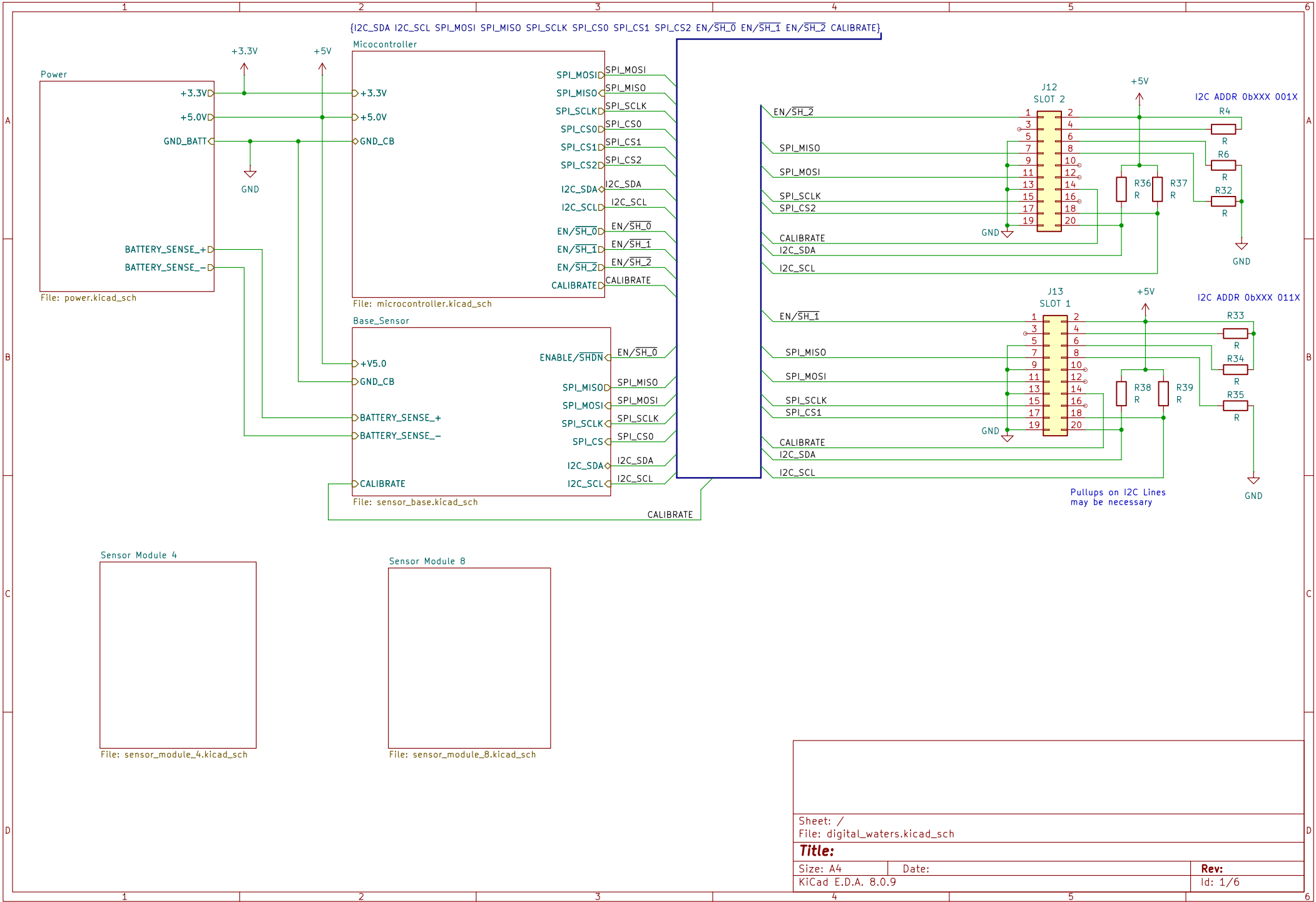
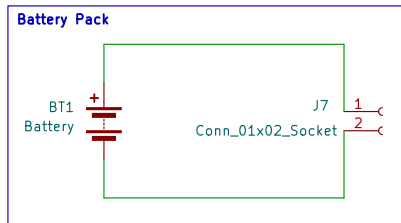


