



SIM7022-EVB

User Guide

NB Module

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1 Introduction

The purpose of this article is to introduce the interface and usage of the development kit.

Based on the SIMCom development kit, developers will quickly become familiar with and verify the software functions of the module.

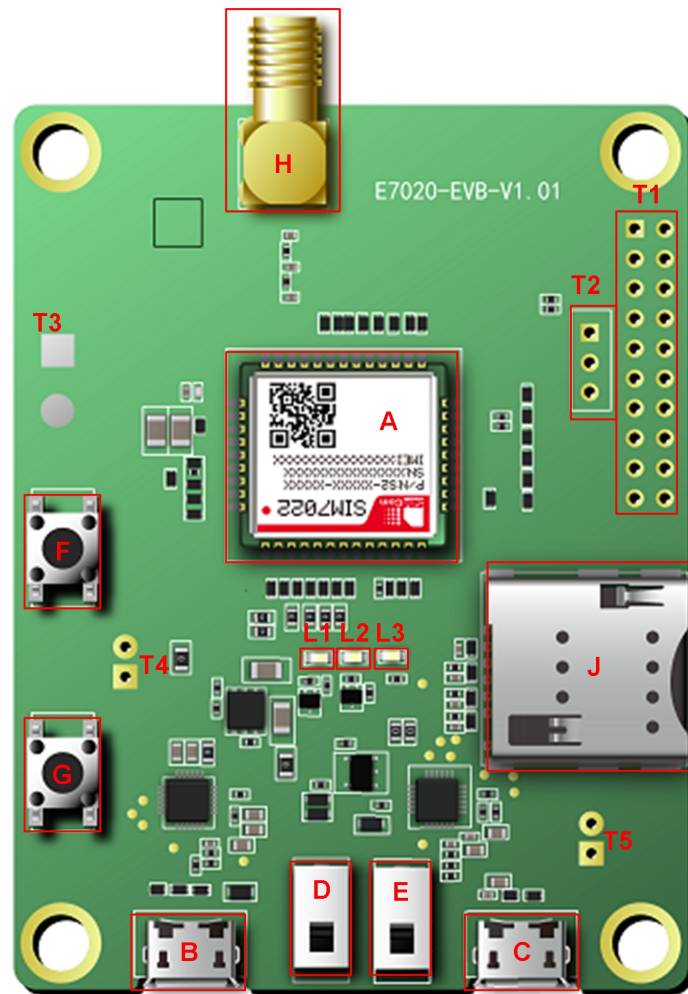
1.1 Features Overview

The main features of SIM7022 EVB are shown in the table below.

