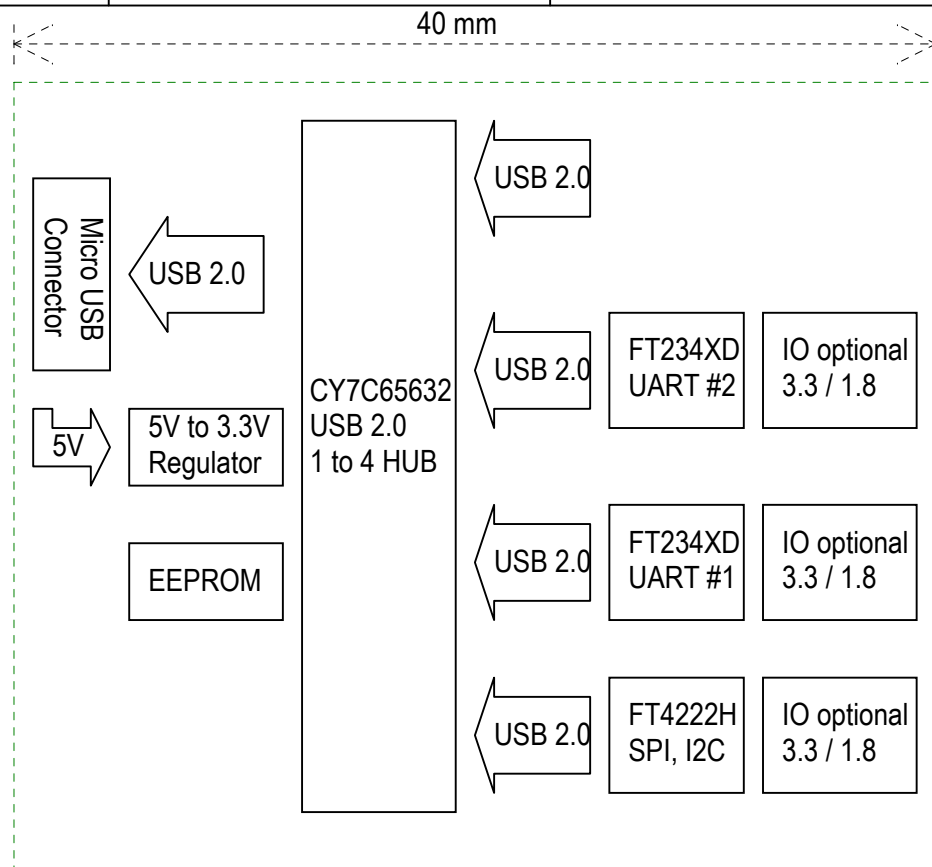
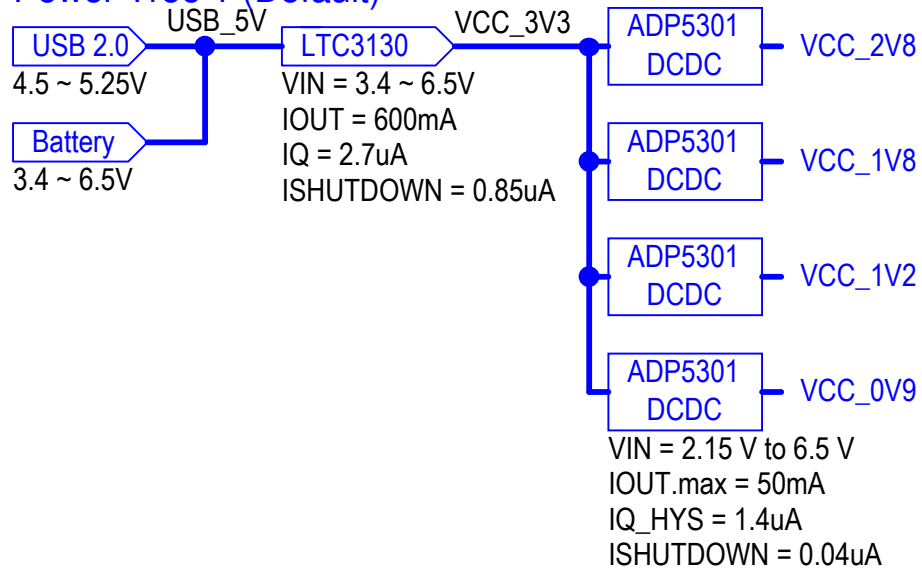


