

SPECIFICATIONS

DTX W401

Version: V1.0

Revision History

Version	Date	Revision Content	Draft	Approved
1.0	2021/10/08	Initial Release	ocean	leo

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1 Overview

1.1 Introduction

The module DTX-W401 is based on WQ9001 chip is a highly integrated, high performance 802.11 b/g/n WLAN SoC chip with USB interface (USB 2.0 compliant). WQ9001 integrates RF transceiver, 802.11 PHY & MAC, RISC-V CPU, OTP, USB interface and power management circuits. The integrated RF circuits include power amplifier (PA), low noise amplifier (LNA), T/R switch and balun. Therefore, WQ9001 provides a complete solution for high throughput and reliable wireless LAN application. supports all data rates for IEEE 802.11 b/g/n with one spatial stream transmission over 20MHz bandwidth.

1.2 Features

Wi-Fi General

- Integrated RF transceiver, 802.11 PHY & MAC, RISC-V CPU, OTP, USB interface and power management circuits in a single chip
- Integrated PA, LNA, T/R switch and balun to minimize BOM cost
- Integrated LDO's on chip, only 3.3v power is needed
- Support AP & STA function
- 40MHz crystal

MCU Features

- RISC-V CPU with speed up to 160MHz
- 1k bits OTP
- 224KB on-chip SRAM
- 128KB on-chip ROM

Interface

- USB 2.0

1.3 Block Diagram

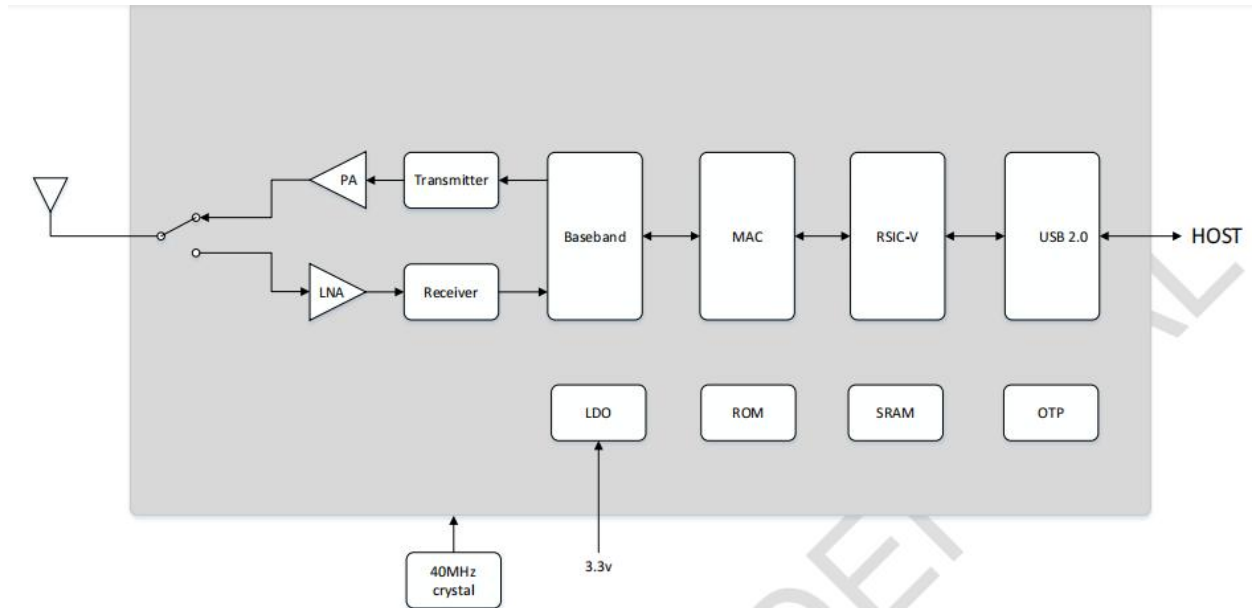


Figure 1-1 Block Diagram

1.4 General Specification

Model Name	DTX-W401
Product Description	Support Wi-Fi
Dimension	L x W x T: 12.2 x 12.9 x 1 (typical) mm
Wi-Fi Interface	USB 2.0
Operating temperature	-20°C to 75°C
Storage temperature	-40°C to 85°C
RoHS	All hardware components are fully compliant with EU RoHS directive

