

# **iWF-01 / iWF-01S**

## **Wi-Fi Data Module**

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### 1. Overview

iWF-01 / iWF-01S are Wi-Fi modules that supporting Wi-Fi 802.11b/g/n protocol at 2.4GHz frequency band. It is implemented by using the Espressif ESP8266 Wi-Fi Soc chip. iWF-01 / iWF-01S are designed for data communication applications.

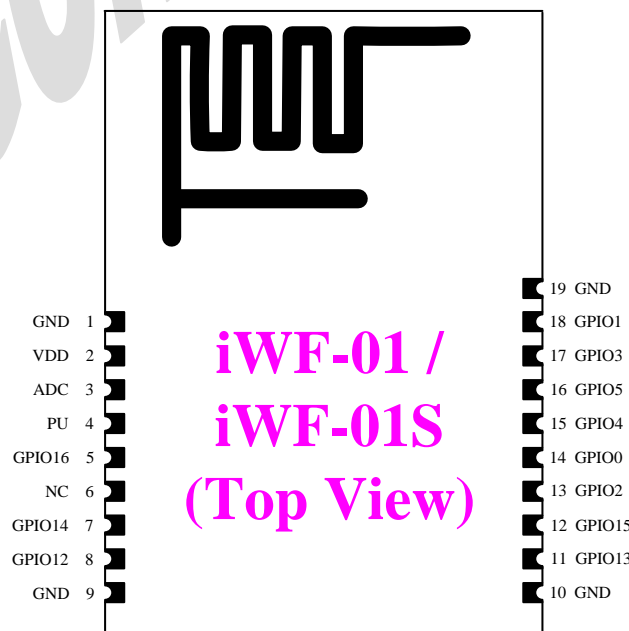
### 2. Features

- Fully Wi-Fi alliance compliant
- High efficiency on-module PCB antenna
- Espressif ESP8266 Soc IC
- 80MHz Tensilica L106 Diamond series low power 32-bit RISC MCU core
- 64kB instruction RAM and 96kB data RAM
- 64kB boot ROM and 4MB flash for application and data
- +20dBm output power in 802.11b mode
- Hardware acceleration engine for encryption and authentication operations
- Wake up and transmit packets in < 2mS
- UART interface
- 802.11 b/g/n protocol
- Wi-Fi 2.4GHz, support WPA and WPA2
- Full Wi-Fi and TCP/IP protocol stack
- Support TCP, UDP, HTTP, FTP internet protocol
- Station / softAP / Station+AP mode
- Wi-Fi Direct (P2P) support
- Cloud Connectivity
- RoHS compliant
- Dimension:
  - iWF-01 23.60mm(L)x16.40mm(W)x2.3mm(H)
  - iWF-01S 23.60mm(L)x16.40mm(W)x2.8mm(H)

### 3. Applications

- Internet of Things (IoT) devices
- Remote Control and Assisted Living
- Medical and Healthcare Monitors
- Sports and Fitness Equipments
- RC and Interactive Toys
- Home / Building Automation
- Machine-to-Machine data Transfer
- Remote Sensor Networks
- Wireless Alarm and Security
- Message Display
- Lighting and HAVC Control

### 4. Pin Drawing



**Figure 1 iWF-01 / iWF-01S Pin Diagram**

## 5. Ordering Information

Part No.	Dimension			PCB Antenna	Metal Shield Can
	Length	Width	Height		
iWF-01	23.60 <sup>+0.5</sup> <sub>-0.1</sub> mm	16.40 <sup>+0.5</sup> <sub>-0.1</sub> mm	2.3 <sup>+0.2</sup> <sub>-0.2</sub> mm	√	-
iWF-01S	23.60 <sup>+0.5</sup> <sub>-0.1</sub> mm	16.40 <sup>+0.5</sup> <sub>-0.1</sub> mm	2.8 <sup>+0.2</sup> <sub>-0.2</sub> mm	√	√