NB-IoT Board

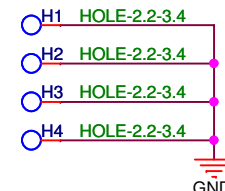
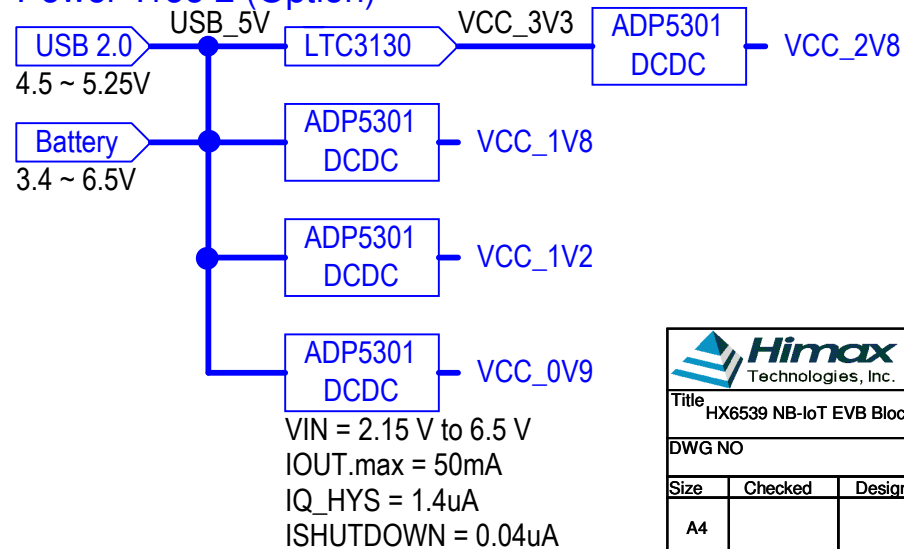



Debug Board

Power Tree 1 (Default)



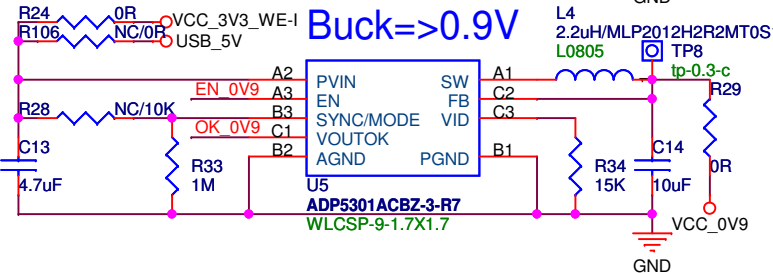
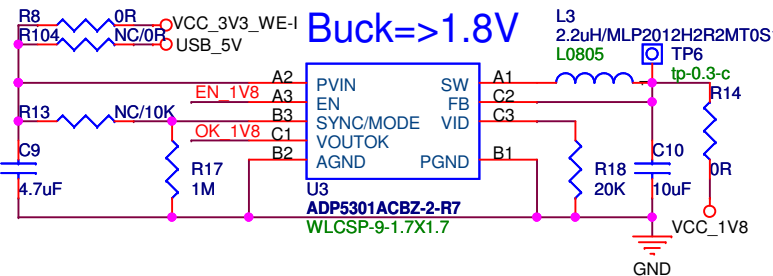
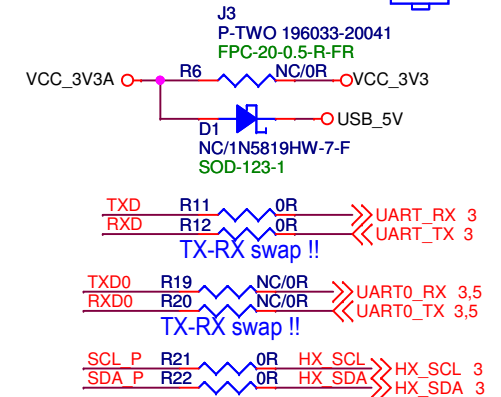
Power Tree 2 (Option)



 奇景光電股份有限公司					
Title HX6539 NB-IoT EVB Block Diagram					
DWG NO			DATE Thursday, September 02, 2021		
Size	Checked	Designer	Drawer	Rev	SHEET
A4			Jonathan	V1.0	1 / 5
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Buck Converter 600mA
VIN = 3.4 ~ 6.5V
VOUT = 1V~25V , VFB = 1.0V
3.3V = 1.0V * (1 + 2/0.86)
ILIM = GND, 250mA
ILIM = VCC, 660mA

