

# **BoT-TMA50DS**

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**Dimension**

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**V 1.0.0**

**■ History**

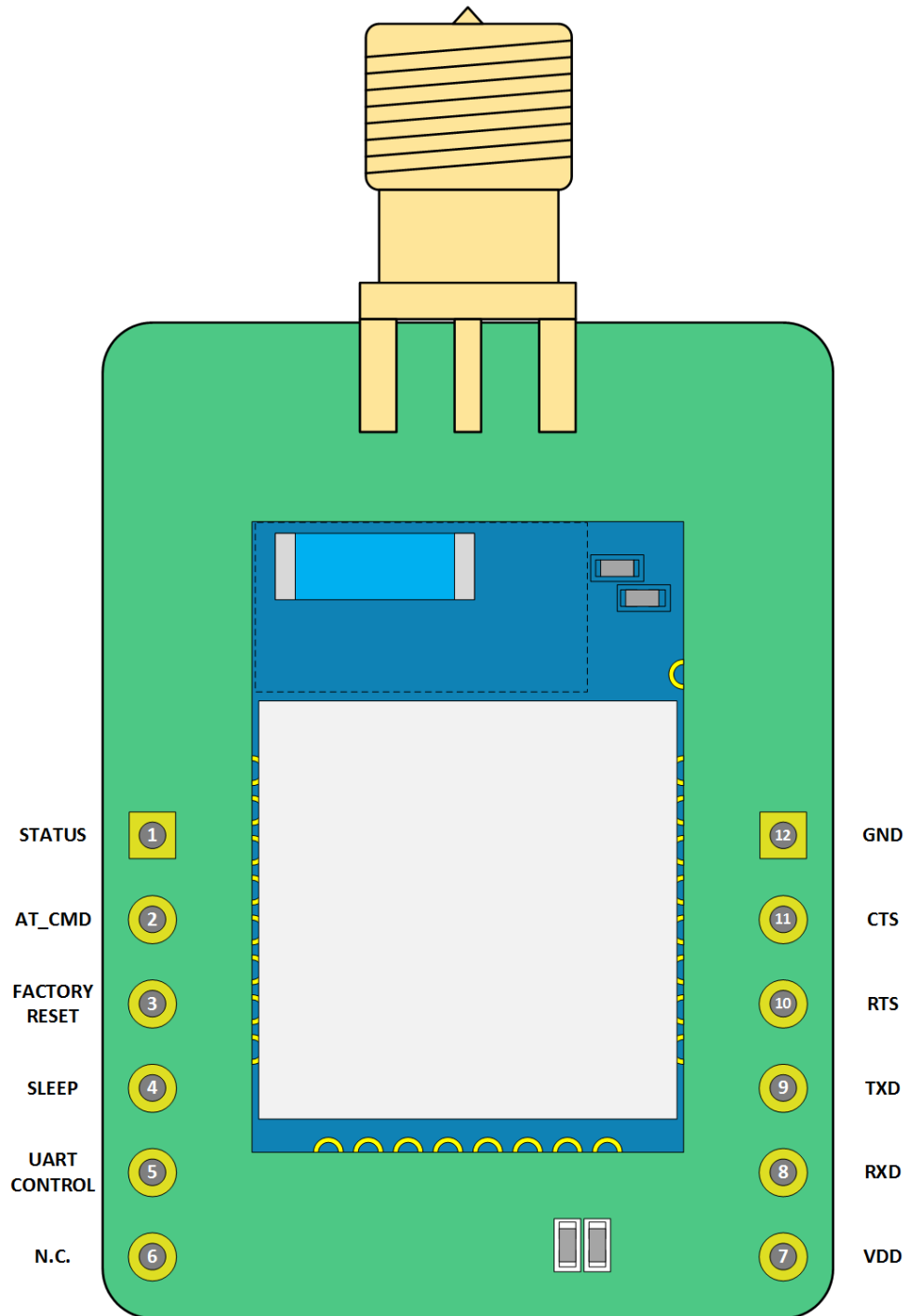
<b>Rev</b>	<b>Date</b>	<b>Description</b>	<b>Author</b>
1.0.0	2022. 09. 23	- First release	Enoch

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### 1. Pin configuration & PIN Description

