NOTE: To generate a new BOM, the symbols in this hierarchical sheet have to temporarily be moved into this page somewhere and re-annotated as you update PCB from schematic and generate a new IBOM. Do NOT save these temporary changes. Move the symbols back when you're finished making the IBOM re-annotate to silence ERC errors or simply close Eeschema without saving.
Sheet: Sheet5D5A7B86

File: Coax Cable and Diagnostic DUT.sch

Solder lead pads 1 to 2 if no P-JFET available

U4 MCP4262-502E_UN

U5 MCP4262-104E_UN

Conn_3.5mm J1

NOT FOR VOLTAGE

GNDA

U6
ADL5315ACPZ-R7
INPT
VSET
SREF
COMM
IOUT
NC
VPOS
RLIM

R2 4 KΩ

C6 390 pF

C7 .22 µF

R12 47 KΩ

U1 LM334M

U2 LM334M

Q5 MMBF5462 (2N5462)

Q4 MMBF5462 (2N5462)

U7C REF200AU

U7B REF200AU

U7A REF200AU

VCC

GNDD

C4 2.2 µF

C1 0.1 µF

U3A ADB244ARMZ

U3B ADB244ARMZ

U3C ADB244ARMZ

U3D ADB244ARMZ

R6 27 Ω

R7 27 Ω

JP9 Front end jumper

JP8 Front end jumper

C5 2.2 µF

C2 0.1 µF

ADC1 HX711 module

PWR_FLAG

44.2 KΩ 0.1% 0.1W(1/10W) ±10ppm/°C (1676343-2) R15

R13 22.6 KΩ 0.1% 0.125W(1/8W) ±10ppm/°C (ERA6ARB2262V)

NOTE - These resistors are spec'd tightly for mitigating temperature drift. If a different tempco is determined to be required for the analog output, these tempcos are what is to be changed.

Shield for Arduino that uses the same pin disposition like "Uno" board Rev 3.

P5P6P7P8

Holes

J4

J2 Power

J3 Analog Digital

J5 Digital

A5(SCL)(2)
A4(SDA)(2)
AREF
GNDD
13(SCK)(2)
12(MISO)(2)
11(**/MOSI)
10(**/SS)
9(**)
8
7
6(**)
5(**)
4
3(**)
2
1(TX)
0(RX)

ICSP1 ICSP Socket

MISO(1)
SCK(1)
RESET(2)
MOSI(1)
GND(4)

Magnification amplitude

VR1 200 KΩ

VR2 200 KΩ

Gain adjust 3 settings

Red: Electrodes shorted 470 Ω R4 Yellow: Inadequate electrode conductance 470 Ω R3 Green: Proper electrode conductance

D1 D2 D3

R5 1 MΩ R8 1 MΩ

Q1 VN2106N3-G Q2 VN2106N3-G Q3 VN2106N3-G

NOTE: Check sketch macros for which LED is controlled by which MCU pin.

NOTE: Check sketch macros for which LED is controlled by which MCU pin.

Tolerable range is -3 to -20V. R14 absorbs any excess power by suppiles in excess of 3.9V. Just ensure line isolation! AC or DC are both acceptable since FW bridge is provided.

# IN PROCESS

NOTE: Diagnostic jumpers must be used as JP1-2-3 or JP4 with JP5, not all jumpers simultaneously. They are primarily intended for use during the initial board building process to ensure any mistakes are caught when they would most easily be identified and corrected.
JP4-5 can bypass the software-controllable analog input levels to allow the manual pots to supply them.
JP1-3 is for bypass of LM334s to verify operation of the MCP4262s (which, BTW, cannot achieve high enough resistances to produce working level voltages on the legs without low R2 and DUT resistances). You'll need to insert such resistances manually...on the order of 10 KΩ to 100 KΩ with 27 KΩ suggested. For board versions without these jumpers, JP4 and 5 can be effected by disconnecting LM334 lead 2 and adding a temporary wire from the wiper of a manual pot to lead 3 of that LM334. JP1 and 2 can be effected by disconnecting LM334 lead 2 and adding a temporary wire between LM334 pads 1 and 2 (without lead 2 in circuit). In either case, LM334s may be removed completely to avoid JP cutting or to ensure lead 2 (middle lead) disconnect during diags. Lead 1 is always marked as square pad and/or silk-screened dot or mark on board.

1 2

GWAAMC Training Aid Main Board for UNO with MCP4262 HX711 LM334 REF200 MMBF5462 (2N5462)

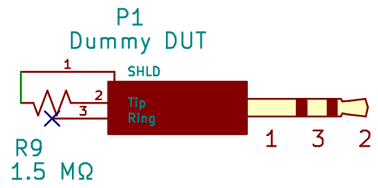


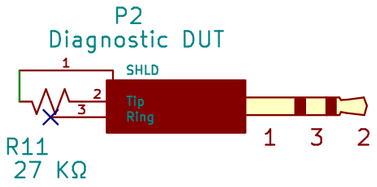
Sheet: /
File: uno shield.sch

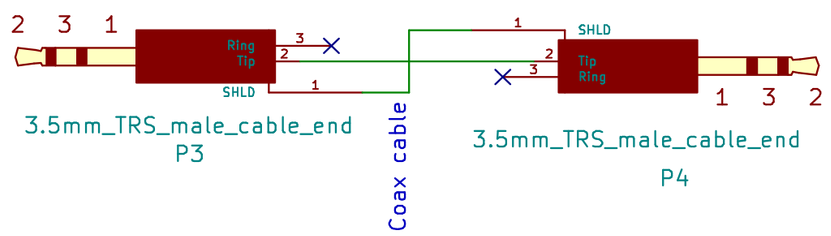
**Title:**

| Size: A2 | Date: 05-09-2019 | **Rev:** |
|---|---|---|
| KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu16.04.1 | | Id: 1/2 |

NOTE:  These symbols are required to generate an accurate BOM.  To use them in that way, copy them and paste them anywhere into the main page.
They do not have to show within any sheet boundary.
Generate the new BOM and delete the symbol copies from the main page, and main page only, when finished, always leaving the original symbols in this sheet.
If the copies are left in the main page when later updating the PCB, they will interfere with the generation of the PCB Gerber files because these have no residencies on the PCB.

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| Sheet: /Sheet5D5A7B86/ | | |
| File: Coax Cable and Diagnostic DUT.sch | | |
| **Title:** | | |
| Size: A4 | Date: | **Rev:** |
| KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu16.04.1 | | Id: 2/2 |