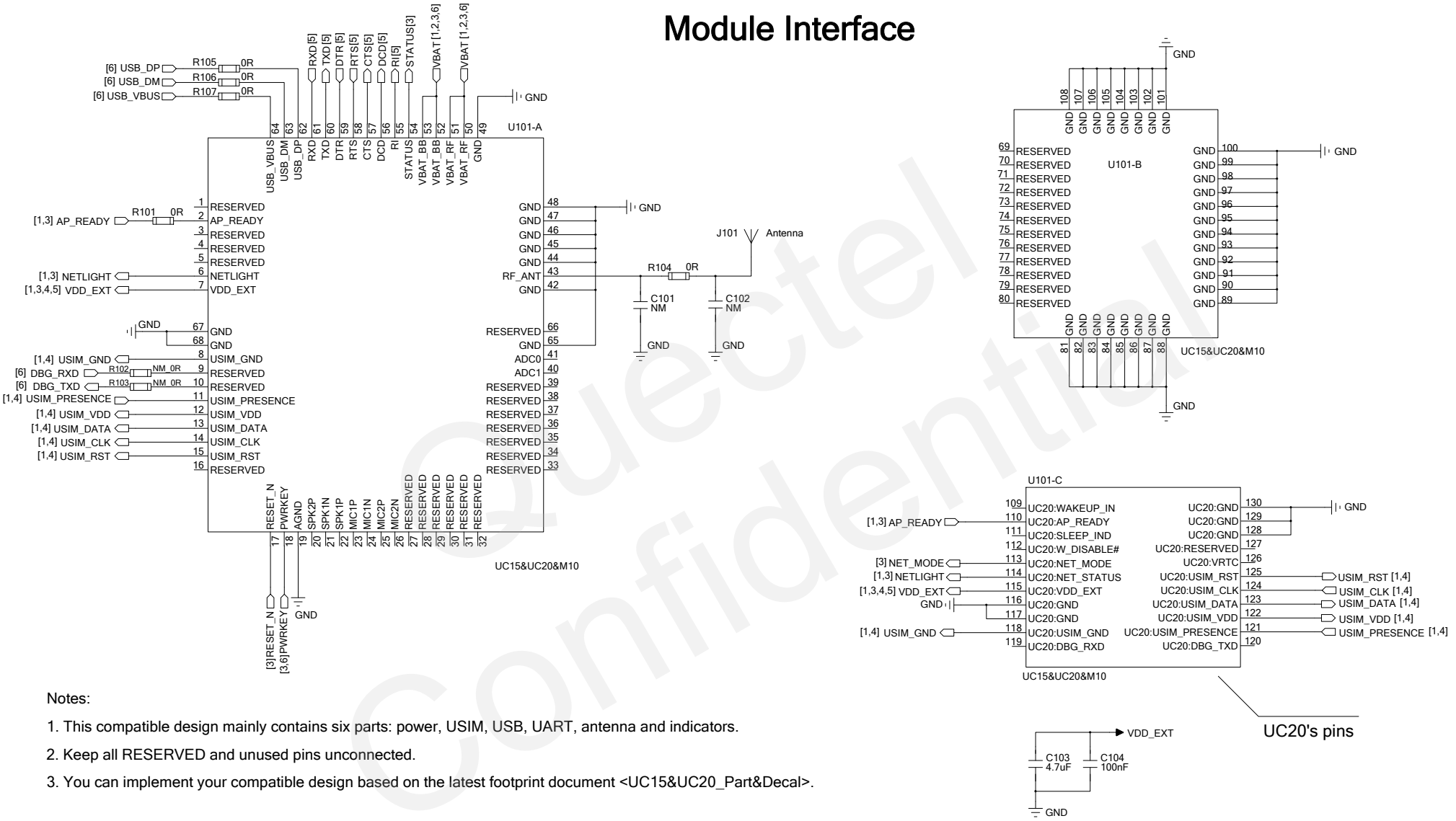
Module Interface



Notes:

1. This compatible design mainly contains six parts: power, USIM, USB, UART, antenna and indicators.
2. Keep all RESERVED and unused pins unconnected.
3. You can implement your compatible design based on the latest footprint document <UC15&UC20_Part&Decal>.

