Version：V1.1
Date：2015.09.21

Name：WIFI Module

Model：CDT-N582660-00

1. Introduction

Espressif Systems' Smart Connectivity Platform (ESCP) of high performance wireless SOCs, for mobile platform designers, provides unsurpassed ability to embed Wi-Fi capabilities within other systems,at the lowest cost with the greatest functionality.

2. General Descriptions

The CDT-N582660-00 offers a complete and self-contained Wi-Fi networking solution, allowing it to either host the application or to offload all Wi-Fi networking functions from another application processor. When The CDT-N582660-00 hosts the application, and when it is the only application processor in the device, it is able to boot up directly from an external flash. It has integrated cache to improve the performance of the system in such applications, and to minimize the memory requirements.

Alternately, serving as a Wi-Fi adapter, wireless internet access can be added to any microcontroller-based design with simple connectivity through UART interface or the CPU AHB bridge interface.

The CDT-N582660-00 on-board processing and storage capabilities allow it to be integrated with the sensors and other application specific devices through its GPIOs with minimal development up-front and minimal loading during runtime. With its high degree of on-chip integration, which includes the antenna switch balun, power management converters, it requires minimal external circuitry, and the entire solution, including front-end module, is designed to occupy minimal PCB area.

Sophisticated system-level features include fast sleep/wake context switching for energy- efficient VoIP, adaptive radio biasing for low-power operation, advance signal processing, and spur cancellation and radio co-existence features for common cellular, Bluetooth, DDR, LVDS, LCD interference mitigation.

3. Features

- 802.11 b/g/n protocol
- Wi-Fi Direct (P2P), soft-AP
- Integrated TCP/IP protocol stack
- Integrated TR switch, Balun, LNA, power amplifier and matching network

- Integrated PLL, regulators, and power management units

- +17dBm output power in 802.11b mode

- Integrated temperature sensor

- Supports antenna diversity

- Power down leakage current of < 10uA

- Integrated low power 32-bit CPU could be used as application processor

- SDIO 2.0, SPI, UART

- STBC, 1×1 MIMO, 2×1 MIMO

- A-MPDU & A-MSDU aggregation & 0.4μs guard interval

- Wake up and transmit packets in < 2ms

- Standby power consumption of < 1.0mW (DTIM3)

4. Applications

- Smart power plugs

- Home automation

- Mesh network

- Industrial wireless control

- Baby monitors

- IP Cameras

- Sensor networks

- Wearable electronics

- Wi-Fi location-aware devices

- Security ID tags

- Wi-Fi position system beacons

5. Block Diagram

Figure 1: The CDT-N182660-00 Block Diagram

6. General Specification

Category	Parameter	Value
Wi-Fi	Standard	CCC/FCC/CE
	Wi-Fi	802.11 b/g/n
	Frequency	2412-2462MHz
	Tx Power	802.11 b: 17dBm
		802.11 g: 15dBm
		802.11 n: 13dBm
	Rx Sensitivity	802.11 b: (11Mbps) -86dbm
		802.11 g: (54Mbps) -72dbm
		802.11 n: (MCS7) -69dbm
	Antenna	Internal Antenna
Hardware	Data Interface	UART/I2C
		GPIO/PWM

		Operating Voltage	3.0~3.6V
		Operating Current	Avg.80mA
		Operating	-20 ℃ – 70 ℃
		Storage	-40 ℃ – 85 ℃
		Size	17x12.5mm
		External Interface	N/A
	Software	Wi-Fi Mode	station/softAP/SoftAP+station
		Security	WPA/WPA2
		Encryption	WEP/TKIP/AES
		Firmware Upgrade	UART Flash Download
			Via Cloud Server
		SW Development	Supports Cloud Server Development **/** SDK for custom
		Network Protocols	IPv4，TCP/UDP/HTTP/FTP
		User Config	AT Instruction Set(loud Server Android/ios App

4. DC Characteristics

Description	TYP	Unit
Sleep mode	1.1	mA
RX Active,HT20,MCS7	151	mA
RX Power saving, DTIM=1	15	mA
RX Listen	6	mA
TX HT20,mcs7 @13dBm	210	mA
TX CCK,11Mbps @17dBm	242	mA

