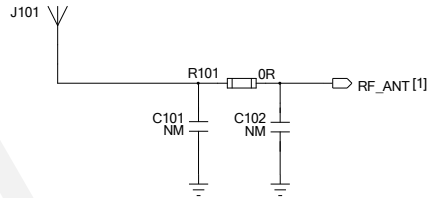
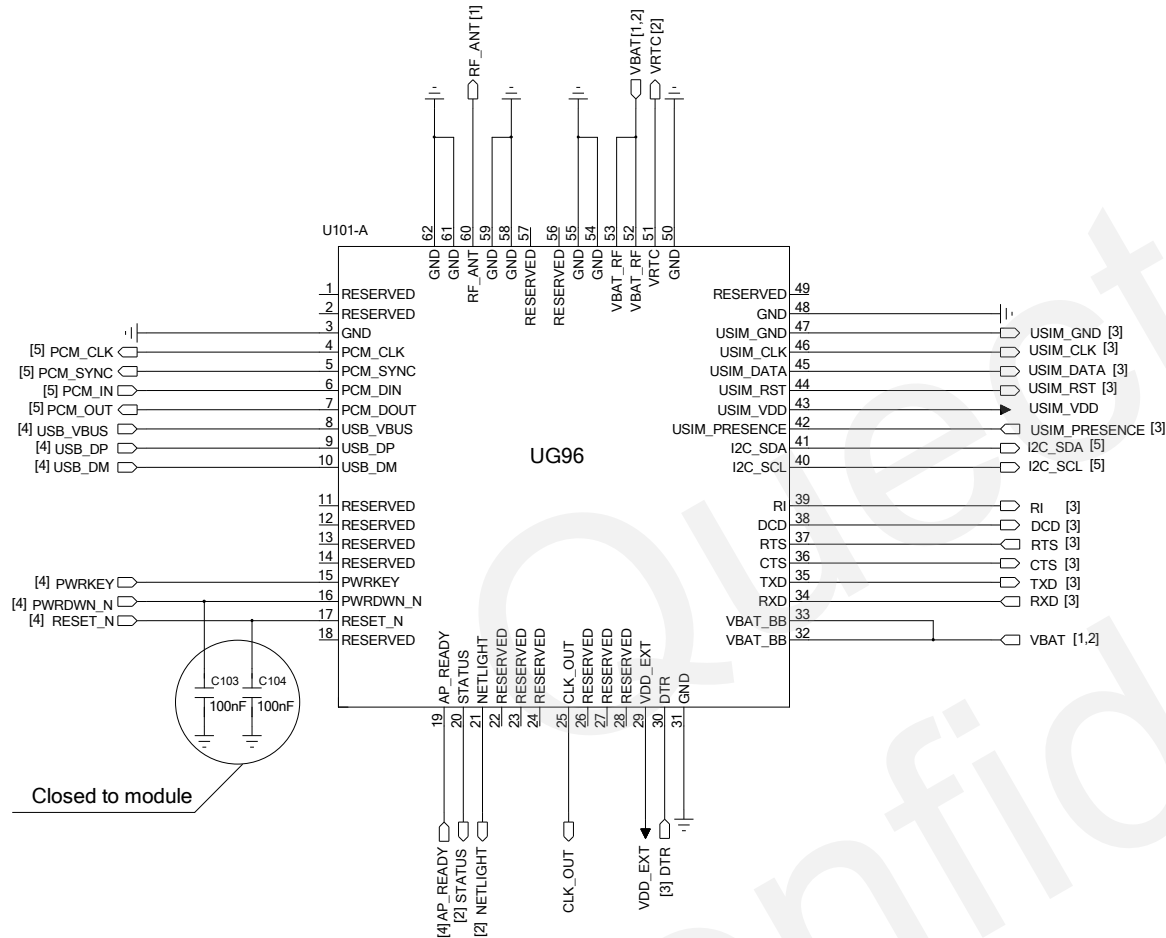
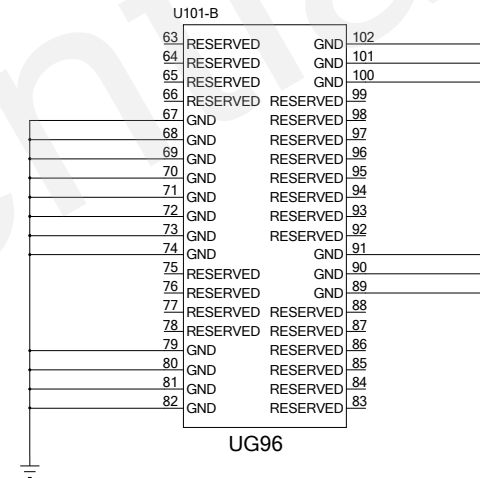


# Module Interface

## Antenna Interface



Note:  
C101,C102 are reserved for impedance matching.