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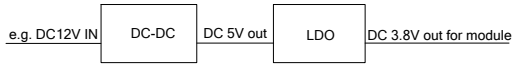
Power Supply Design

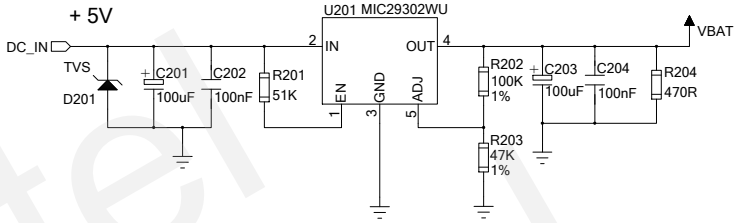
DC-DC Application

It is used when the input voltage is above 7V. Use DC-DC to convert high input voltage to 5V, and LDO will generate 3.8V typical voltage for the module.



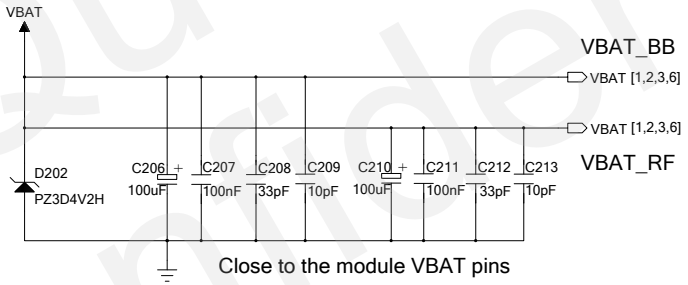
LDO Application

It is used when the input voltage is below 7V.



VBAT = (R202/R203+1)*1.24 = 3.88V

VBAT Design



Note:

VBAT should be routed in star mode to VBAT_BB and VBAT_RF pins.

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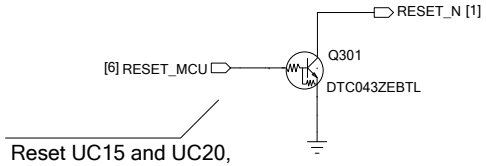
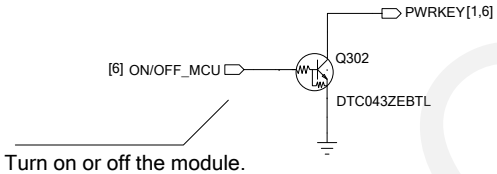
Control and Indicator

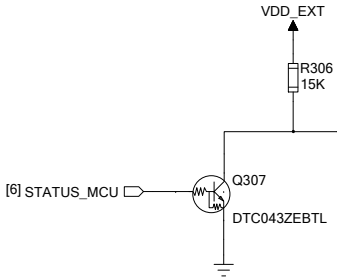
Control Design



Reset UC15 and UC20, turn off M10.

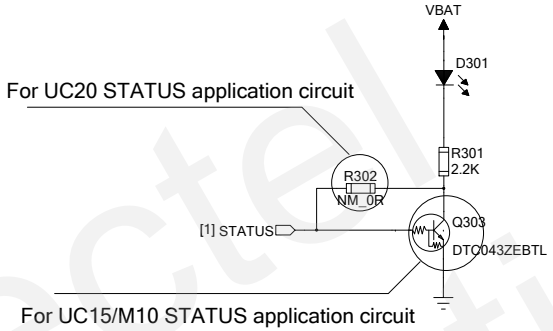


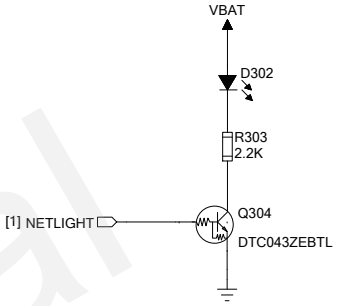
Turn on or off the module.

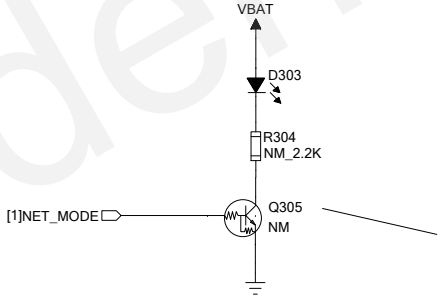


Low active. For more details about AP_READY, please refer to the document of Hardware Design.