1.5 Recommended Operating Rating

	Min.	Typ.	Max.	Unit
Operating Temperature	0	25	70	deg.C
VBAT	2.7	3.3	3.6	V

2 Wi-Fi RF Specification

2.1 Wi-Fi 2.4GHz RF Specification

Feature	Description
WLAN Standard	IEEE 802.11b/g/n, Wi-Fi compliant
Frequency Range	2.400 GHz ~ 2.4835 GHz (2.4 GHz ISM Band)
Channels	2.4GHz: Ch1 ~ Ch14
Output Power & EVM	802.11b /11M : 17 ± 2 dBm @ EVM \leq -9dB
	802.11g /54M : 15 ± 2 dBm @ EVM \leq -25dB
	802.11n /MCS7 : 14 ± 2 dBm @ EVM \leq -28dB
Spectrum Mask	IEEE compliant
Freq. Tolerance	± 20 ppm
Receive Sensitivity (11b) @8% PER	- 1Mbps: \leq -92 dBm
	- 11Mbps: \leq -85 dBm
Receive Sensitivity (11g) @10% PER	- 6Mbps: \leq -89 dBm
	- 54Mbps: \leq -75 dBm
Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0: \leq -89 dBm
	- MCS=7: \leq -72 dBm

3 Pin Assignments

3.1 Pin Outline

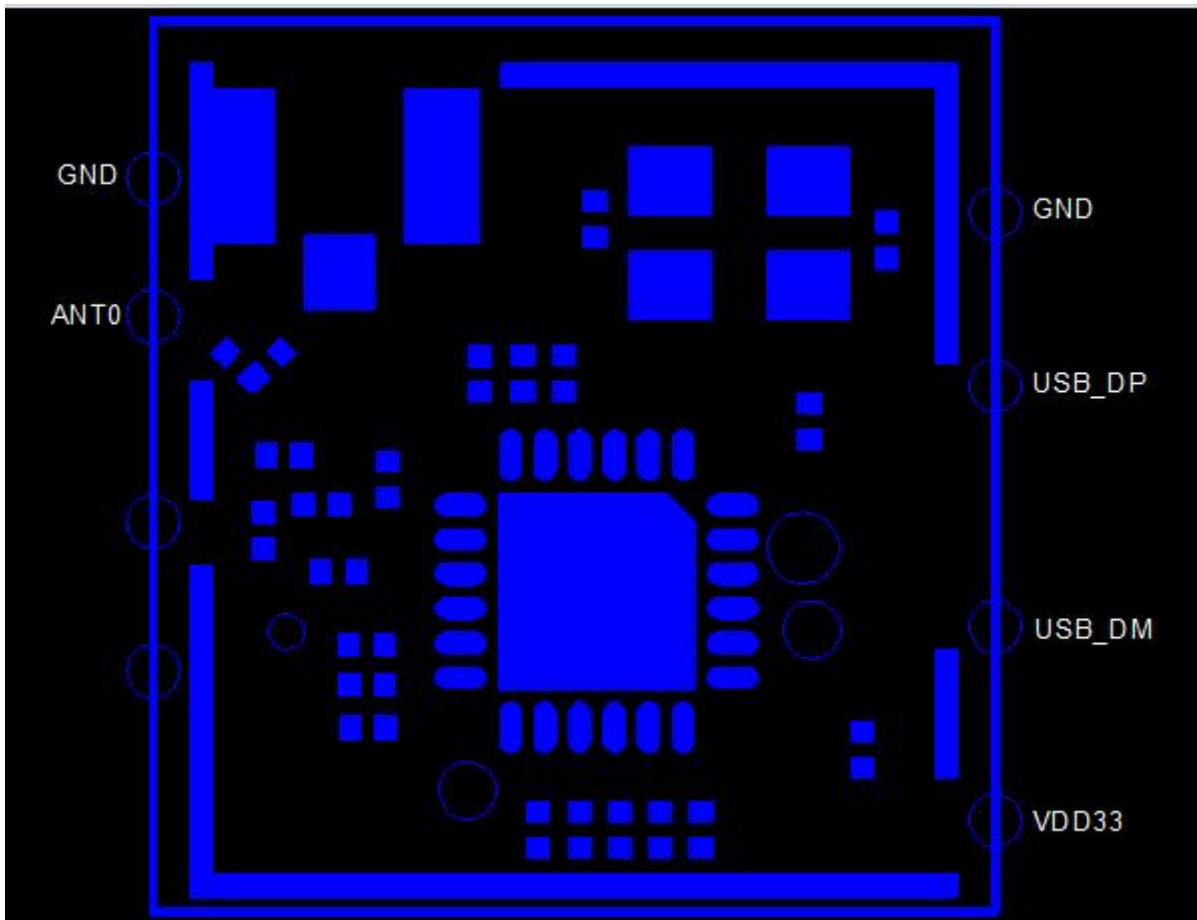


Figure 3-1 Module pin outline

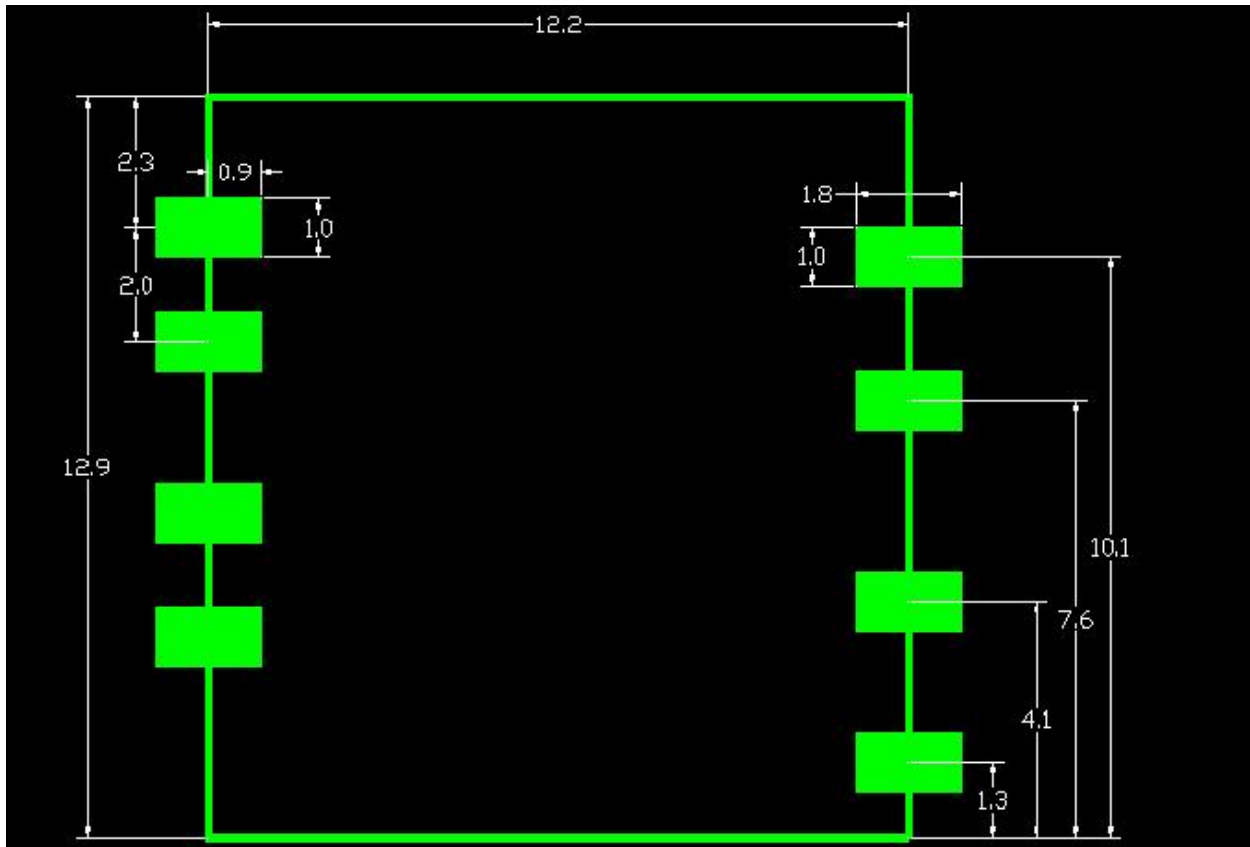
3.2 Pin Definition

NO	Name	Type	Description	Voltage
1	GND	—	Ground connections	
2	ANT0	I/O	WLAN RF I/O port	
3	NC	—	Ground connections	