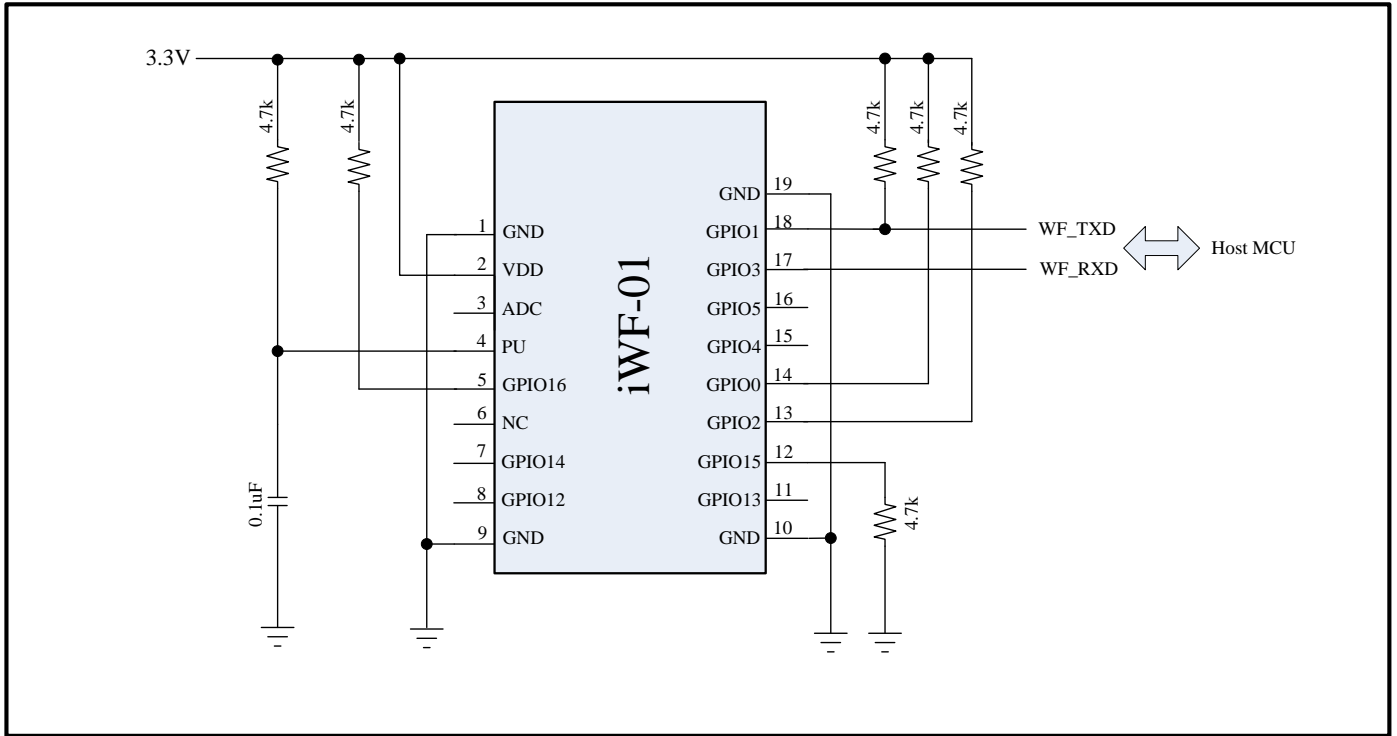
## 6. Pin Description

Pin No.	iWF-01 / iWF-01S Pin Name	Application Name	Pin Type	After Reset	Pin Descriptions
1	GND	GND	P	P	Ground
2	VDD	VDD	P	P	Positive power supply. 2.7V – 3.3V
3	ADC	ADIN	IA	IA	Analog input
4	PU	PU	I	I	Active high module power up pin '0' – module in power down state, low power mode '1' – module in active state, works properly
5	GPIO16	XPD_DCDC	B	ID	Connect this pin with a pull-up resistor
6	NC		B	B	No connect
7	GPIO14		B	IU	General purpose I/O pin.
8	GPIO12		B	IU	General purpose I/O pin.
9	GND	GND	P	P	Ground
10	GND	GND	P	P	Ground
11	GPIO13		B	IU	General purpose I/O pin.
12	GPIO15		B	IU	General purpose I/O pin.
13	GPIO2		B	IU	General purpose I/O pin.
14	GPIO0		P	IU	General purpose I/O pin. Will enter flashing mode if short to GND during reset
15	GPIO4		B	I	General purpose I/O pin.
16	GPIO5		B	I	General purpose I/O pin.
17	GPIO3	WF_RXD	B	IU	iWF-01 UART Receive Data pin
18	GPIO1	WF_TXD	B	IU	iWF-01 UART Transmit Data pin
19	GND		P	P	

- I Input
- IA Analog Input
- B Bidirectional
- IU Input with Pull-up
- P Power pin
- ID Input with pull down