#### 1.1 Pin Configuration



## 1.2 PIN Description

Pin No.	Pin Name	Pin Function	Description
1	STATUS	DIGITAL OUPUT	Connection status; Connected Device = High Disconnected Device = Low
2	AT COMMAND	DIGITAL INPUT	AT COMMAND MODE control; AT COMMAND MODE = High BYPASS MODE = Low
3	FACTORY RESET	DIGITAL INPUT	Disconnect / Factory reset When high level is detected device is disconnected and maintained for more than 4 seconds, the factory reset is performed
4	SLEEP	DIGITAL INPUT	Sleep mode control; Sleep low power mode = High Wake up = Low
5	UART ON/OFF	DIGITAL INPUT	UART ON / OFF control UART OFF = High UART ON = Low
6	N.C.	Not Connect	
7	VDD	POWER	Main Power. typ. DC 3.3V
8	UART RXD	DIGITAL INPUT	UART Receive Data
9	UART TXD	DIGITAL OUTPUT	UART Transmit Data
10	UART RTS	UART RTS	UART Request to Send
11	UART CTS	UART CTS	UART Clear to Send
12	GND	GROUND	Ground

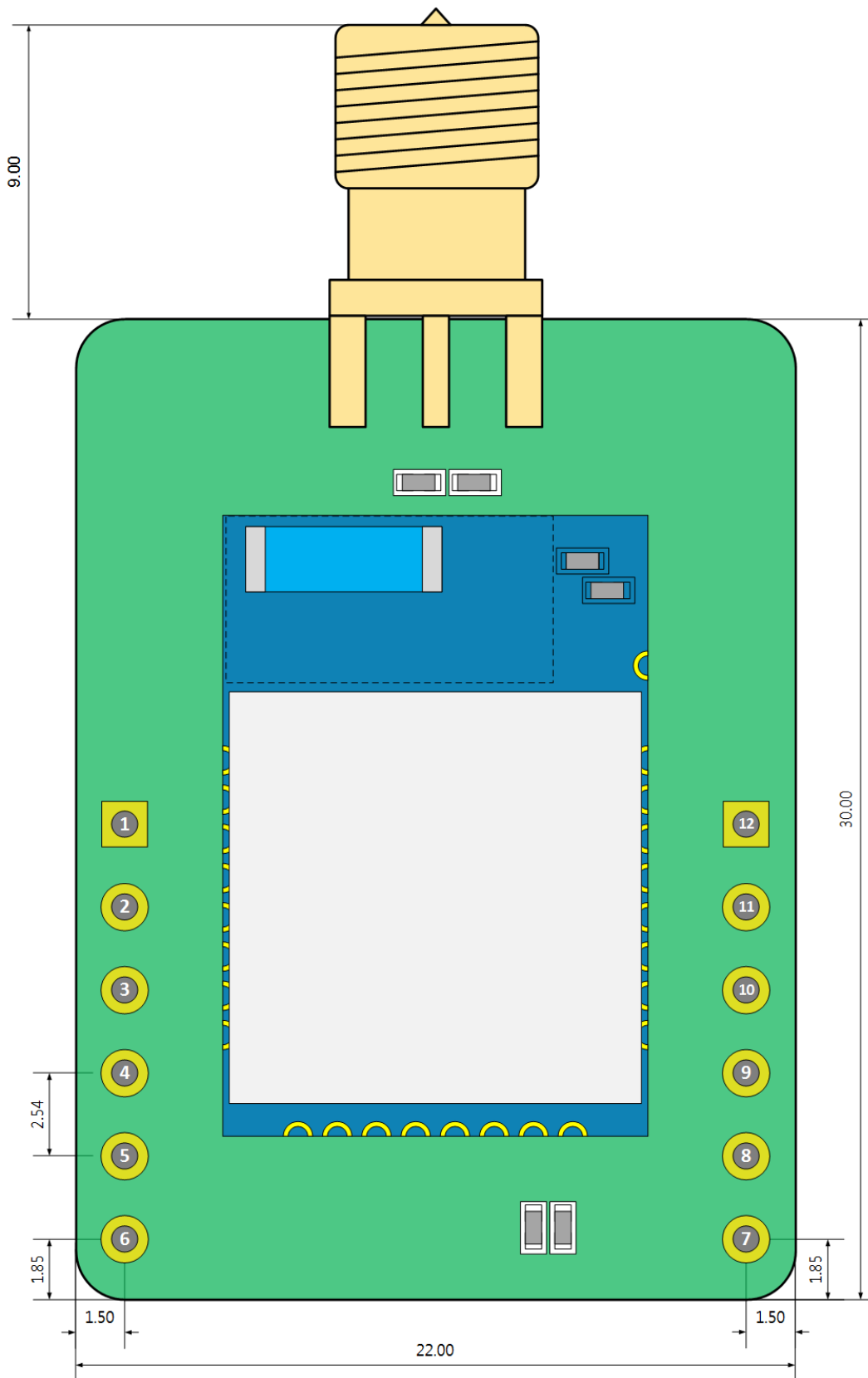
1) ALL I/O function operate on CHIPSEN commercial firmware.

2) For more information refer to CHIPSEN commercial firmware document.