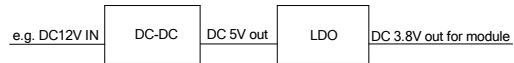
- Notes:
- Keep all RESERVED and unused pins unconnected, all GND pins should be connected to ground.
  - The CLK\_OUT is a digital clock output for an external audio codec, please refer to UG96 Hardware Design for further details.

Quectel Wireless Solutions		
DRAWN BY <Yeoman CHEN>	PROJECT <UG96 Reference Design>	TITLE <Module Interface>
CHECKED BY <Tony GAO>	SIZE A2	VER 1.1
SHEET 1 of 5		<2015.11>

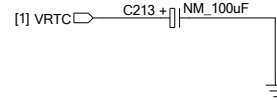
# Power Supply Design

## DC-DC Application

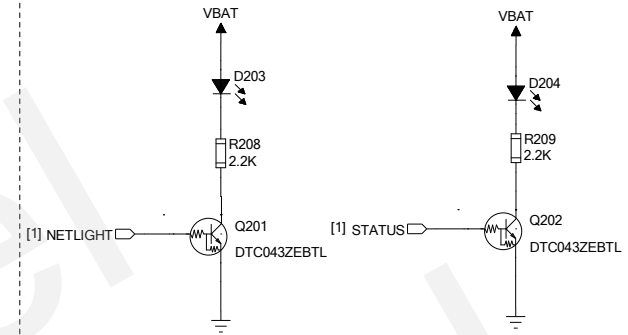
It is used when the input voltage is above 7V. Use DC-DC to convert high input voltage to 5V, and LDO will generate 3.8V typical voltage for the module.



## VRTC Design

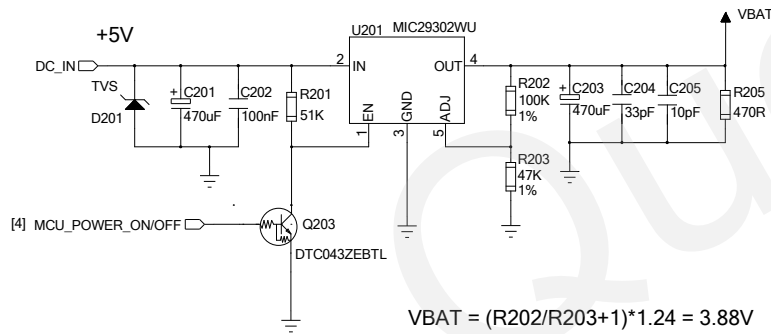


If VRTC function is not used, keep VRTC pin open.



