# USR-TCP232-T2 Hardware Manual

File version: 1.2.01

# Content

# 1. Product Overview

## 1.1. Dimension

Module size: 50.5*22.6mm. Module dimension diagram as follow:

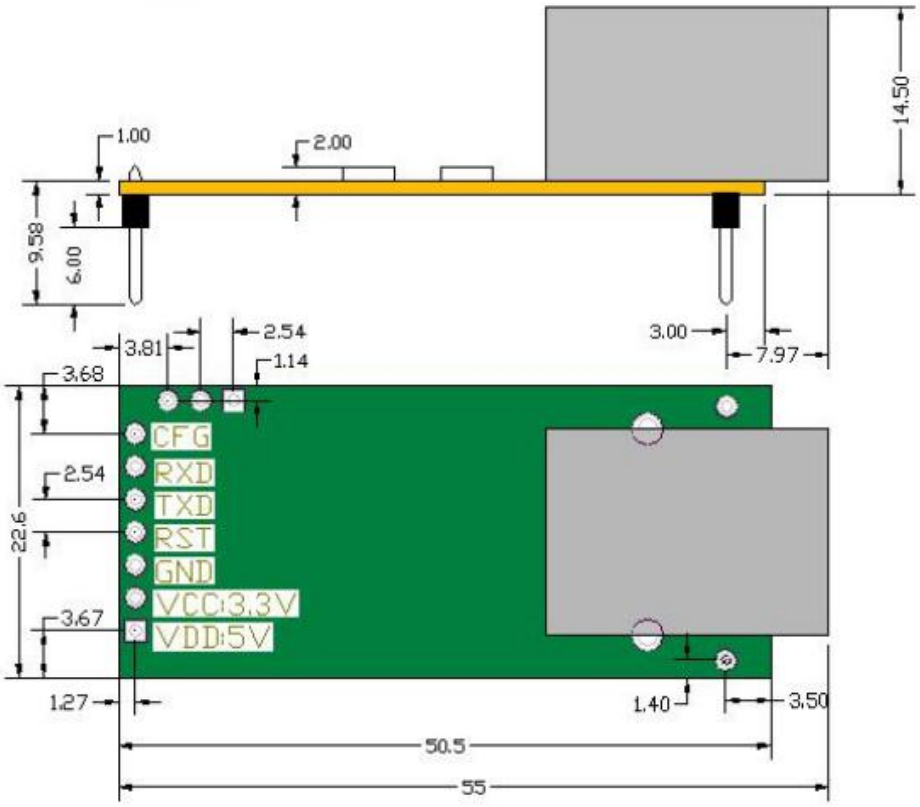
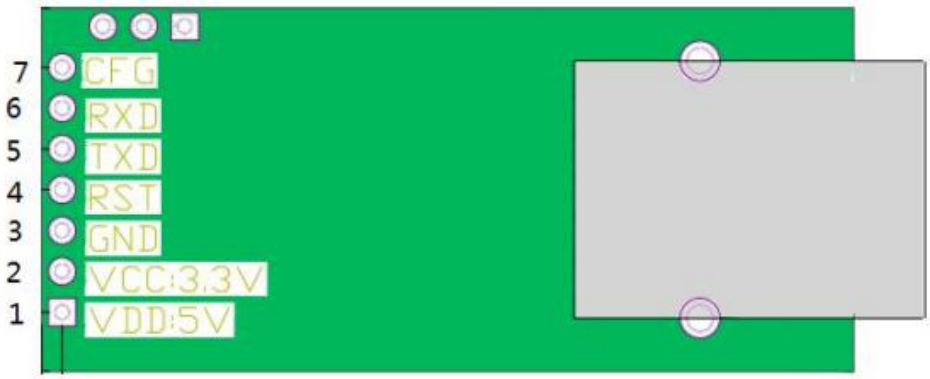