Pin	Signal	Pin	Signal
	VCC_3V3A	20	VCC_3V3A
3	PGPIO6	19	PGPIO6
3	PSPI_SLV_SCLK	18	PSPI_SLV_SCLK
3	PSPI_SLV_CS	17	PSPI_SLV_CS
3	PSPI_SLV_SDI	16	PSPI_SLV_SDI
3	PSPI_SLV_SDO	15	PSPI_SLV_SDO
3	PSPI_CS0	14	PSPI_CS0
3	PSPI_SDIO0	13	PSPI_SDIO0
3	PSPI_SDIO1	12	PSPI_SDIO1
3	PSPI_SCLK	11	PSPI_SCLK
	SCL_P	10	SCL_P
	SDA_P	9	SDA_P
3	PGPIO4	8	GPIO2
3	PGPIO5	7	GPIO3
	GND	6	GND
	TXD	5	TXD
	RXD	4	RXD
	GND	3	GND
	TXD0	2	TXD0
	RXD0	1	RXD0



VCC_3V3_WE-I

R35 1M EN 2V8 OK 2V8

R36 1M R37 10K EN 1V8 OK 1V8

R38 1M R39 10K EN 1V2

R40 1M OK 1V2

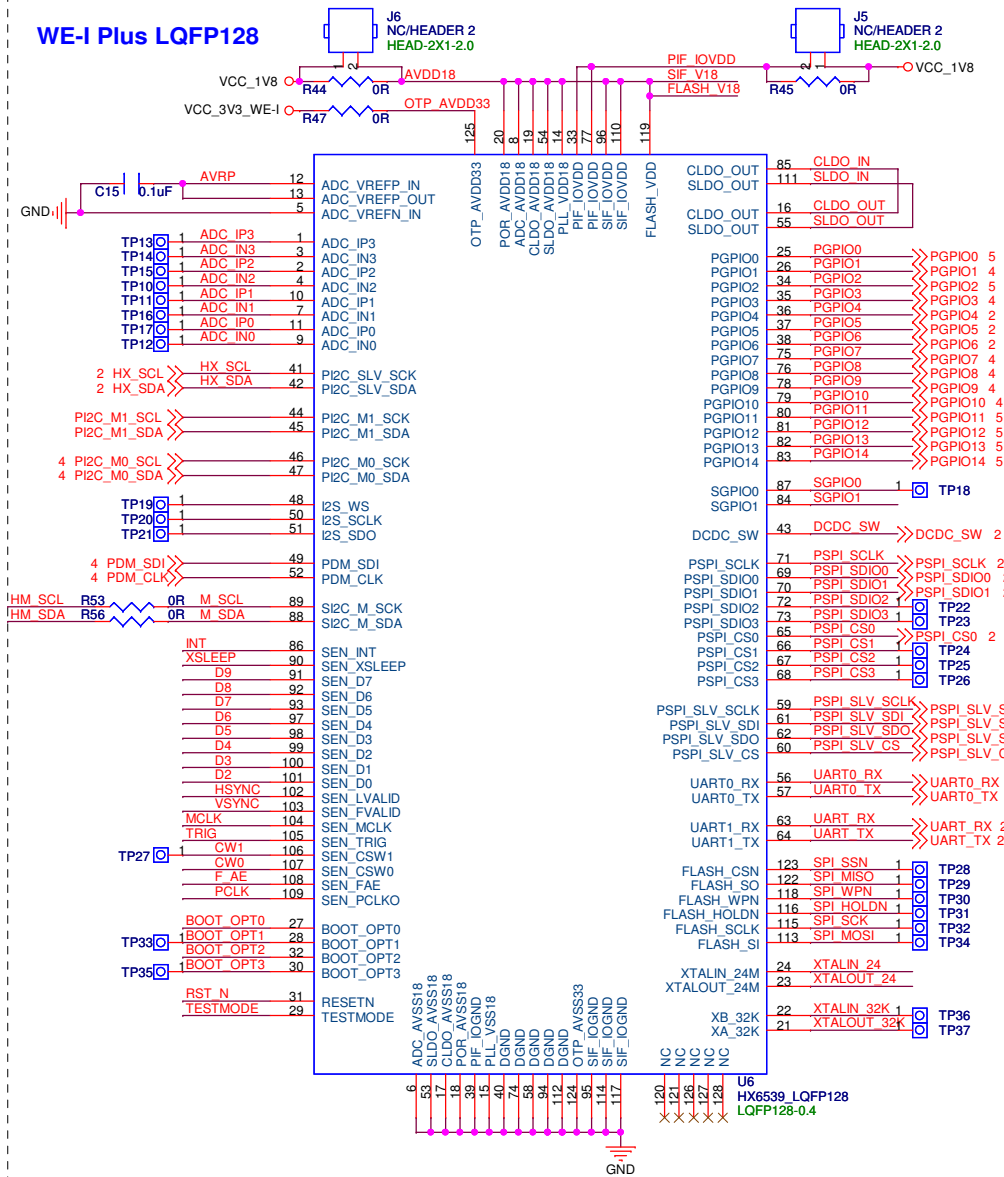
R41 1M OK 0V9

R102 NC R103 NC/10K OK 1V2

DCDC_SW R42 0R EN 0V9 R43 NC/OR GND