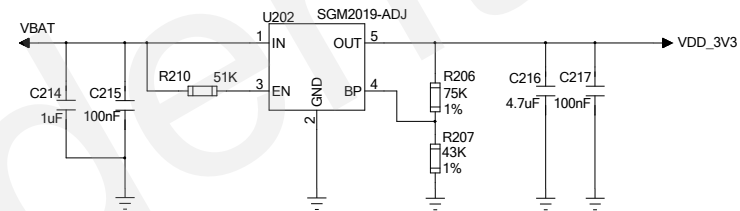
## LDO Application

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



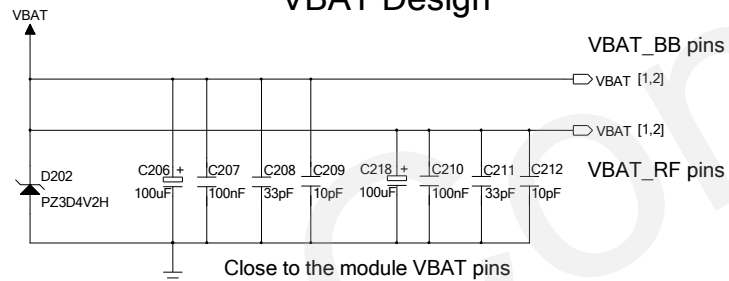
$$VBAT = (R202/R203+1)*1.24 = 3.88V$$

## Supply Power to PCM Codec Circuit



$$VDD\_3V3 = (R206/R207+1)*1.207 = 3.3V$$

## VBAT Design



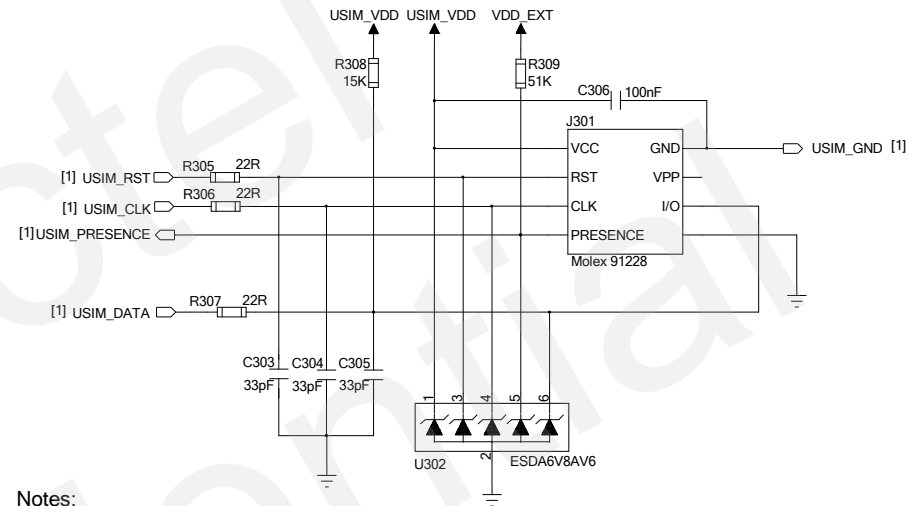
### Note:

VBAT should be routed in star mode to VBAT\_BB and VBAT\_RF pins.

## Quectel Wireless Solutions

DRAWN BY <Yeoman CHEN>	PROJECT <UG96 Reference Design>	TITLE <Power Supply Design>
CHECKED BY <Tony GAO>	SIZE A2	VER 1.1
SHEET 2 of 5		<2015.11>