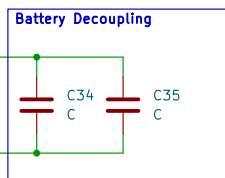
- to be switched off or must have a shutdown pin.
- Low noise interfaces on sensor inputs.
- High frequency lines should be adequately blocked



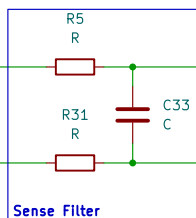
The 5V power rail is supplied by a battery bank. We need to have some more power conditioning in order to make sure that we aren't coupling too much noise into the ADC circuits. To this end, we may want to use an LDO to provide a lower voltage rail to the OP-amp circuits, or use a higher voltage battery and use the LDO to provide a "clean" 5.0V rail.



J6 Conn_01x02_Pin



R_shunt_batt
0.1 Ohm

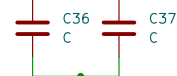
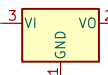


D +5.0V

GND_BATT

Place-holder for a 3.3V supply.
Might not need this since the camera modules may have built-in 5V-3.3V regulators.

U29
LM1084-3.3



D +3.3V

Sheet: /Power/
File: power.kicad_sch

Title:

Size: A4

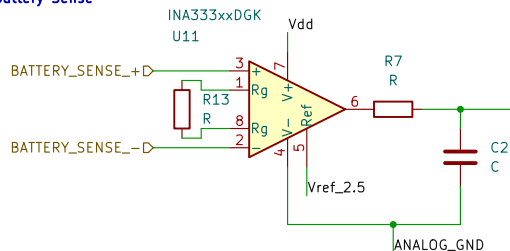
Date:

KiCad E.D.A. 8.0.9

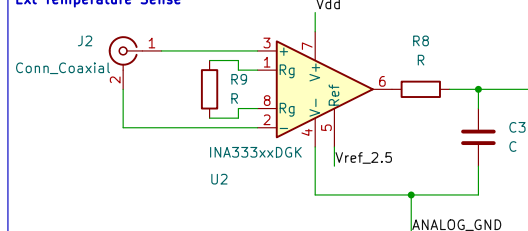
Rev:

Id: 2/6

Battery Sense



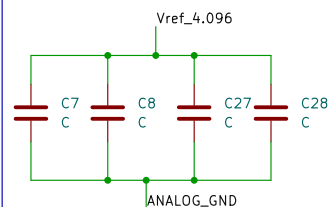
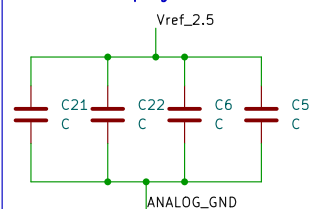
Ext Temperature Sense



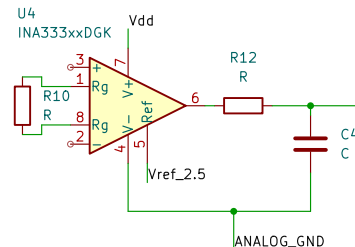
All Gains of INA333 are set by:
 $G = 1 + (100 \text{ k}\Omega / R_G)$
 (RG is Gain Resistor between pins 1 & 8)

Decoupling Capacitors are connected as close as possible to each IC of the given power domain.