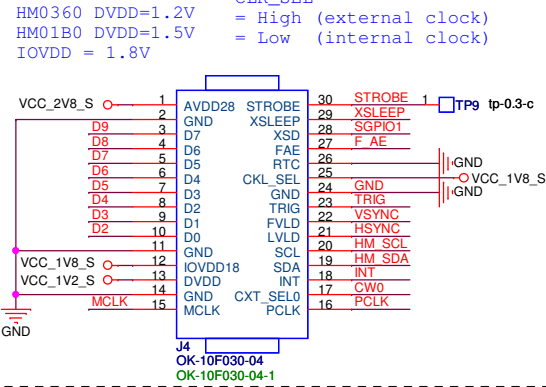
```
ADP5301
Step-Down Regulator 50/500mA
VIN = 2.15 V to 6.5 V
VOUT = 0.8V~5V
VIH(EN pin) > 1.2V
MODE = 0(hysteresis)
      = 1(PWM)
```

WE-I Plus LQFP128

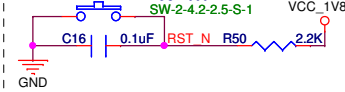


CCM

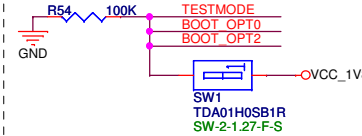
OK-10GM030-04



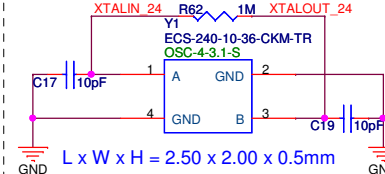
WE-I Reset



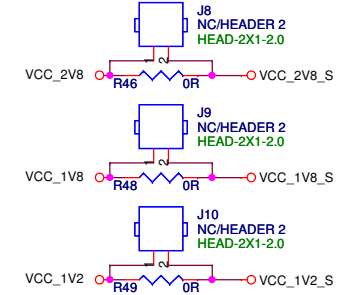
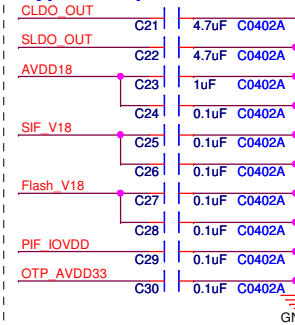
Flash Programming



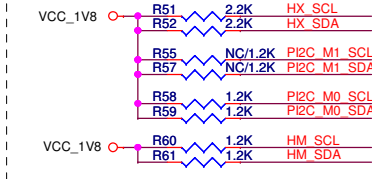
Crystal 24MHz



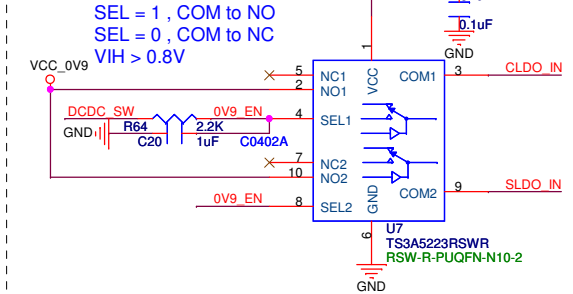
Bypass Capacitor



I2C pull-high

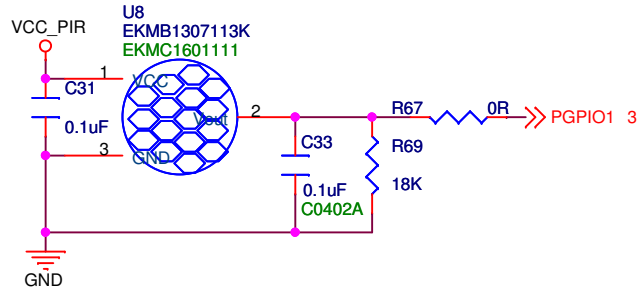


Exteranl LDO (Analog switch)