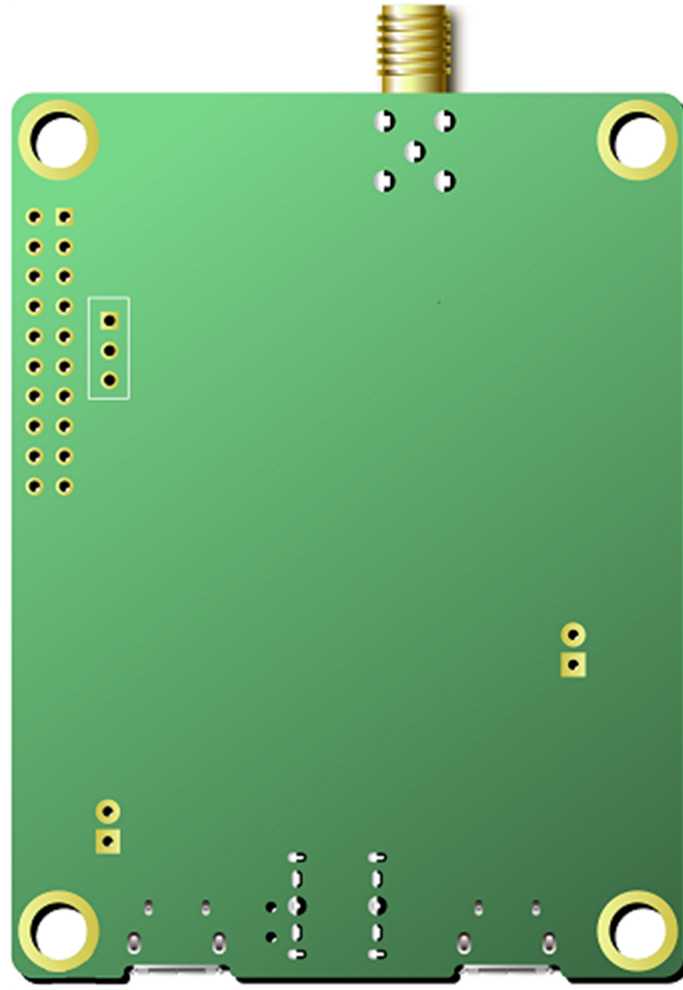
Table 1: Main features

Features	Description
Power supply	USB_VBUS: 5V power supply
(U)SIM card interface	(U)SIM card: Dual voltage 1.8V/3.0V
UART interface	Two USB-to-UART interfaces, Respectively for the main serial port and system log port
Signal indication	Three function indicator LED lights
Switches	Two switches for power supply and software download
Buttons	Two buttons for wake-up and reset functions respectively

1.2 SIM7022 EVB Top and Bottom View



Feature 1: SIM7022 EVB top view



Feature 2: SIM7022 EVB bottom view

Table 2: Label information description

Label information	Description
A	SIM7022 Module
B	Main serial port, used for AT commands and firmware upgrade
C	DBG serial port, used for software LOG capture
D	Power supply switch
E	Firmware upgrade switch
F	WAKEUP button
G	RESET button
H	Main antenna connector
J	SIM card interface
L1	Network status light
L2	Power Indicator light
L3	Power-on indicator light
T1,T2,T3,T4,T5	Test point

❖ **Note**

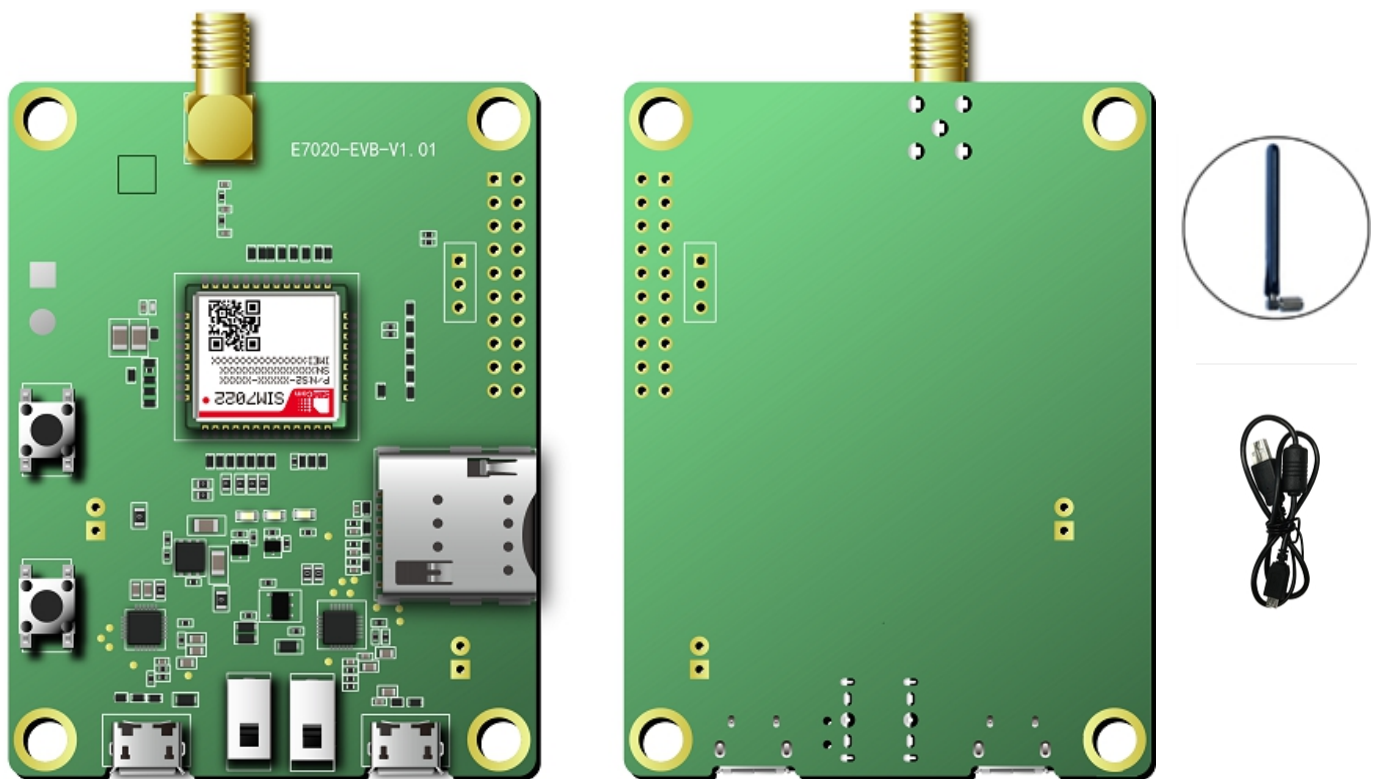
1. The SIM card of the SIM7022 EVB is shown as the position "J" in the rendering. The module does not support the hot-swappable function. Please insert the SIM card before turning on the module, otherwise the SIM card will not be recognized successfully.