**Table 1 iWF-01 / iWF-01S Pin Description Table**

## 7. Typical Application Connection Diagram



## 8. Electrical Specification

### 8.1. Absolute Maximum Rating

Item	Symbol	Rating	Unit
Power Supply Voltage	VDD	-0.3 to 3.9	V
Storage Temperature	T <sub>STG</sub>	-40 to 90	°C

### 8.2. Recommended Operating Condition

Item	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	VDD	2.7	3.0	3.3	V
Operating Temperature		-20	25	75	°C

### 8.3. Digital Input / Output Port Characteristics

VDD=3.0V, operating temperature = 25 °C unless specified otherwise

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
<b>Input Voltage Levels</b>						
V <sub>IL</sub>	Input low voltage				0.5	V
V <sub>IH</sub>	Input high voltage		2.5			V
<b>Output Voltage Levels</b>						
V <sub>OL</sub>	Output low voltage	I <sub>OL</sub> = -12mA			0.5	V
V <sub>OH</sub>	Output high voltage	I <sub>OH</sub> = 12mA	2.4			V
<b>Current Consumption</b>						
Operating Current, TX active		19.5dBm CCK-1Mbps		215		mA
Operating Current, RX active				60		mA
Standby Mode		DTM3		0.9		mA
Deep Sleep Mode				10		uA
Shut Down Mode				0.5		uA

