

版本 Version: V1.0

日期 Date: 2015.09.29

名称: **WIFI 模块**

Name: WIFI Module

型号: **CDT-047688A-00**

Model: CDT-047688A-00

软件:

Software:

客 户 CUSTOMER	客户承认 APPROVE (请盖印章)	日 期 DATE

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DESIGN: _____

CHECK: _____

APPROVAL: _____

更改记录:

Revision History

版本 Version	日期 Date	更改内容 Modification
1.0	2015.09.29	新版发行

1. Overview

MT7688 family integrates a 1T1R 802.11n Wi-Fi radio, a 580MHz MIPS® 24KEc™ CPU, 1-port fast Ethernet PHY, USB2.0 host, PCIe, SD-XC, I2S/PCM and multiple slow IOs. MT7688 provides two operation modes – IoT gateway mode and IoT device mode. In IoT gateway mode, the PCI Express interface can connect to 802.11ac chipset for 11ac dual-band concurrent gateway. The high performance USB 2.0 allows MT7688 to add 3G/LTE modem support or add a H.264 ISP for wireless IP camera. For the IoT device mode, MT7688 supports eMMC, SD-XC and USB 2.0. MT7688 can support the WiFi high quality audio via 192Kbps/24bits I2S interface and VoIP application through PCM. In IoT device mode, it further supports PWM, SPI slave, 3rd UART and more GPIOs. For IoT gateway, it can connect to touch panel and BLE, Zigbee/Z-Wave and sub-1G RF for smart home control.

2. Features

- IEmbedded MIPS24KEc (575/580 MHz) with 64 KB ICache and 32 KB D-Cache
- 1T1R 2.4 GHz with 150 Mbps PHY data rate
- Legacy 802.11b/g and HT 802.11n modes
- 20/40 MHz channel bandwidth
- Space Time Block Coding (STBC)
- 16-bit DDR1/2 up to 128/256 Mbytes
- x1 USB 2.0 Host, x1 PCIe Root Complex
- 1-port 10/100 FE PHY
- SD-XC, eMMC, I2C, PCM, I2S(192K/24bits), PWM, SPI master/slave, UART lite, JTAG,GPIO
- Internet Of Thing
- Embedded PMU
- Green AP/STA
 - Intelligent Clock Scaling (exclusive)
 - DDRII: ODT off, Self-refresh mode
- QoS: WMM, WMM-PS
- 16 Multiple BSSID
- 24 STA-Proxy
- AES128/256-CBC
- WEP64/128, TKIP, AES, WPA, WPA2, WAPI
- WPS: PBC,PIN
- AP/STA Firmware: Linux 2.6.36 SDK, OpenWrt 3.10 SDK, eCOS with IPv6