Note: All result is measured at the antenna port and VDD33 is 3.3V

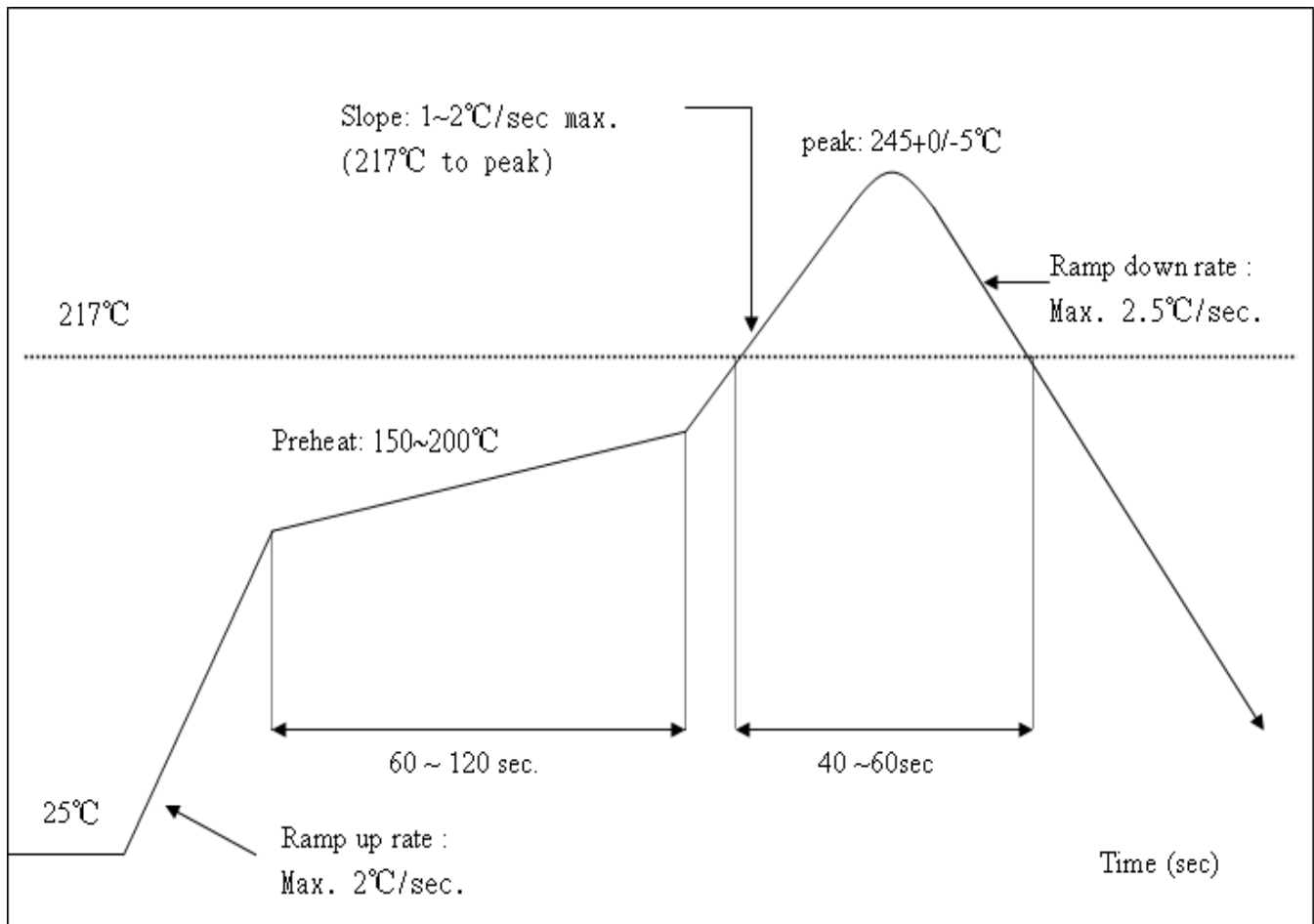# 5. Dimension & Pin Assignments
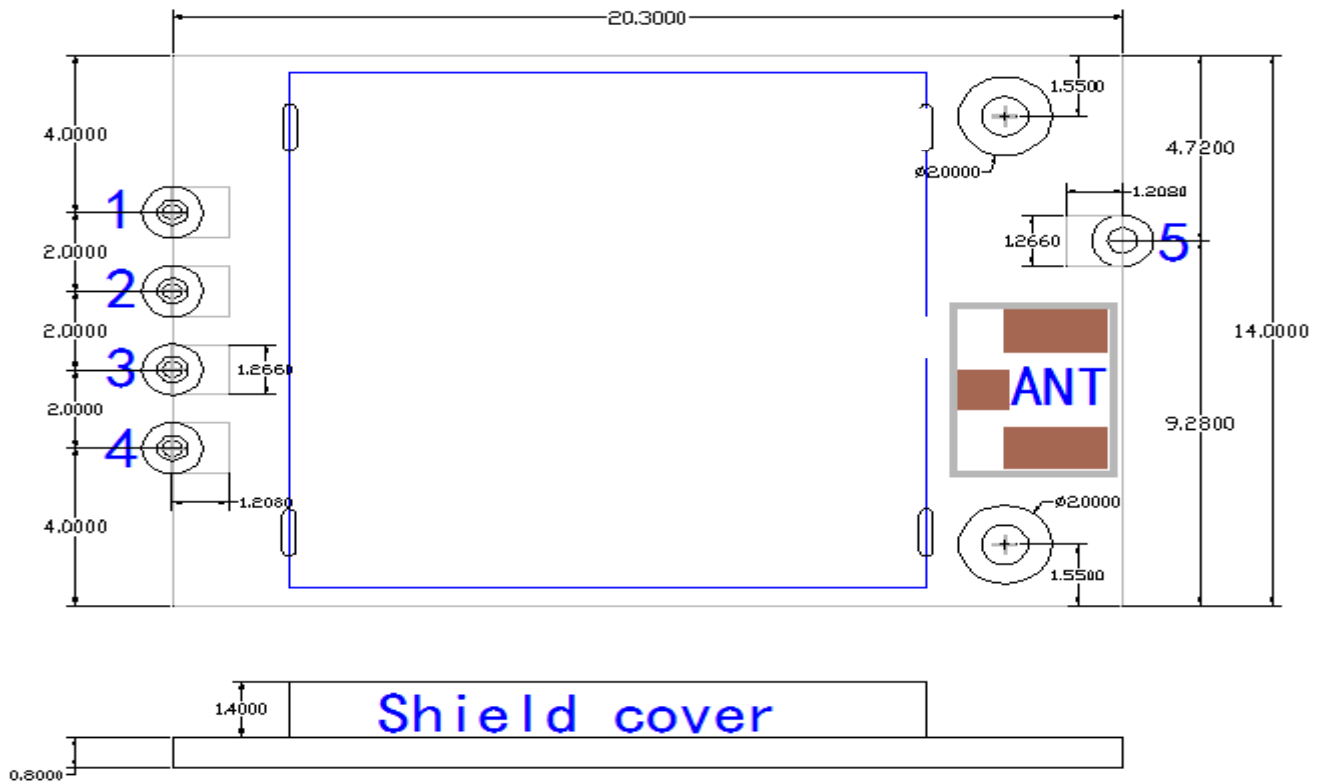
NO	Nam	Description
1	VCC	Power supply 3.3V is required
2	UDM	USB negative differential data lines
3	UDP	USB positive differential data lines
4	GND	Ground connections
5	NC	---

7. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <250°C

Number of Times : ≤2 times

8. Packing information

330mm*330mm*30mm
960PCS/Reel

ESD CAUTION

The CDT-H27601U-00 is ESD (electrostatic discharge) sensitive device and may be damaged with ESD or spike voltage. Although CDT-H27601U-00 is with built-in ESD protection circuitry, please handle with care to avoid the permanent malfunction or the performance degradation.

FCC Caution: Any changes or modifications not expressly

approved by the party responsible for compliance could void the user's

authority to operate this equipment.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: (1) This device may not

cause harmful interference, and (2) this device must accept any interference

received, including interference that may cause undesired operation.

This device and its antenna(s) must not be co-located or operating in conjunction

with any other antenna or transmitter.

15.105 Information to the user.

(b) For a Class B digital device or peripheral, the instructions furnished the

user shall include the following or similar statement, placed in a prominent

location in the text of the manual:

Note: This equipment has been tested and found to comply

with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful

interference in a residential installation. This equipment generates, uses and

can radiate radio frequency energy and, if not installed and used in

accordance with the instructions, may cause harmful interference to radio

communications. However, there is no guarantee that interference will not

occur in a particular installation. If this equipment does cause harmful

interference to radio or television reception, which can be determined by

turning the equipment off and on, the user is encouraged to try to correct the

interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which

the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This eq

uipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an

uncontrolled environment.

This transmitter must not be co-located or operating in conjunction with any other

antenna or transmitter.

The availability of some specific channels and/or operational frequency bands

are country dependent and are firmware programmed at the factory to match

the intended destination.

The firmware setting is not accessible by the end user.

The final end product must be labelled in a visible area with the following:

"Contains Transmitter Module **2AHI5CDT**"