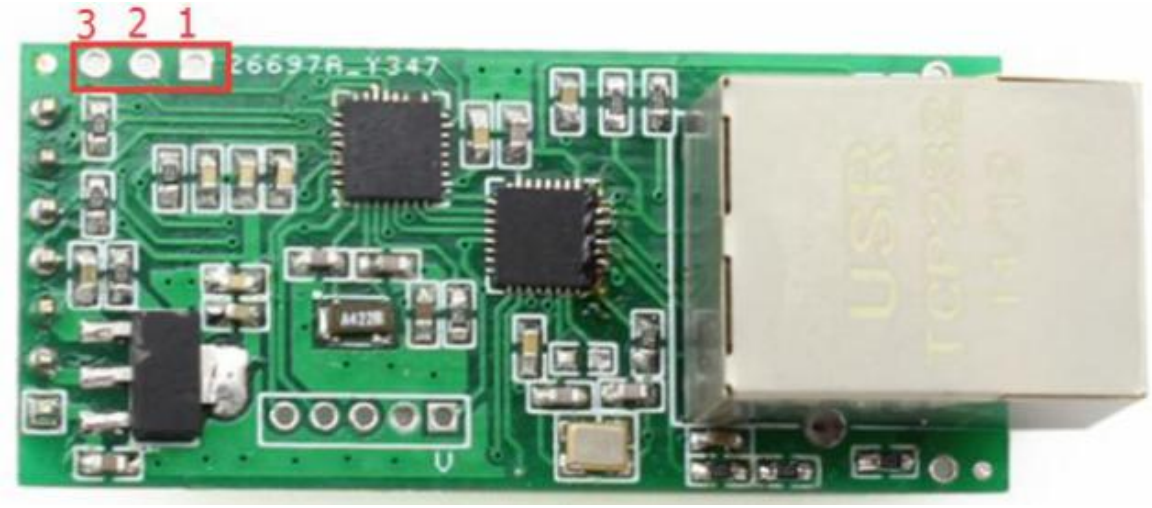

**Figure 1 Dimension diagram**

## 1.2. Pin Definition



| PIN | Name | Signal Type | Definition |
|---|---|---|---|
| 1 | VDD | P | Power supply: 5V@200mA. |
| 2 | VCC | P | Power supply: 3.3V@ 200mA. |
| 3 | GND | P | Power ground |
| 4 | RST | I | Resetting the module and taking effect in low level. Inputting low level for 300ms to reset the module. Note: User can connect RST pin to MCU I/O to reset the module through MCU controlling. |
| 5 | UART_TXD | O | Serial port TX pin, TTL interface. Can connect to 3.3V level MCU directly and user can refer to **2.3. UART Interface** to connect to 5V level MCU. |
| 6 | UART_RXD | I | Serial port RX pin, TTL interface. Can connect to 3.3V level MCU directly and user can refer to **2.3. UART Interface** to connect to 5V level MCU. |
| 7 | CFG | I | Configuration pin to enable user configure the module by serial port and is compatible with RELOAD pin. When module are working normally, make configuration pin not available or connect to high level. |

**Figure 2 Pin definition**




| PIN | Name | Signal Type | Definition |
|---|---|---|---|
| 1 | 485_EN | Reserved pin | Can be used as RS485 controlling pin. High level to enable transmitting. User can configure by setup software. |
| 2 | LINK | Reserved pin | Can be used as indication pin to display network connection status.<br>When module in TCP mode, LINK pin will output low level when connection established and output high level without connection.<br>When module in UDP mode, LINK pin will always output low level. |
| 3 | ISP | Reserved pin | Not available now. |

**Figure 3 Reserved pin definition**

## 1.3. Ethernet interface LED

| Name | Function | Definition |
|---|---|---|
| Green LED | Displaying connection status. | Green LED will light when module connect to network. |
| Yellow LED | Displaying data transmission. | Yellow LED will blink when module have data transmission. |

**Figure 4 Ethernet interface LED**

# 2. Hardware Design

## 2.1. Typical Connection

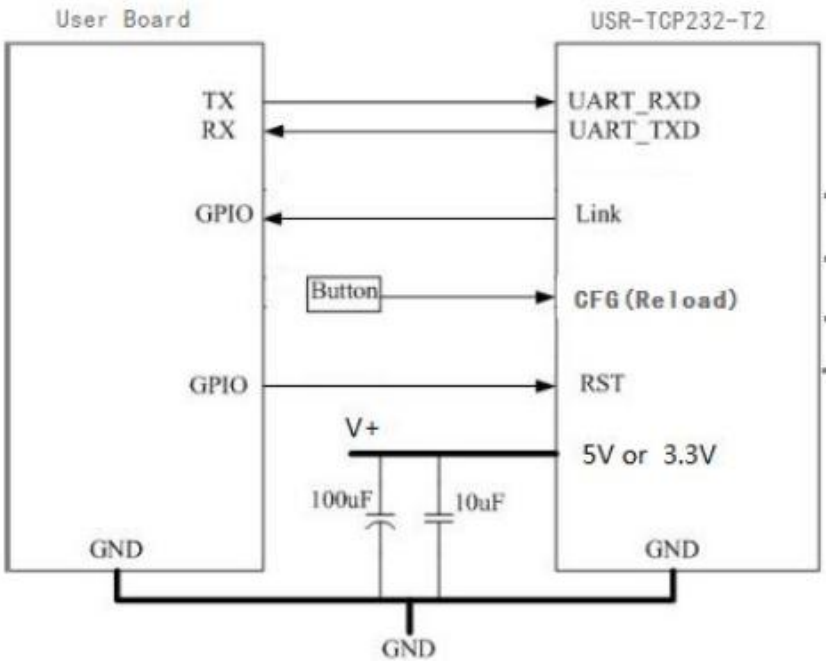



**Figure 5 Typical connection**

1. RST: Input pin. Resetting the module and taking effect in low level. RST pin connect to internal 10K Ohm pull-up resistor to 3.3V. Pull down over 300ms and release to reset the module.
2. Link: Output pin. Output low level when module establish network connection .
3. CFG(Reload): Can connect to external button or configuration pin. Press over 3s and release to restore default settings. Reload pin connect to internal 10k Ohm pull-up resistor to 3.3V.