## 1.3 DC Characteristics

Symbol	Parameter (condition)	Min.	Typ.	Max.	Units
VDD	Main Power	2.7	3.3	3.6	V
V <sub>IH</sub>	Input high voltage	0.7 X VDD		VDD	V
V <sub>IL</sub>	Input low voltage	VSS		0.3 X VDD	V
V <sub>OH,HDH</sub>	Output high voltage, high drive, 5 mA, VDD ≥ 2.7 V	VDD-0.4		VDD	V
V <sub>OL,HDH</sub>	Output low voltage, high drive, 5 mA, VDD ≥ 2.7 V	VSS		VSS +0.4	V
R <sub>PU</sub>	Internal Pull-up resistance	11	13	16	kΩ
R <sub>PD</sub>	Internal Pull-down resistance	11	13	16	kΩ

### 1.4 Dimensions



## 2. Application Schematic

### Design consideration

- All I/O(including UART) should be up after VCC applied.
- All I/O(including UART) should NOT be present fast or be held high before VCC is high.

### 2.1 Reference Application

#### BoT-TMA50D REF APPLICATION

**CONNECTION\_STATUS**

LED1005 → LED1 → 330R → R1 → CONNECTION\_STATUS

■ CONNECTION STATE

DESCRIPTION	OUTPUT
DEVICE CONNECTION	HIGH
DEVICE DISCONNECTION	LOW

**AT\_COMMAND/ BYPASS**

SW1 → AT\_COMMAND/ BYPASS → DC\_3V3

■ UART MODE

DESCRIPTION	INPUT
AT COMMAND MODE	HIGH
BYPASS MODE	LOW

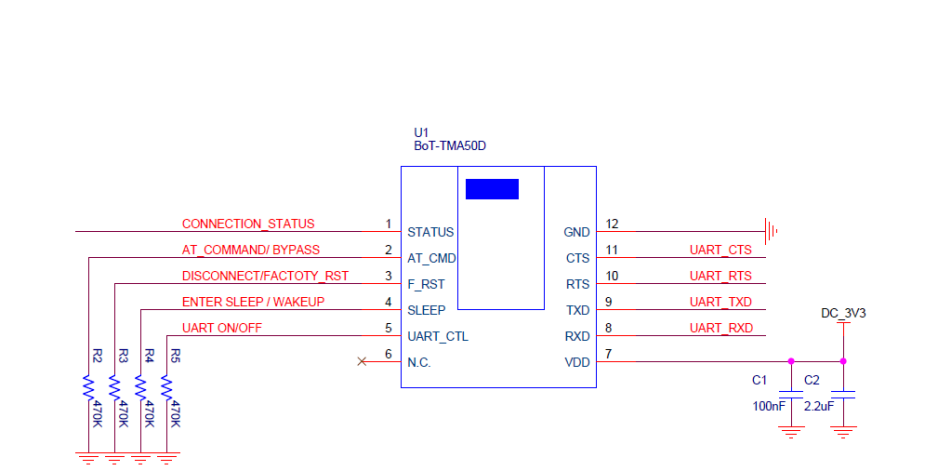
\* DEVICE와 연결되기 전에는 AT COMMAND MODE로 동작  
 \* DEVICE와 연결 후 UART MODE PIN HIGH,LOW로 UART MODE 동작 결정

**DISCONNECT/FACTORY\_RESET**

SW4 → DISCONNECT/FACTORY\_RST → DC\_3V3

\* DISCONNECT;  
 High Level (Rising Edge)이 감지 되었을 때 상대 장치와 연결되어 있다면 연결을 종료 한다.

\* FACTORY\_RST;  
 4초 이상 HIGH 유지시 +OK 응답 후 공장초기화 상태로 복귀시킨다.



**ENTER\_SLEEP / WAKEUP**

SW2 → ENTER\_SLEEP / WAKEUP → DC\_3V3

DESCRIPTION	INPUT
LOW POWER MODE	HIGH(RISING EDGE)
WAKE UP & REBOOTING	LOW(FALLING EDGE)

\* ENTER\_SLEEP / WAKE UP;  
 High Level(Rising Edge) 이 감지되면 저전력 모드로 진입이 되며, 저전력 모드상태에서는 Low Level (Falling Edge) 이 감지되면 Wake Up 되고 모듈이 자동으로 재부팅한다.

**UART\_ON/OFF**

SW3 → UART\_ON/OFF → DC\_3V3

DESCRIPTION	INPUT
UART DISABLE	HIGH(RISING EDGE)
UART ENABLE	LOW(FALLING EDGE)

\* UART ON / OFF  
 High Level(Rising Edge) 이 감지되면 UART가 동작을 멈추고(DISABLE) Low Level (Falling Edge) 이 감지되면 UART 동작이 재시작(ENABLE)함.