4	NC	—	Floating (Don't connected to ground)	
5	VDD33	—	I/O Voltage supply input3.3V	3.3v
6	USB_DM	I/O	USB2.0 differential pair for WLAN	
7	USB_DP	I/O	USB2.0 differential pair for WLAN	
8	GND	I	Ground connections	

P: POWER I: INPUT O: OUTPUT

4 Dimensions

4.1 Module Physical Dimensions



(Unit: mm \pm 0.2mm)

4.2 Module physical photo



5 Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <math><250^{\circ}\text{C}</math>

Number of Times : ≤ 2 times

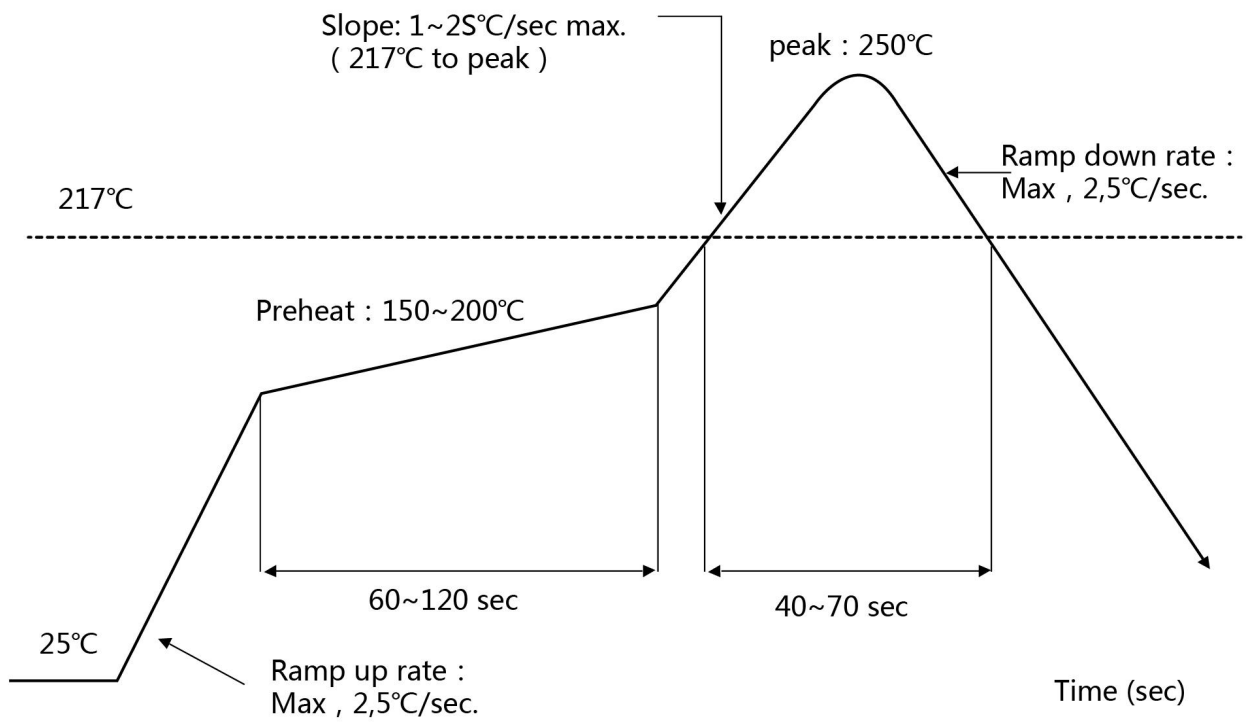


Figure 9-1 Recommended reflow profile