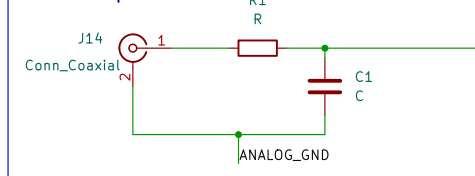
Reference Decoupling



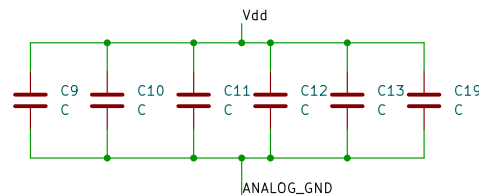
Leak Detector



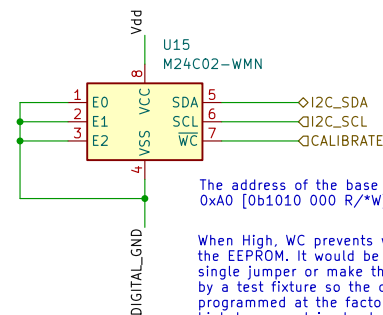
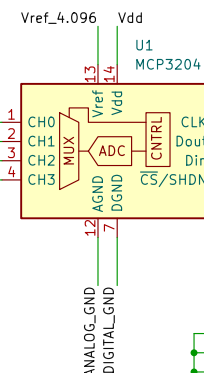
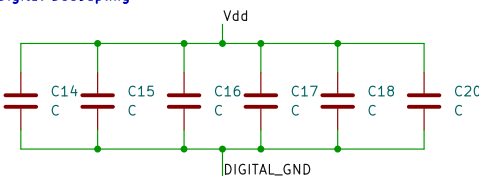
Calibration Input



Analog Decoupling

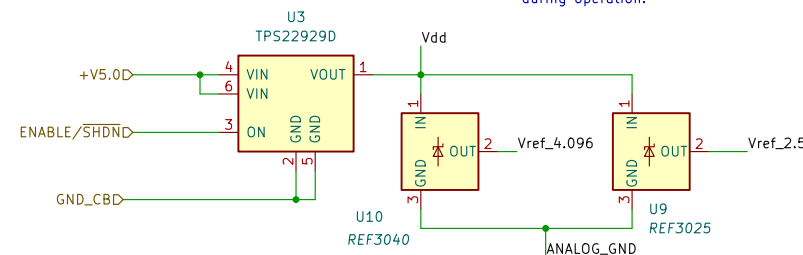


Digital Decoupling



The address of the base unit is always 0xA0 [0b1010 000 R/*W]

When High, WC prevents write accesses to the EEPROM. It would be good to have a single jumper or make this pin accessible by a test fixture so the contents can be programmed at the factory but then set high to prevent inadvertent writes during operation.



TL431 might also be used for the 2.5V reference but buffered with an OPA333 or equivalent.



Base Sensor Circuit
 This sensor board is included in the base unit. It includes built-in temperature probe, battery Coulomb counting, leak detector, and TBD.

Sheet: /Base_Sensor/
 File: sensor_base.kicad_sch

Title:

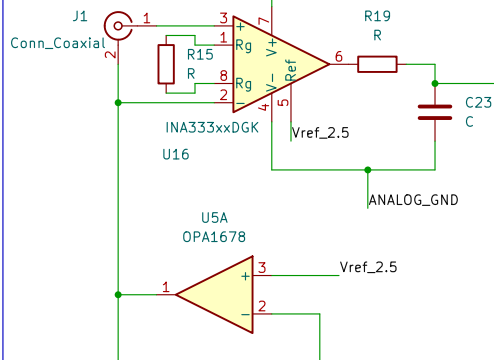
Size: A4
 KiCad E.D.A. 8.0.9

Date:

Rev:

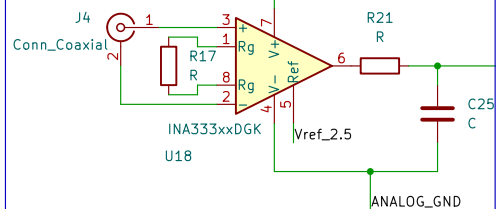
Id: 3/6

pH

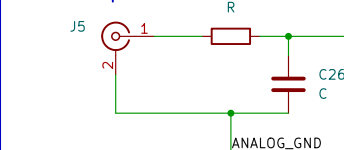


All Gains of INA333 are set by:
 $G = 1 + (100 \text{ k}\Omega / R_G)$
 (RG is Gain Resistor between pins 1 & 8)