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Title HX6539 WE-I + SENSOR					
DWG NO		DATE Thursday, September 02, 2021			
Size	Checked	Designer	Drawer	Rev	SHEET
B		Jonathan	V1.0		3 / 5
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Digital PIR Sensor EKMB1307113K

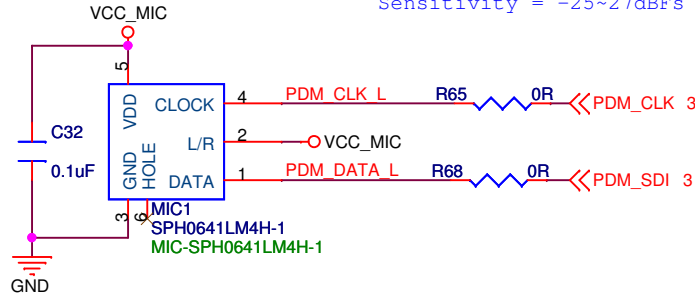


PIR digital type
EKMB1307113K
VDD = 3V~6V
Isleep=6uA

$V_{OUT} \geq V_{DD} - 0.5V$
 $I_{out} = 100\mu A$
 $V_{out} = 100\mu A * 33K = 3.3V$

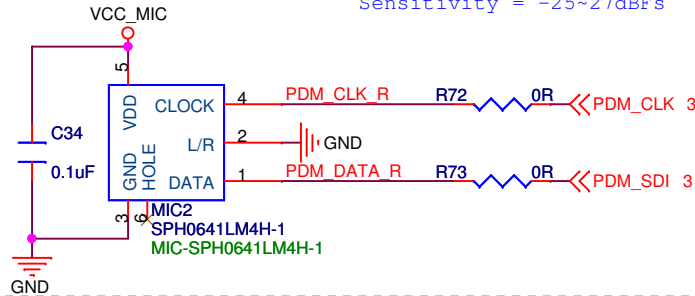
PDM Microphone L

VDD = 1.6V~3.6V
Sensitivity = -25~27dBfs

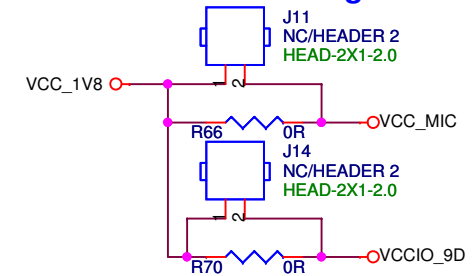


PDM Microphone R

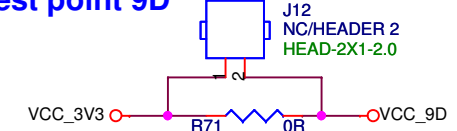
VDD = 1.6V~3.6V
Sensitivity = -25~27dBfs