1.3 SIM7022 Evaluation Kit

Evaluation kit includes EVB board and other accessories.

The SIM7022 kit list is as follows, please ensure that all kits are complete.

- 1) SIM7022-EVB board;
- 2) MICRO USB data cable;
- 3) GSM\WCDMA\LTE antenna;



Feature 3: SIM7022 Evaluation kit

Table 3: EVB Kit

EVB Kit	Description	quantity
SIM7022 EVB	EVB board	1
GSM\WCDMA \LTE antenna	GSM\WCDMA \LTE antenna	1
MICRO USB data cable	MICRO USB data cable	1

To ensure that the module can be used normally, it is recommended to use the correct kit model. The part numbers of SIM7022 EVB kit are shown in the table below.

Table 4: EVB Kit

EVB Kit	Part No
8EC000-SIM7022-EVBKIT	S2-109DE

2 Interface Introduction

The interface of SIM7022 EVB is shown in the table below.

Table 5: Interface introduction

Function	Reference number	Description
(U)SIM	J102	(U)SIM card interface
UART	J103	J103 is used for AT command communication, data transmission and firmware upgrade
	J104	J104 is used for software debugging
LEDS	LED101	LED101: Network status indicator light
	LED102	LED102: Power status indicator light
	LED103	LED103: Power-on status indicator light
Switches	SW101	SW101: Power supply switch
	SW1	SW1: Firmware upgrade switch
Buttons	SW102	SW102: RESET button
	SW103	SW103: WAKEUP button
Test points	J101 J105 J106 J107	J101 J105: Power test point J106 J107: Module signal test point

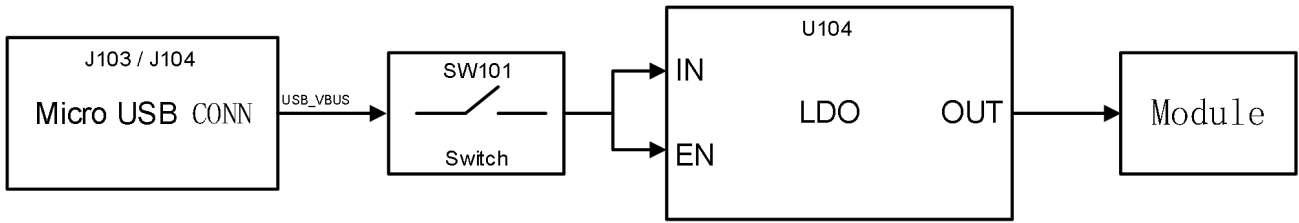
More detailed introductions about the above functions are shown in the next section.