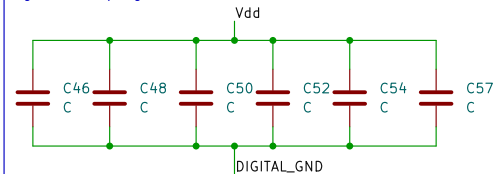
TBD



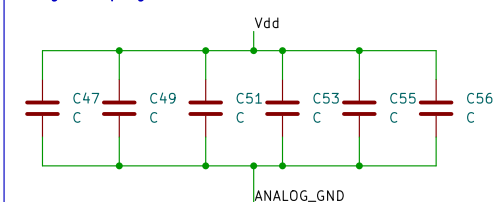
Calibration Input



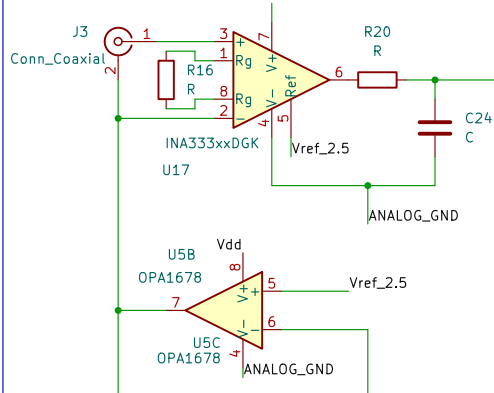
Digital Decoupling



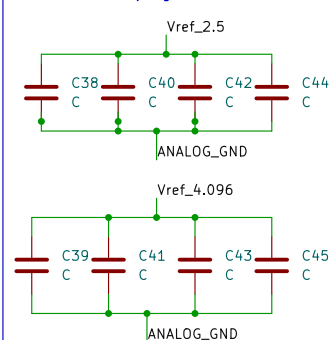
Analog Decoupling



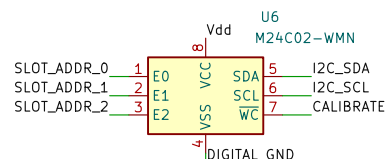
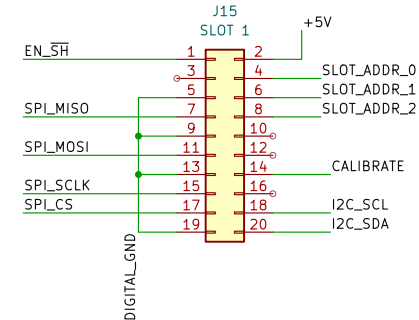
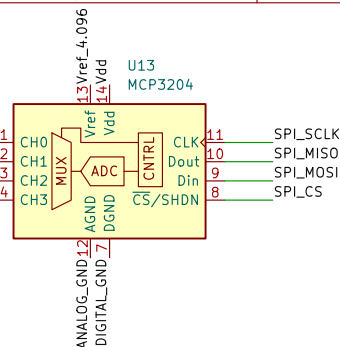
ORP



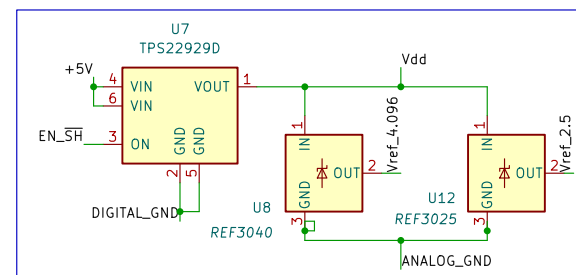
Reference Decoupling



Decoupling Capacitors are connected
 as close as possible to each IC of
 the given power domain.



Address:
 0xAX [0b1010 SA_2 SA_1 SA_0 R/*W]
 SA = Slot Address from main carrier board.