Indicator Design







For UC20 application circuit

Note:

About STATUS, NETLIGHT, NET_MODE, refer to UC15, UC20 and M10 Hardware Design document respectively for details .

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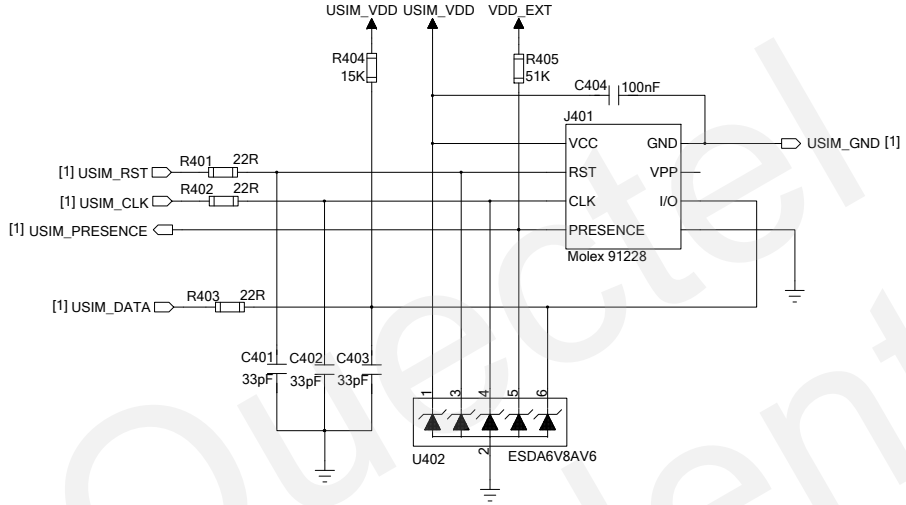
USIM Design



Notes:

1. The 22ohm resistors are applied to suppress the EMI spurious transmission and enhance the ESD protection, and 33pF capacitors are used to filter interference of EGSM900.
2. R404 can improve anti-jamming capability of the USIM circuit.
3. USIM_PRESENCE can be configured to high-level active or low-level active through software to support USIM card hot-plugging. The circuit above is designed for low-level detection. UC15 does not support USIM_PRESENCE function currently.
4. The value of C404 should be less than 1uF.

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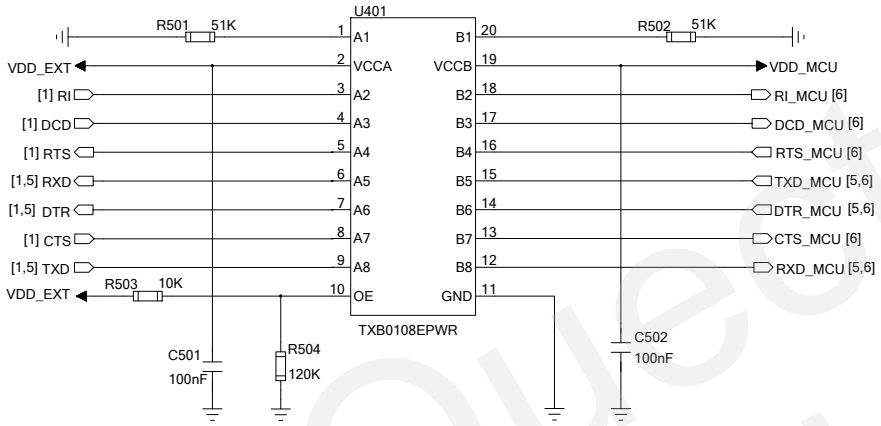
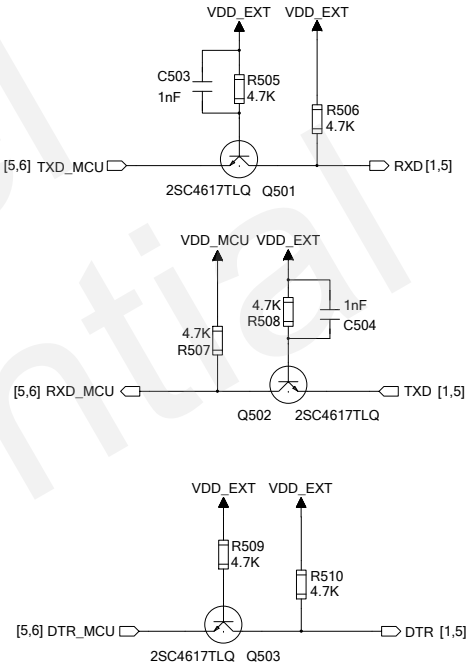
UART Design