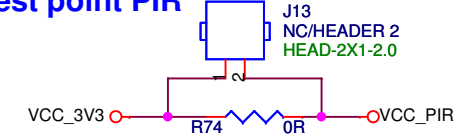
Test Point MIC & IO Voltage Selection



Test point 9D



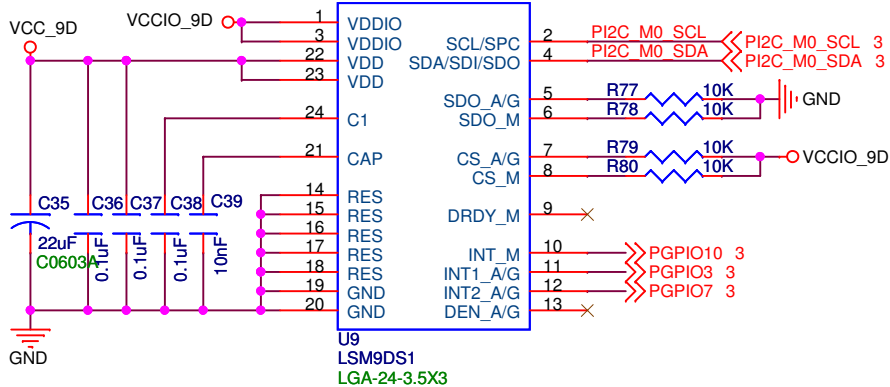
Test point PIR



LSM9DS1

3D accelerometer, 3D gyroscope, 3D magnetometer
VDD = 1.9V~3.6V

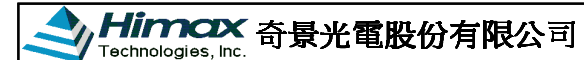
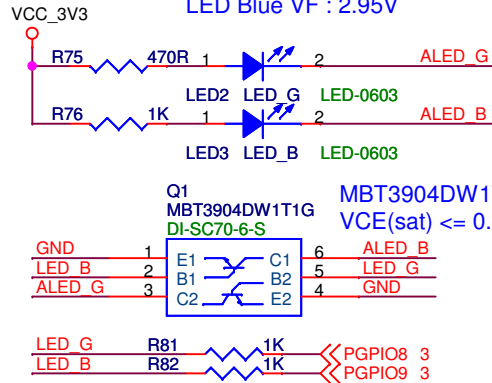
SDOM/AG	AD Addr	M Addr
0	0x6A	0x1C
1	0x6B	0x1E



<https://learn.sparkfun.com/tutorials/lsm9ds1-breakout-hookup-guide>

LEDs

General LED
LED Red VF : 1.8V
LED Green VF : 1.95V
LED Blue VF : 2.95V



Title PIR/LED/PDM MIC/A+G+M					
DWG NO			DATE Wednesday, September 01, 2021		
Size	Checked	Designer	Drawer	Rev	SHEET
A4			Jonathan	V1.0	4/5
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Murata Type 1SC-DM

ANT1
SMA761/1-10.5/1.6
SMA761-10.5/1.6

VBAT: 2.2 ~ 4.35V
PMU_VBACKUP: 2.2 ~ 4.35V
PMU_VCAP: 2.2 ~ 4.35V
VBAT_FEM: 2.85~4.5V

U10
Murata 1SC-DM
LGA-116-0.65

Package Size:
11.1 x 11.4 x 1.5 mm

3 PGPI00
2,3 UART0_RX
2,3 UART0_TX
3 PGPI02

TP-0.6S-C TP39
TP-0.6S-C TP40
TP-0.6S-C TP41
TP-0.6S-C TP42

TP-0.6S-C TP44
3 PGPI012

1EXT DCDC_FEM ON
RST Indicator

3 PGPI011

SC_SWP:
Host Wake-Up (HI)

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

VSIM

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VSIM

VSIM

VSIM

VSIM

VSIM

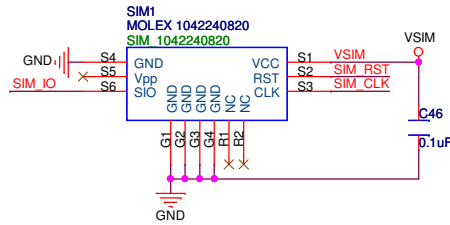
VSIM

VSIM

VSIM

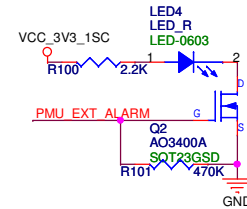
VSIM

SIM CARD



1. VSIM PCB trace >= 8mil
2. Keep SIM card signals away from RF and VBAT.
3. CLK & IO => GND shielding
4. Card removed: GND
Card inserted : OPEN

Power Save Mode Status



PMU_SHUTDOWN: Shutdown active low ($t_{\text{b}} \geq 120\mu\text{s}$), Pull up with 620k Ω on to PMU_VRTC
PMU_RST should be float or low, can't be drive to high.

PMU_POWER_BUTTON: Power button active low , Pull up with 620k Ω on to PMU_VRTC
PMU_WAKEUP: Device Wake-Up (HI) from low power state.

VDDIO output 1.8V < 50mA

UART0: AT COMMAND

UART1: LOG, Debug

UART2: CLI

PMU_WAKEUP:

If not used can be connected to 10K pull down or tied to GND.

Pins Allocation:

AUX_ADC4 --> Boost_en (enable of FEM boost)

AUX_ADC3 --> SENSOR_WAKEUP

RFT-UART1& UART2, connection are reserved for certification/testing.

VBAT_FEM can be controlled with EXT_DCDC_FEM_ON

		奇景光電股份有限公司	
Title		NBloT module	
DWG NO	Checked	Designer	DATE Tuesday, July 13, 2021
Size	Checked	Designer	Drawer
B			Rev
		Jonathan	V1.0
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