3. Applications

- Home automation
- Industrial wireless control

4. General Specification

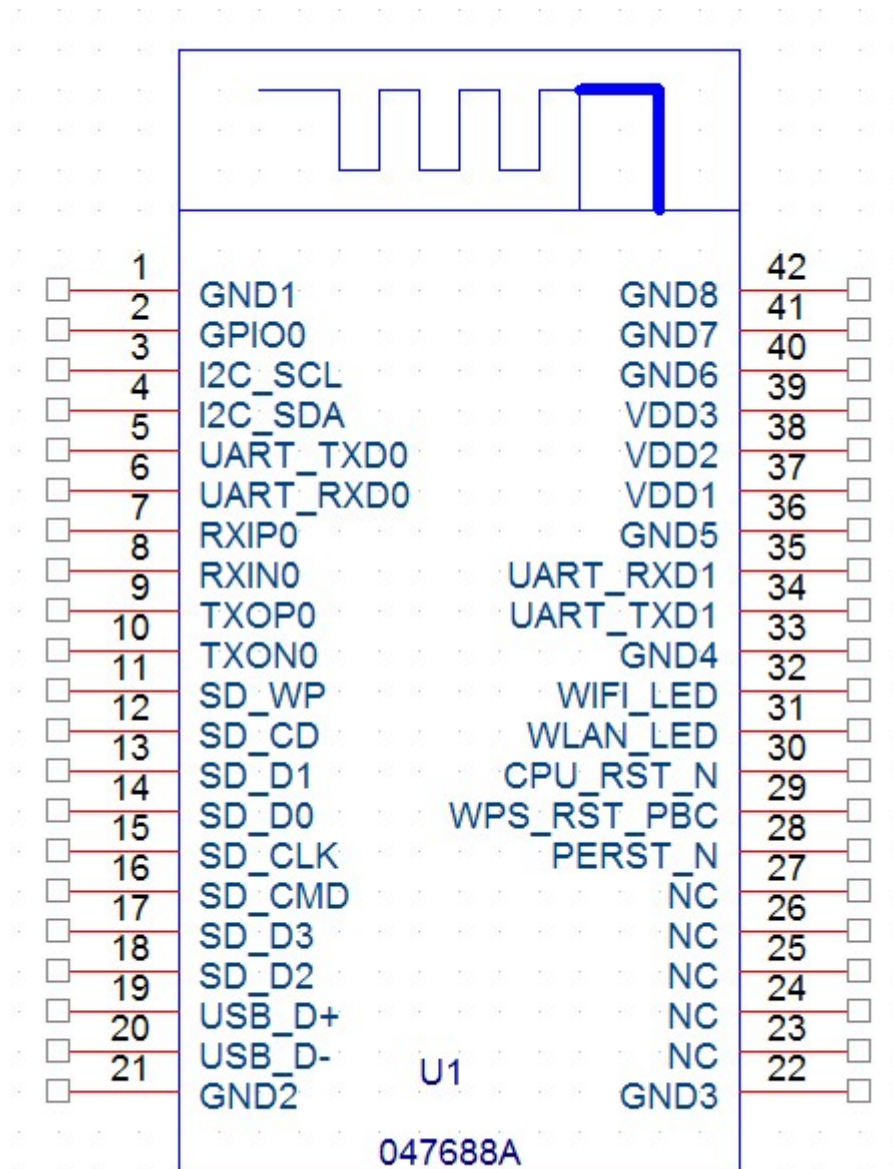
Model	CDT-047688A-00
Product Name	Wifi 1T1R Router module
Major Chipset	MT7688A
Data Transfer Rate	1,2,5.5,6,11,12,18,22,24,30,36,48,54,60, 90,120 and maximum of 150Mbps
Modulation Method	BPSK/ QPSK/ 16-QAM/ 64-QAM
Frequency Band	2.4~2.4835 GHz ISM Band
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE802.11g/n:OFDM (Orthogonal Frequency Division Multiplexing)
RF Output Power	≥ 13dBm@11n, ≥ 14dBm@11g, ≥ 17dBm@11b
Operation Mode	Ad hoc, Infrastructure
Receiver Sensitivity	11b(11Mbps) ≤ -78dBm@8%, 11g(54Mbps) ≤ -67dBm@10%, 11n-20M(mcs7) ≤ -66 dBm@10% 11n-40M(mcs7) ≤ -63 dBm@10%
Security	WEP, TKIP, AES, WPA, WPA2
Interface	UART/SDIO/USB/GPIO/SDIO
Operating Temperature	-20~ +60° C ambient temperature
Storage Temperature	-40 ~ 85°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	50x32 (LxW)

5. Electrical parameters

Description	Min	TYP	Max	Unit
Input voltage	3.0	3.3	3.6	V
Input current	1	1.5	-	A
Average current consumption	500	550	650	mA