2.1 Power Supply

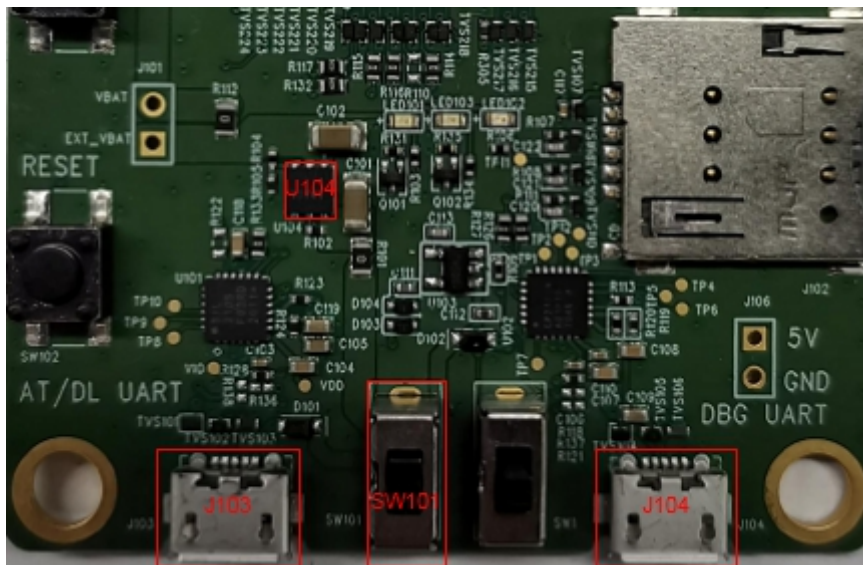
2.1.1 Power Supply

SIM7022 EVB is powered by micro USB, USB plug-in connection device J103, J104 can achieve 5V power supply effect.

The power supply block diagram of SIM7022 EVB is shown in the figure below.



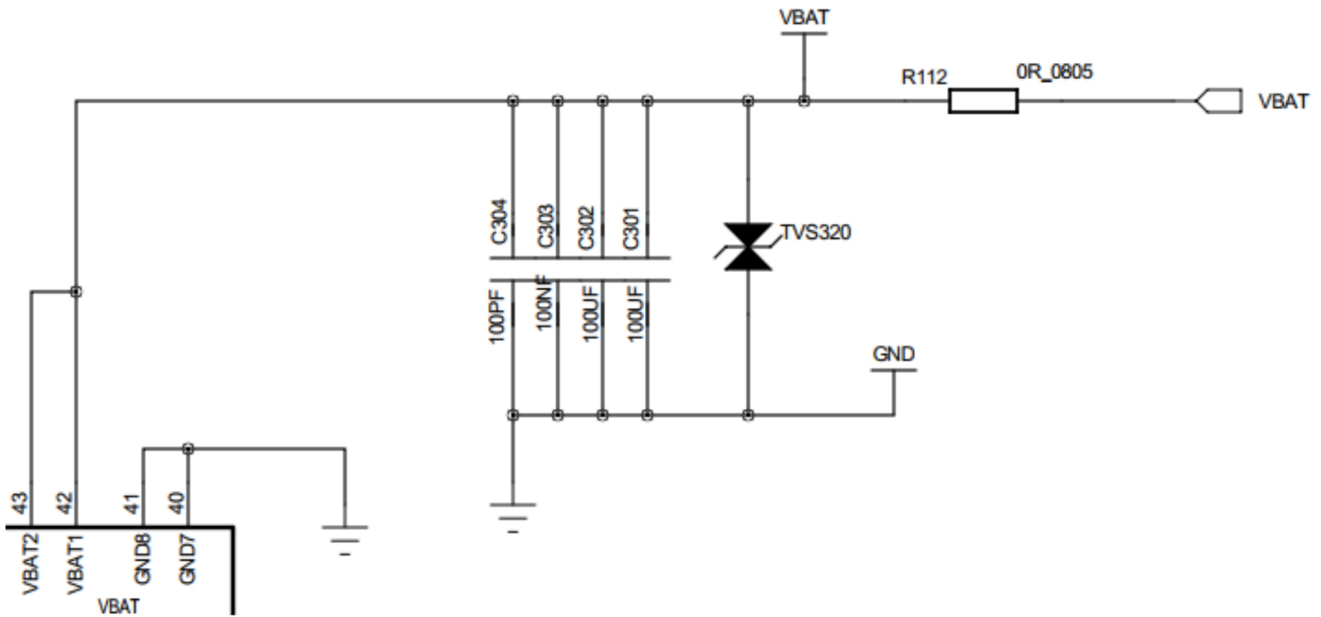
Feature 4: EVBPower supply block diagram



