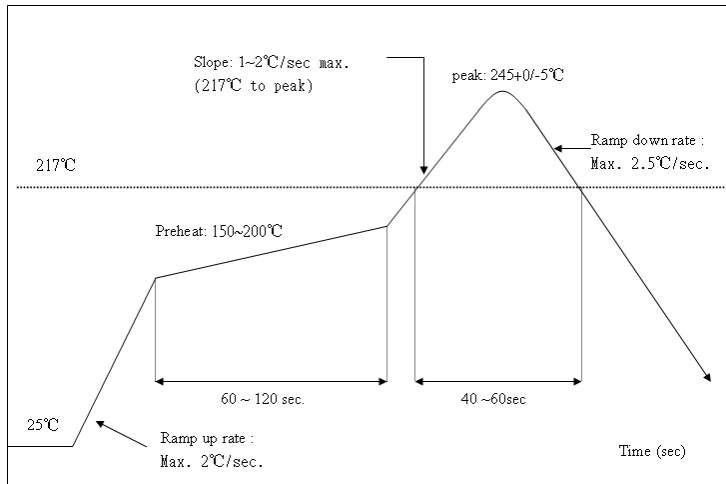
## 7 Recommended Reflow Profile

Referred IPC/JEDEC standard.

Peak Temperature : <250°C

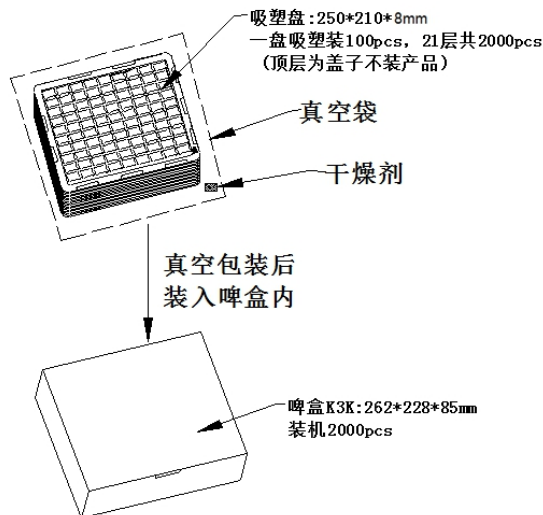
Number of Times : 2 times

**Figure 3 Recommended Reflow Profile**



## 8 Package

Figure 4 Package



1. 每盘吸塑装机100pcs, 20层共2000pcs
2. 真空包装后, 装入啤盒内 (共2000pcs)



ESD CAUTION

The WT8089-SF2is ESD (electrostatic discharge) sensitive device and may be damaged with ESD or spike voltage. Although WT8089-SF2is with built-in ESD protection circuitry, please handle with care to avoid the permanent malfunction or the performance degradation.