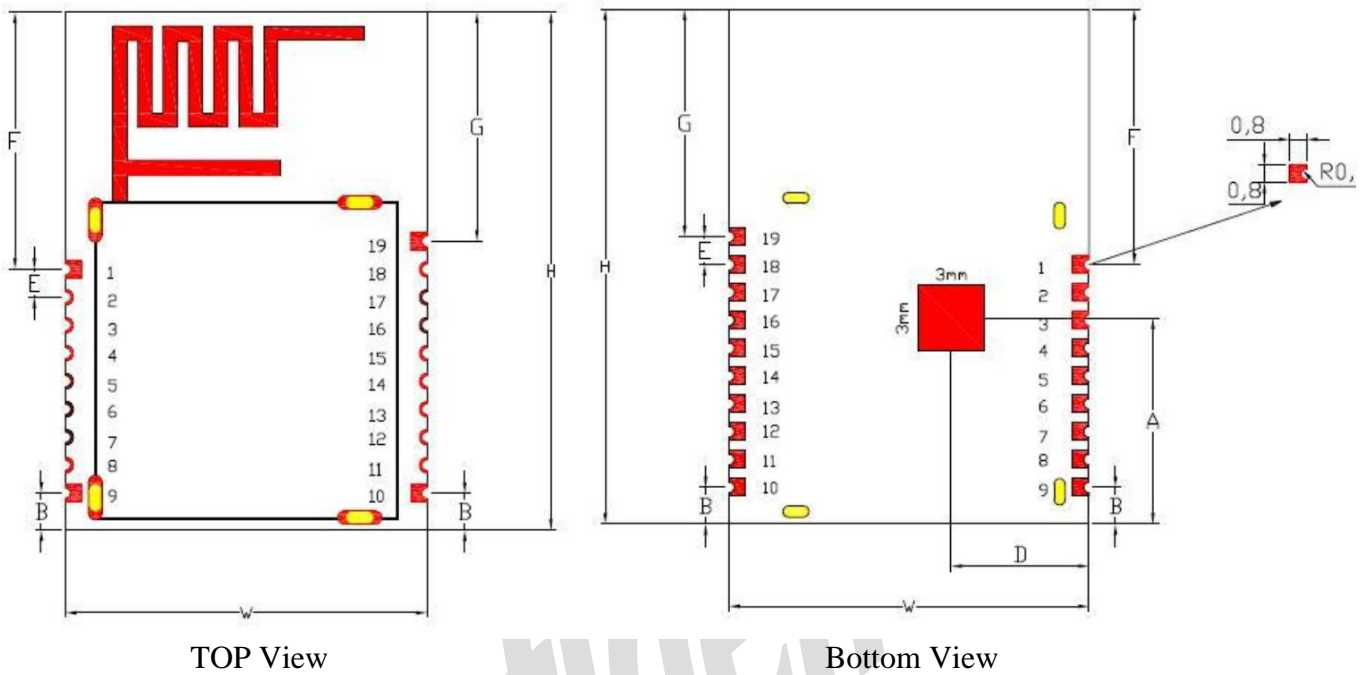
### 8.4. RF Characteristics

VDD=3.0V, operating temperature = 25 °C unless specified otherwise

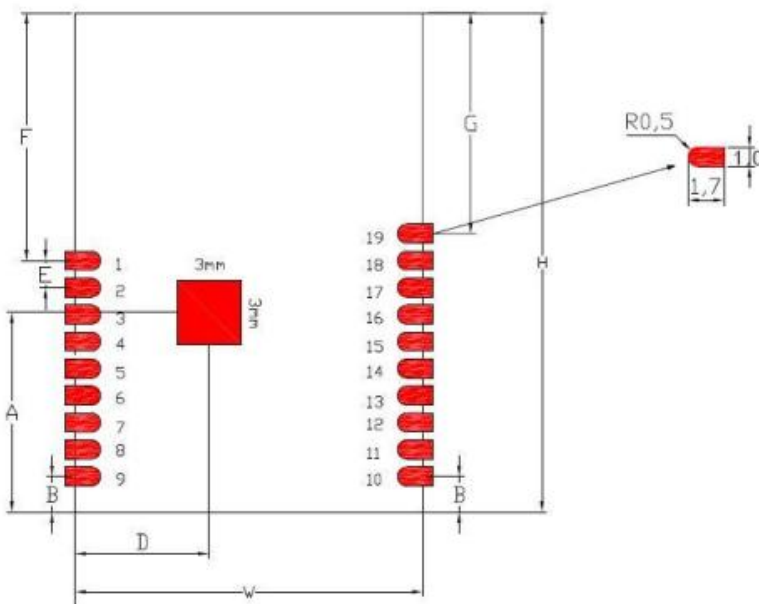
Parameter	Description	Min	Typ	Max	Units
Operating Frequency		2412		2484	MHz
Modulation Method	802.11b mode 802.11g mode 802.11n mode			DSSS OFDM OFDM	
Air Transmission Rate				Adaptive	
RF Output Power	802.11b mode 802.11g mode 802.11n mode			+20 +17 +14	dBm
RF Sensitivity	19.5dBm CCK-1Mbps 19.5dBm CCK-11Mbps			-98 -91	dBm

## 8.5. Module Dimension

### 8.5.1. iWF-01 and iWF-01S



### 8.5.2. Recommended PCB Land Pattern



Symbol	Millimeter
A	9.4
B	1.7
D	6.3
E	1.27
F	11.7
G	10.43
H	23.50
W	16.40

Remark: +/-0.1mm or 1.5% whichever is greater

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**8.6. Packing Information**

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