Feature 5: EVB power interface

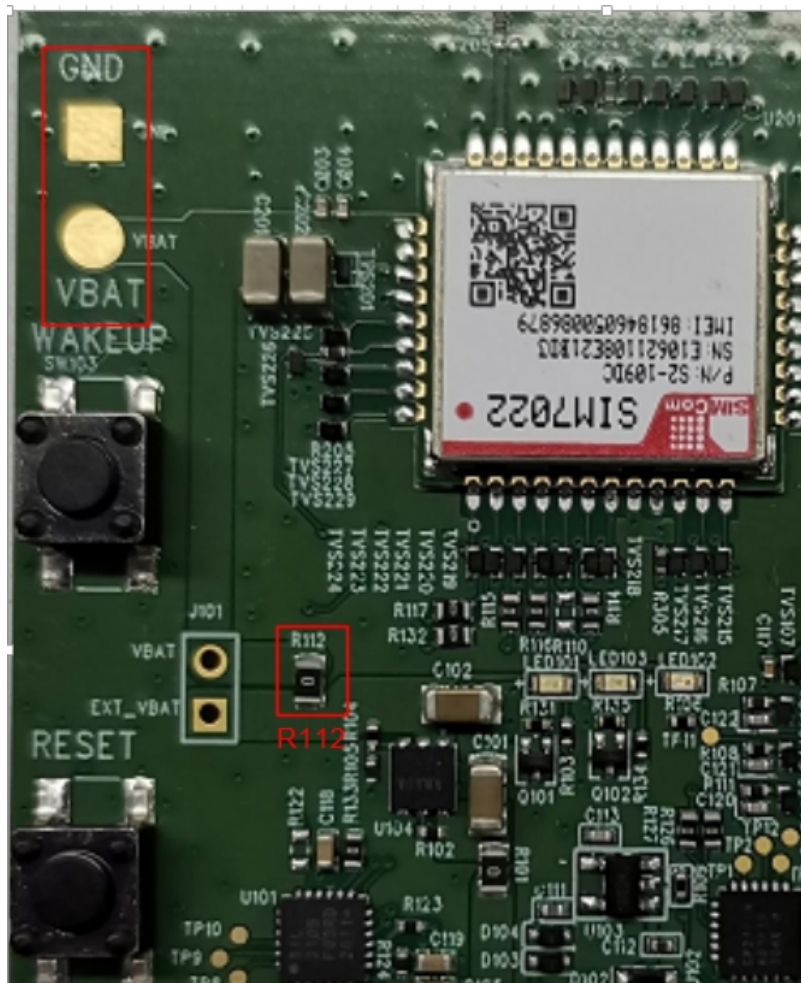
2.1.2 Separate Power Supply

The module power supply reference design is shown in the figure below.



Feature 6: Module power supply reference design

The test points of VBAT and GND of the module are shown in the figure below. If the module needs to be powered separately, the resistance of R112 should be removed first, and then the VBAT and GND test points should be externally supplied with power.



Feature 7: Module power supply separately (VBAT GND)

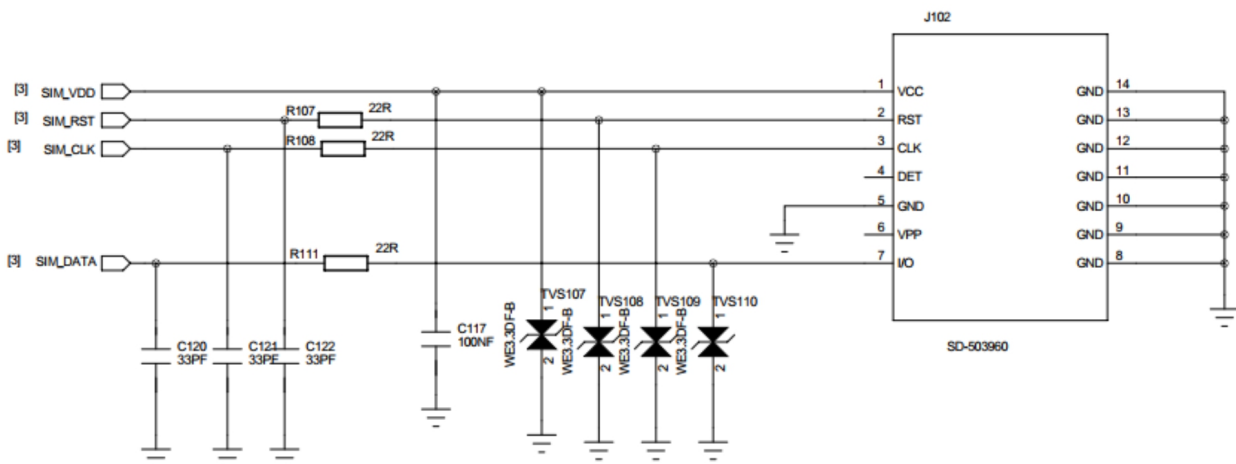
※ Note

1. The power supply range of the module is 2.2~4.2V, and the recommended power supply voltage is 3.3V. When the power supply voltage is lower than 3V, the radio frequency can work and the performance of a single index may not meet the 3GPP standard.