## 2.2. Power Interface

USR-TCP232-T2 adopt 3.3V/5V dual power supply and they can't be used simultaneously. Peak current about 200mA and working current about 150mA.

1. VCC: 3.3V DC power supply. Voltage range: 3.0~3.6V and be suitable for 3.3V MCU.
2. VDD: 5V DC power supply. Voltage range: 4.75V~5.5V. When user connect to 5V MCU, please refer to **2.3. UART Interface** switching circuit .

## 2.3. UART Interface

UART is serial data interface that can connect the RS-232 chip and transfer to the RS-232 level. UART interface includes TXD/RXD.Take the RS-232 level as a reference circuit diagram as follow:

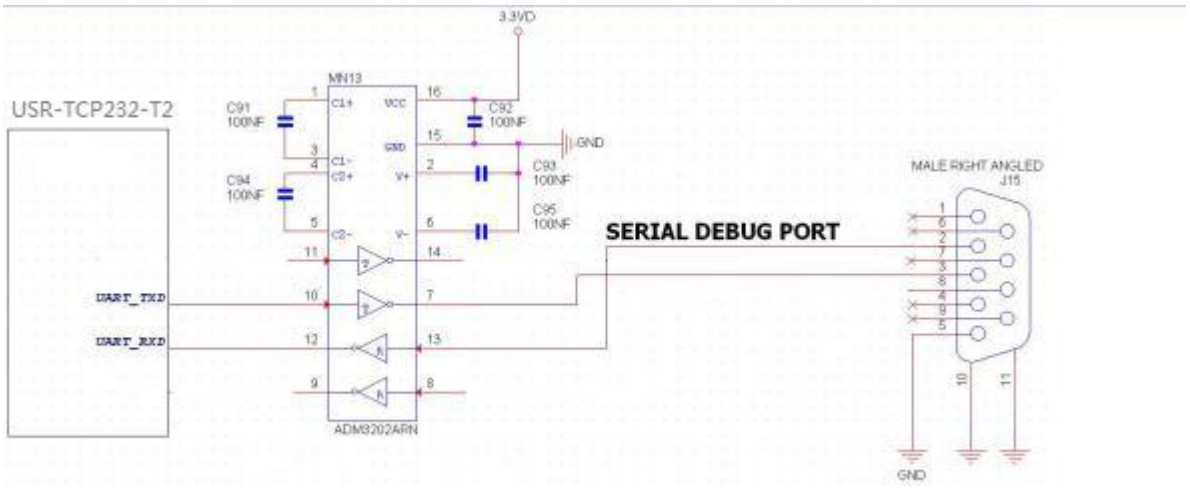



**Figure 6 UART interface**

When communicate to MCU with 3.3V, just connecting TXD of module to RXD of MCU and RXD of module to TXD of MCU. When communicate to MCU with 5V, switching circuit is necessary. Switching circuit diagram as follows:

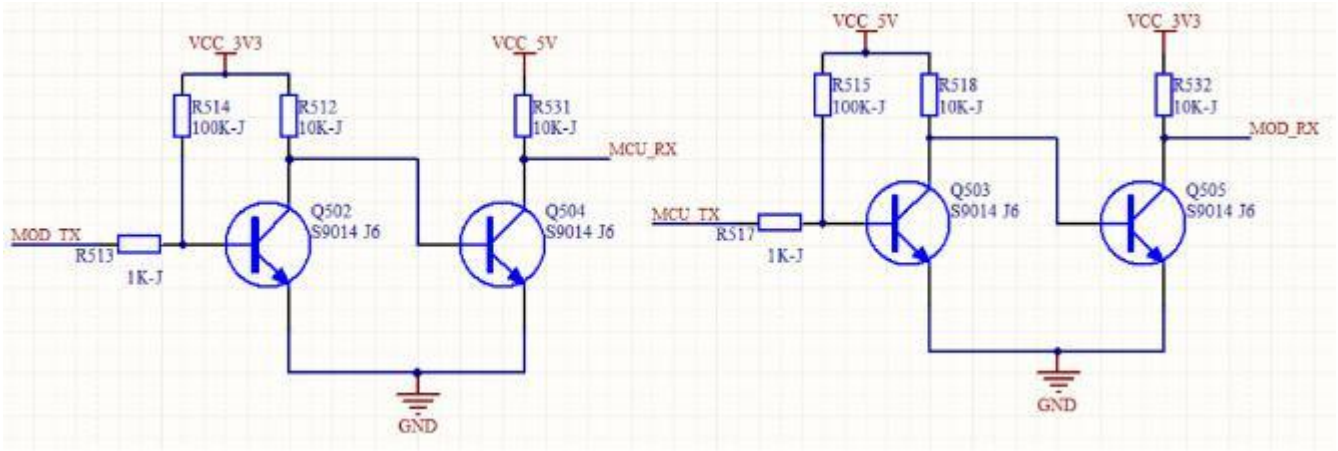



**Figure 7 Switching circuit**