## USIM Design

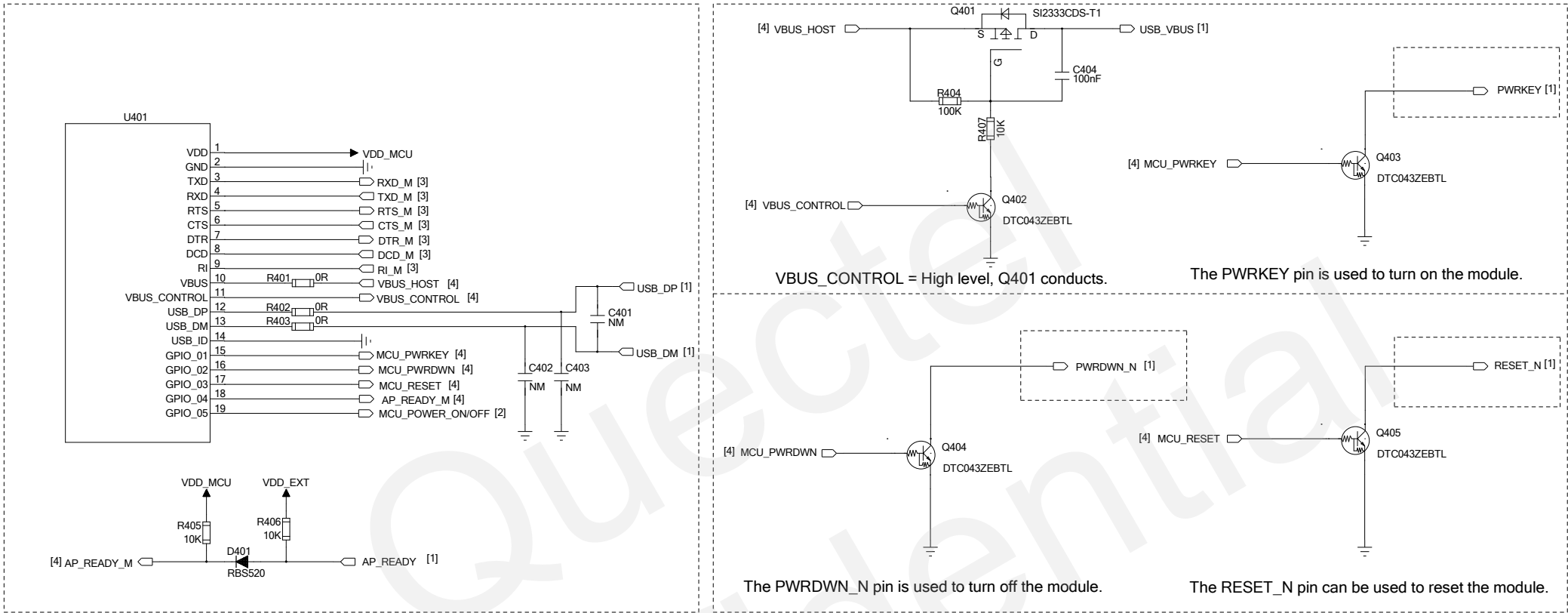


Notes:

1. R305~R307 are applied to suppress the EMI spurious transmission and enhance the ESD protection.
2. R308 can improve anti-jamming capability of the USIM circuit.
3. UG96 supports USIM card hot-plugging, which can be implemented through USIM\_PRESENCE pin.  
The circuit above is designed for low-level detection.
4. The value of C306 should be less than 1uF.

Quectel Wireless Solutions		
DRAWN BY <Yeoman CHEN>	PROJECT <UG96 Reference Design>	TITLE <UART and USIM Designs>
CHECKED BY <Tony GAO>	SIZE A2	VER 1.1
	SHEET 3 of 5	<2015.11>

MCU Interface



Notes:

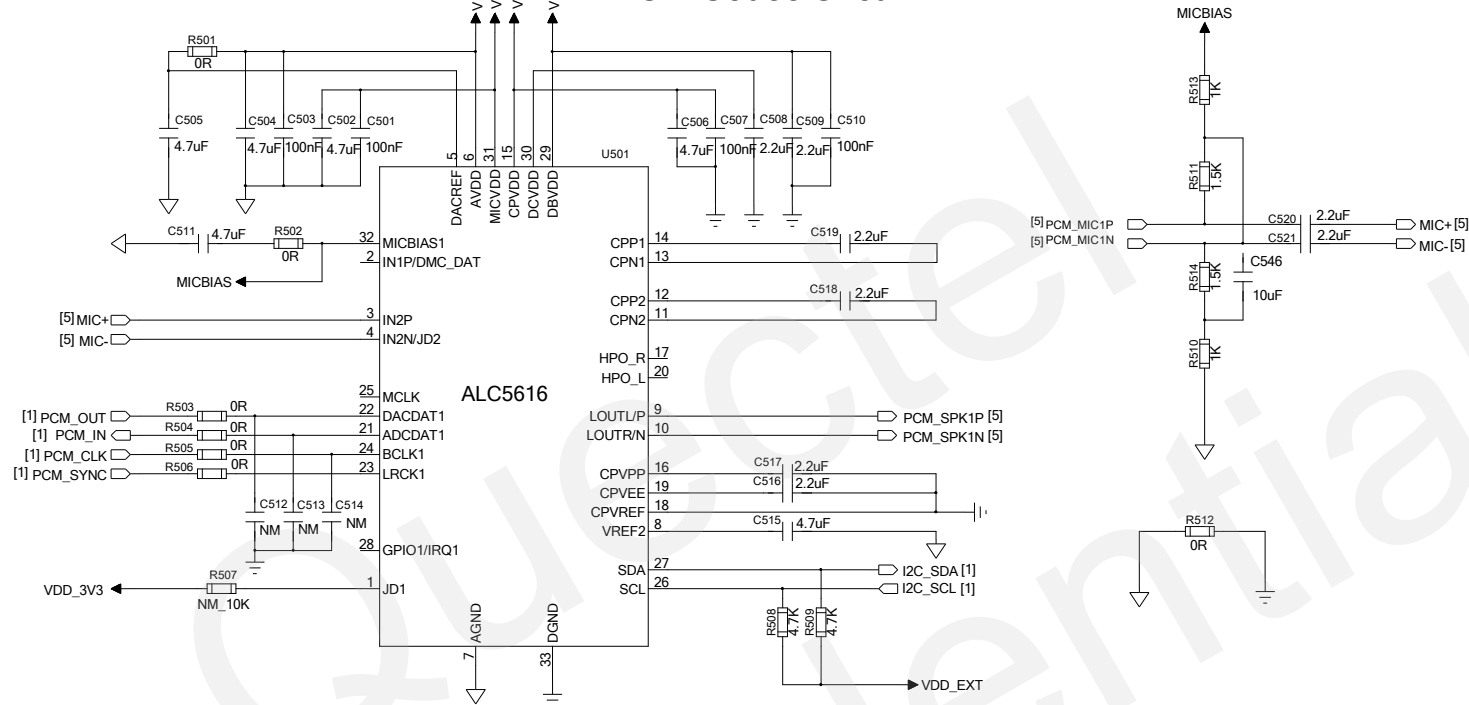
- 1. U401 represents customer's MCU.
- 2. Pay attention to the UART connection of RTS/CTS.
- 3. UG96 can only work as a USB device and supports FS/HS mode. To communicate with USB interface, MCU needs to support USB host or OTG function.  
The USB interface is primarily used for AT command, data transmission, software debug and firmware upgrade.  
The USB\_VBUS pin of UG96 is used for USB detection, and VBUS\_CONTROL powers on and off VBUS.
- 4. Customers can determine to use USB or UART communication according to their needs.