2.2 (U)SIM card Interface

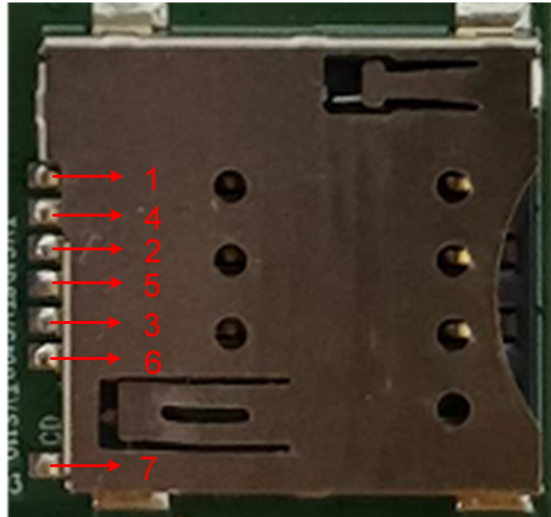
SIM7022 does not support hot-swappable function. Please make sure to insert the (U)SIM card correctly before powering on, otherwise the card cannot be recognized.

The reference circuit of the (U)SIM card interface is shown in the figure below.



Feature8: (U)SIM card interface reference design

The pin definition of the (U)SIM card holder is shown in the figure below.



Featue 9: (U)SIM card interface pin definition (J102)

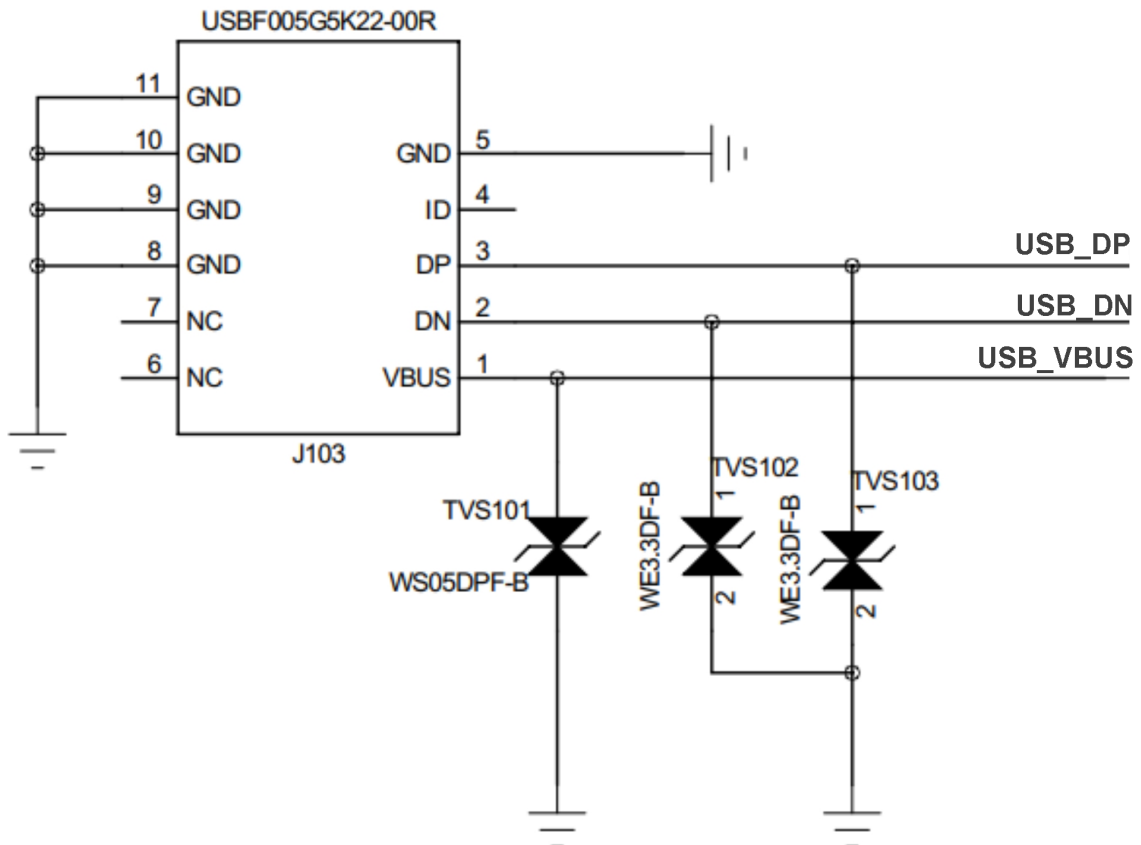
Table 6: (U)SIM card interface pin definition (J102)