Sheet: /Sensor Module 4/
 File: sensor_module_4.kicad_sch

Title:

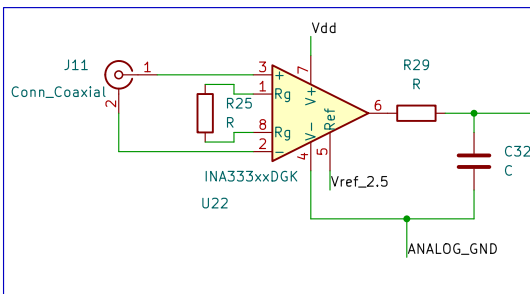
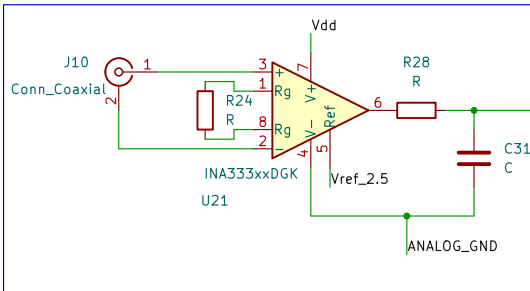
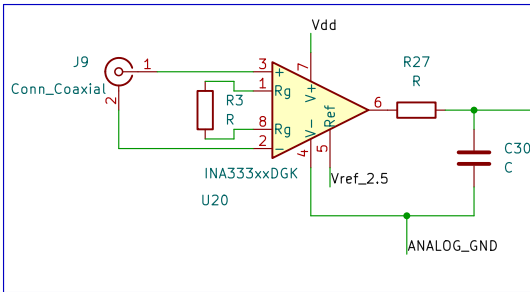
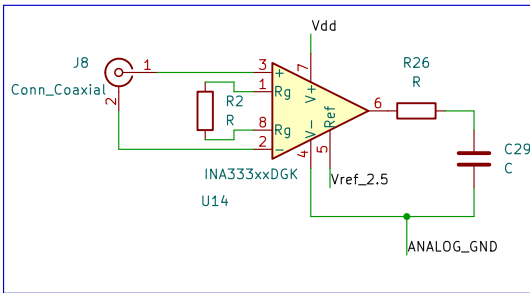
Size: A4

Date:

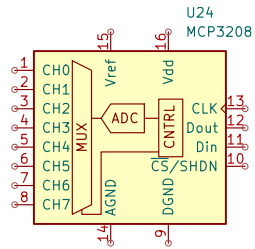
KiCad E.D.A. 8.0.9

Rev:

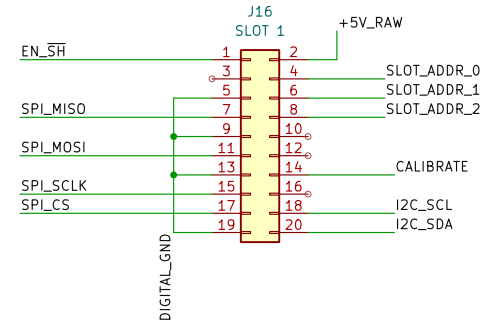
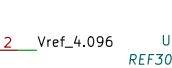
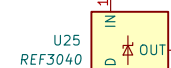
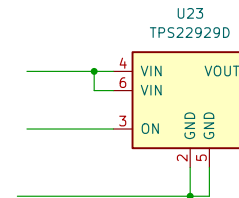
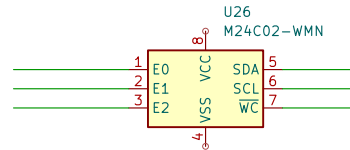
Id: 4/6



All Gains of INA333 are set by:
 $G = 1 + (100 \text{ k}\Omega / R_G)$.
 (RG is Gain Resistor between pins 1 & 8)



Address:
 0xA [0b1010 SA_2 SA_1 SA_0 R/*W]
 SA = Slot Address from main carrier board.



Sheet: /Sensor Module 8/
 File: sensor_module_8.kicad_sch

Title:

Size: A4

Date:

Rev:

KiCad E.D.A. 8.0.9

Id: 5/6



Sheet: /Micocontroller/ File: microcontroller.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. 8.0.9		Id: 6/6