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

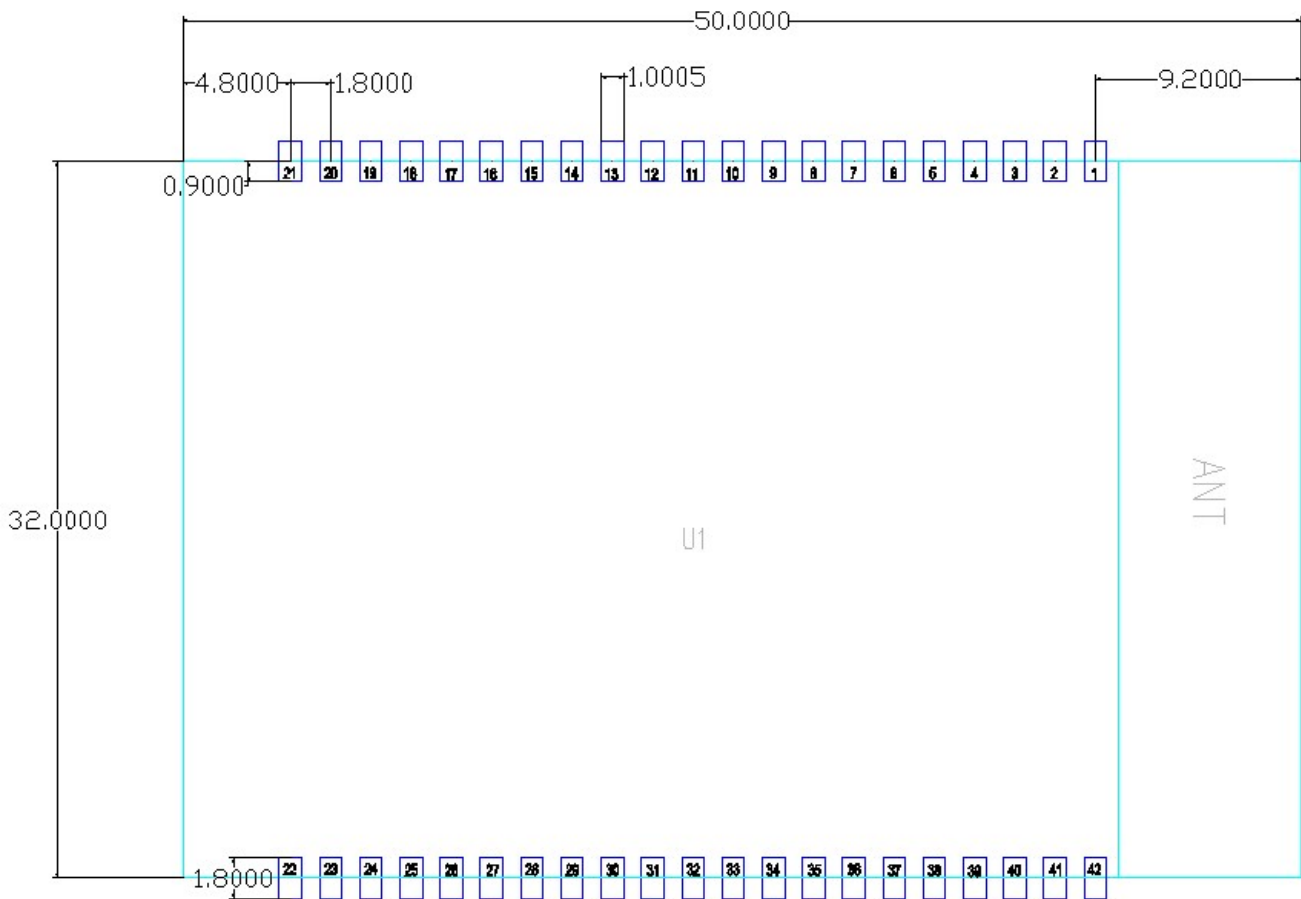
6. Pin Assignments



NO	Nam	Description
1	GND	Ground connections
2	GPIO0	GPIO11
3	I2C_SCL	I2C Clock, GPIO#4
4	I2C_SDA	I2C Data, GPIO#5
5	UART_TXD0	Debug Pin
6	UART_RXD0	Debug Pin
7	RXIP0	Physical receive or transmit signal (+ differential) for port #0
8	RXIN0	Physical receive or transmit signal (- differential) for port #0
9	TXOP0	Physical transmit or receive signal (+ differential) for port #0
10	TXON0	Physical transmit or receive signal (- differential) for port #0
11	SD_WP	Write Protect, GPIO#22
12	SD_CD	Card Detect, GPIO#23
13	SD_D1	Data Line [Bit 1], GPIO#24
14	SD_D0	Data Line [Bit 0], GPIO#25
15	SD_CLK	Clock, GPIO#26
16	SD_CMD	Command/Response , GPIO#28
17	SD_D3	Data Line [Bit 3], GPIO#29
18	SD_D2	Data Line [Bit 2], GPIO#27
19	USB_D+	USB positive differential data lines
20	USB_D-	USB negative differential data lines
21	GND	Ground connections
22	GND	Ground connections
23	NC	-
24	NC	-
25	NC	-
26	NC	-
27	NC	-
28	PERST_N	GPIO#36
29	WPS_RST_PB	GPIO#38
30	CPU_RST_N	Power on reset, low active
31	LAN_LED	Port #0 activity LED, GPIO#43
32	WIFI_LED	WLAN Activity LED, GPIO#44
33	GND	Ground connections
34	UART_TXD1	UART1 Lite TXD, GPIO#45
35	UART_RXD1	UART1 Lite RXD, GPIO#46