Translation IC Solution



Transistor Solution (Recommended)



Notes:

1. It shows two way of voltage level translation between UC15/UC20/M10 and MCU above.
2. VCCA should not exceed VCCB. For more information about TXB0108, please refer to the datasheet from TI.
3. DTR is pulled up by software. Driving to low level wakes up the module.
4. If you need enable high baud rate, it is highly recommended to install a 1nF capacitor on transistor circiut.

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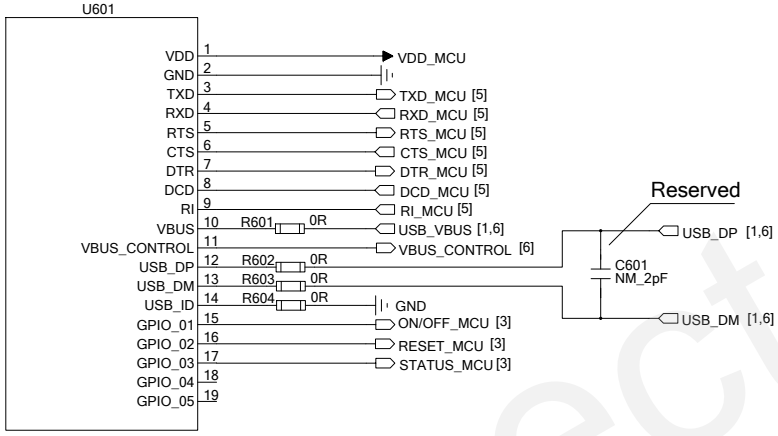
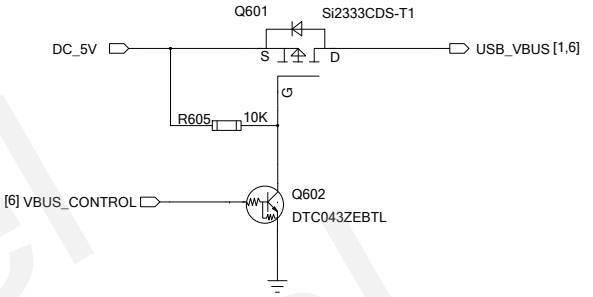
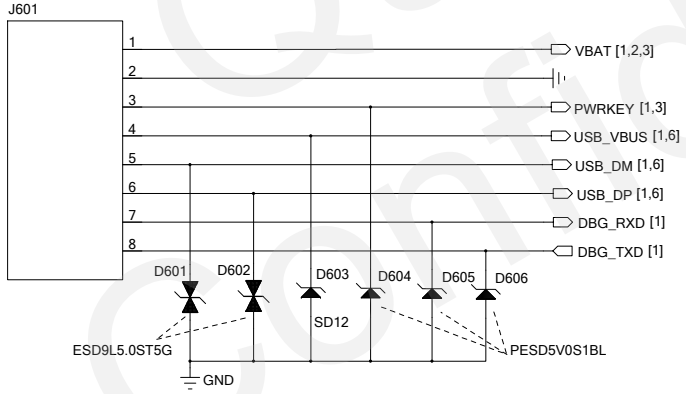
MCU Interface





VBUS_CONTROL = High level, Q601 conducts.

Reserved Test Points



Notes:

1. USB test points are recommended to be reserved for firmware upgrade.
2. Debug UART test points are reserved for catching M10 log.

Notes:

1. U601 represents your MCU.
2. Pay attention to the UART connection of RTS/CTS.
3. UC15 and UC20 can only work as USB device and support full speed and high speed mode.To communicate with USB interface, MCU needs to support USB host or OTG function.The VBUS pins of MCU and UC15/UC20 need to be provided 5V power for USB detection, and VBUS_CONTROL turns on and off VBUS power supply.

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