Application	Installed	Not installed
USB	R401~R404, Q401,Q402	U301 circuit
UART	U301 circuit	R401~R404, Q401,Q402

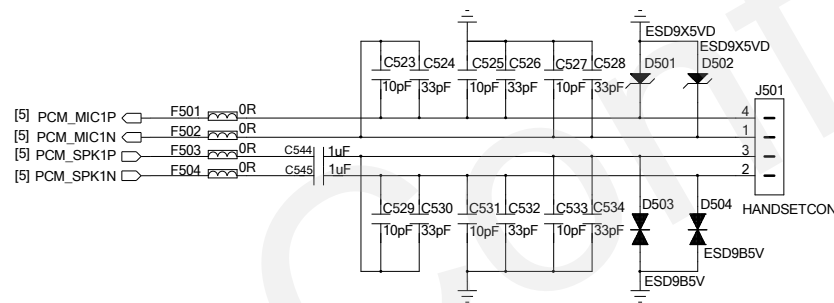
Quectel Wireless Solutions		
DRAWN BY <Yeoman CHEN>	PROJECT <UG96 Reference Design>	TITLE <MCU Interface>
CHECKED BY <Tony GAO>	SIZE A2	VER 1.1
SHEET 4 of 5		<2015.11>

# PCM Design

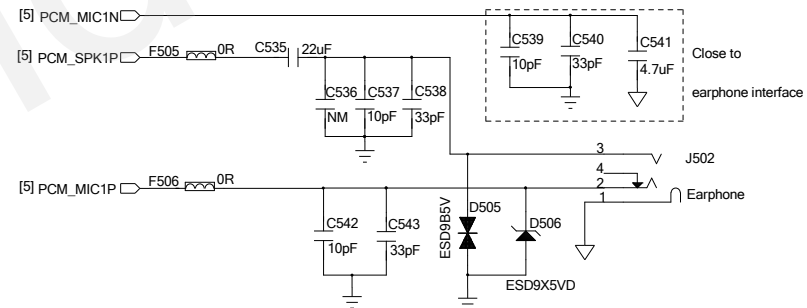
## PCM Codec Circuit



## Audio Channel - Handset



## Audio Channel - Earphone



## Quectel Technology

DRAWN BY <Yeoman CHEN>	PROJECT <UG96 Reference Design>	TITLE <PCM Design>
CHECKED BY <Tony GAO>	SIZE A2	VER 1.1
SHEET 5 of 5		<2015.11>