36	GND	Ground connections
37	VDD1	Power supply 3.3V is required
39	VDD2	Power supply 3.3V is required
40	VDD3	Power supply 3.3V is required
41	GND	Ground connections
42	GND	Ground connections

7. Dimension

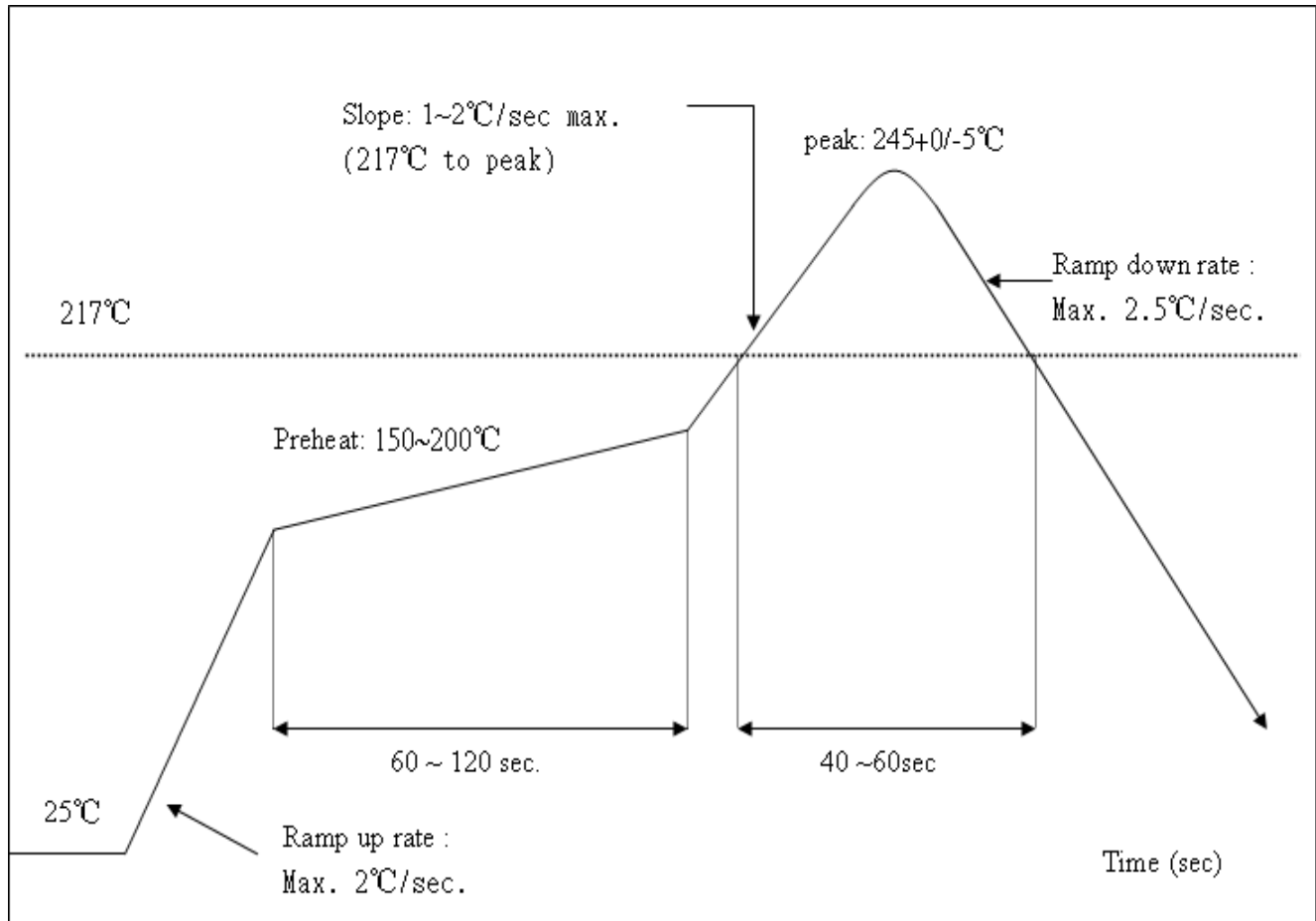


8. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : $<250^{\circ}\text{C}$

Number of Times : ≤ 2 times



ESD CAUTION

The CDT-047688A-00 is ESD (electrostatic discharge) sensitive device and may be damaged with ESD or spike voltage. Although CDT-047688A-00 is with built-in ESD protection circuitry, please handle with care to avoid the permanent malfunction or the performance degradation.