Pin number	Pin name	I/O	Describe
1	VCC	O	(U)SIM power supply
2	RST	O	(U)SIM reset signal
3	CLK	O	(U)SIM clock signal
4	DET	I	(U)SIM detect signal
5	GND		GND
6	VPP		Float
7	I/O	I/O	(U)SIM duplex data line

2.3 UART Interface

SIM7022 EVB provides two UART interfaces (J103, J104) by USB to UART. J103 is used as the main serial port for AT commands, data transmission and firmware upgrade, and J104 is used as DEBUG debugging serial port for software DEBUG debugging.

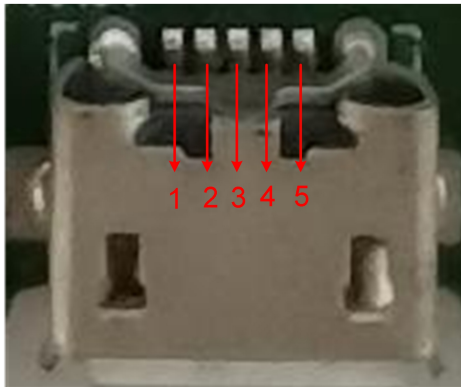
The reference circuit of USB to UART interface is shown in the figure



below.

Feature 10: USB to UART reference design

The pin definition of the Micro USB interface is shown in the figure below.



Feature 11: micro USB interface pin definition (J103)

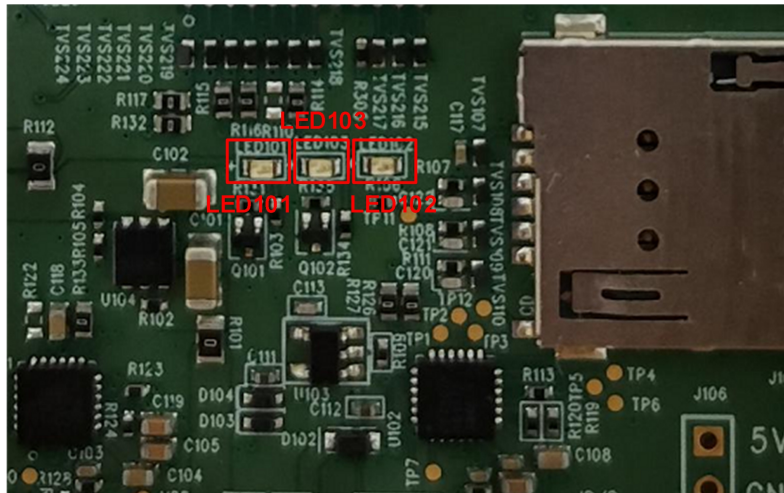
Table 7: micro USB interface pin definition (J103)

Pin number	Pin name	I/O	Description
1	VBUS	O	USB power supply
2	USB_DM	I\O	USB differential data negative (USB-to-UART)
3	USB_DP	I\O	USB differential data positive (USB-to-UART)
4	\	\	Float
5	GND		Ground

2.4 Status Indicator Light

There are three status indicator lights LED101, LED102, and LED103 for function indication on SIM7022 EVB.

The status indicators LED101, LED102, and LED103 are as shown in the figure below.



Feature 12: LED status indicator light (LED101、LED102、LED103)

Table 8: Status indicator light description

LEDs number	LEDs colour	Description
LED101	Blue	Module network status indicator light
LED102	Red	VBAT power supply indicator light
LED103	Blue	Module power-on status indicator light

2.5 Switches and Buttons

There are two switches (SW101, SW1) and two buttons (SW102, SW103) on SIM7022 EVB.