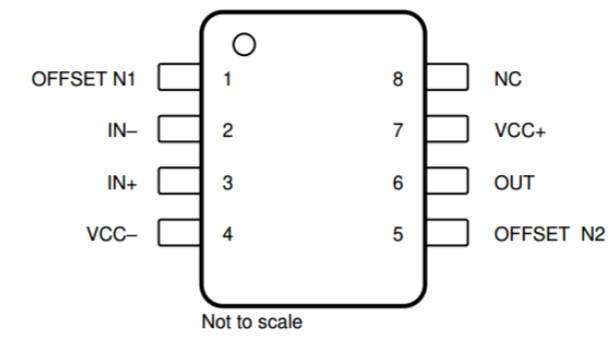
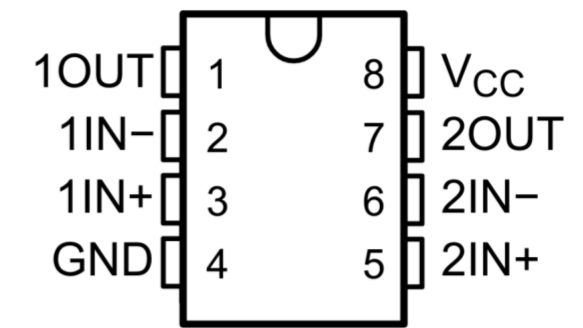


TL071 pinout



LM393 pinout



J1
Conn_01x01_Socket

VBIAS



D1
VBPW34S

Charge_Sensitive_Amplifier

PD_IN

CSA_OUT

File: CSA.kicad_sch

CRRC_shaper

CRRC_IN

CRRC_OUT

File: CRRC_shaper.kicad_sch

comparator

VSIG_IN

COMP_OUT

VREF_IN

File: comparator.kicad_sch

+15V

RV1
10k

GND A

Breadboard circuit exercises

1. Build an inverting amplifier based on the CSA but with an input resistor
2. Use scope & sig gen to measure the voltage gain
3. replace input with a biased photodiode (experiment with visible and IR)
4. Build CRRC shaping stage – choose the capacitors!
5. Observe pulse shapes at CSA and CRRC outputs
6. Build Comparator circuit
7. Observe IR light pulses, cosmic rays (hopefully!), LED lighting PWN frequency, etc

Breadboard activity schematic

Dan Weatherill

Sheet: /

File: detector.kicad_sch

Title: UK Instrumentation Summer School

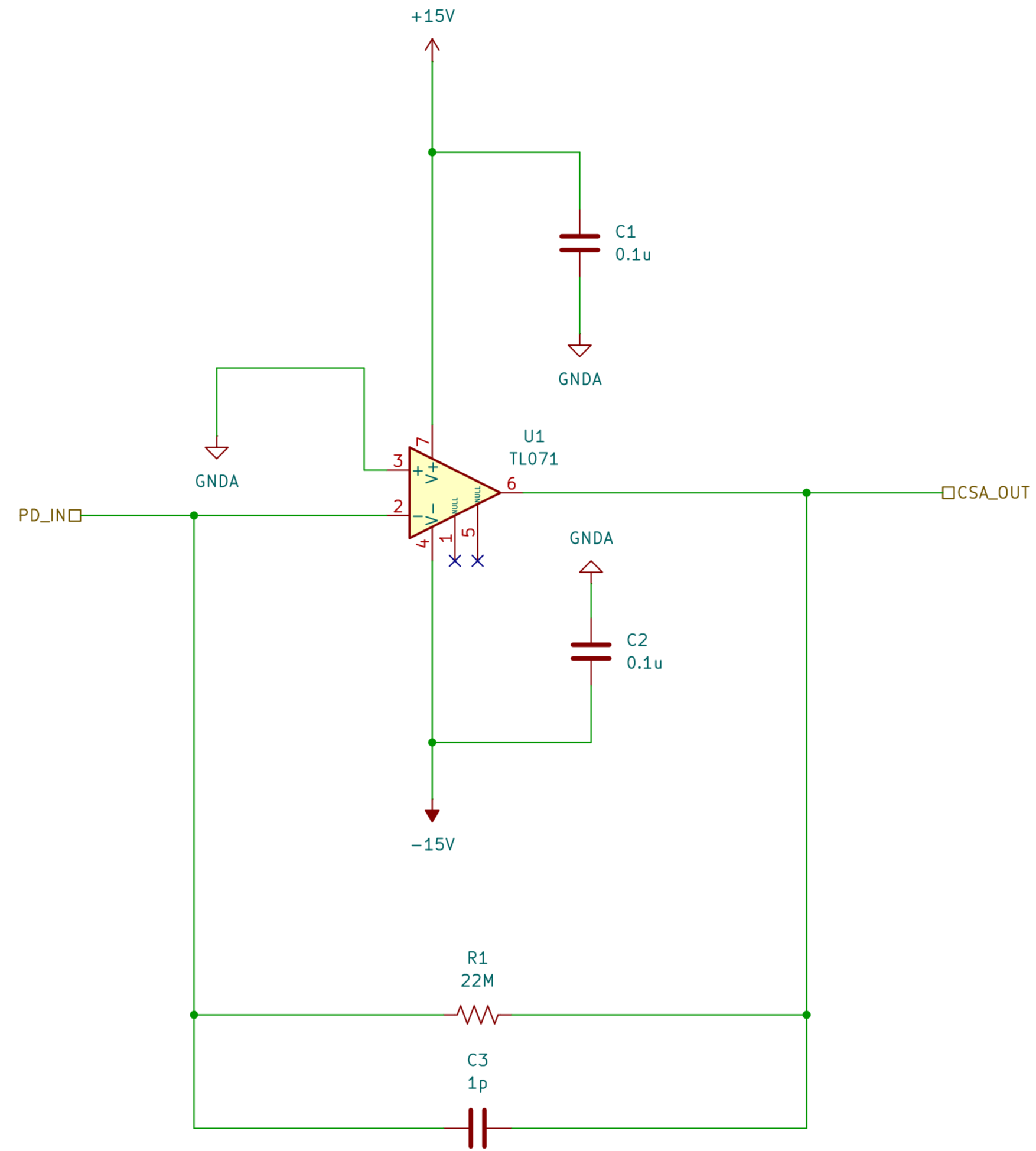
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Date: 2024-07-02

Rev: 1

KiCad E.D.A. 8.0.2

Id: 1/4



Breadboard activity schematic

Dan Weatherill

Sheet: /Charge_Sensitive_Amplifier/

File: CSA.kicad_sch

Title: UK Instrumentation Summer School

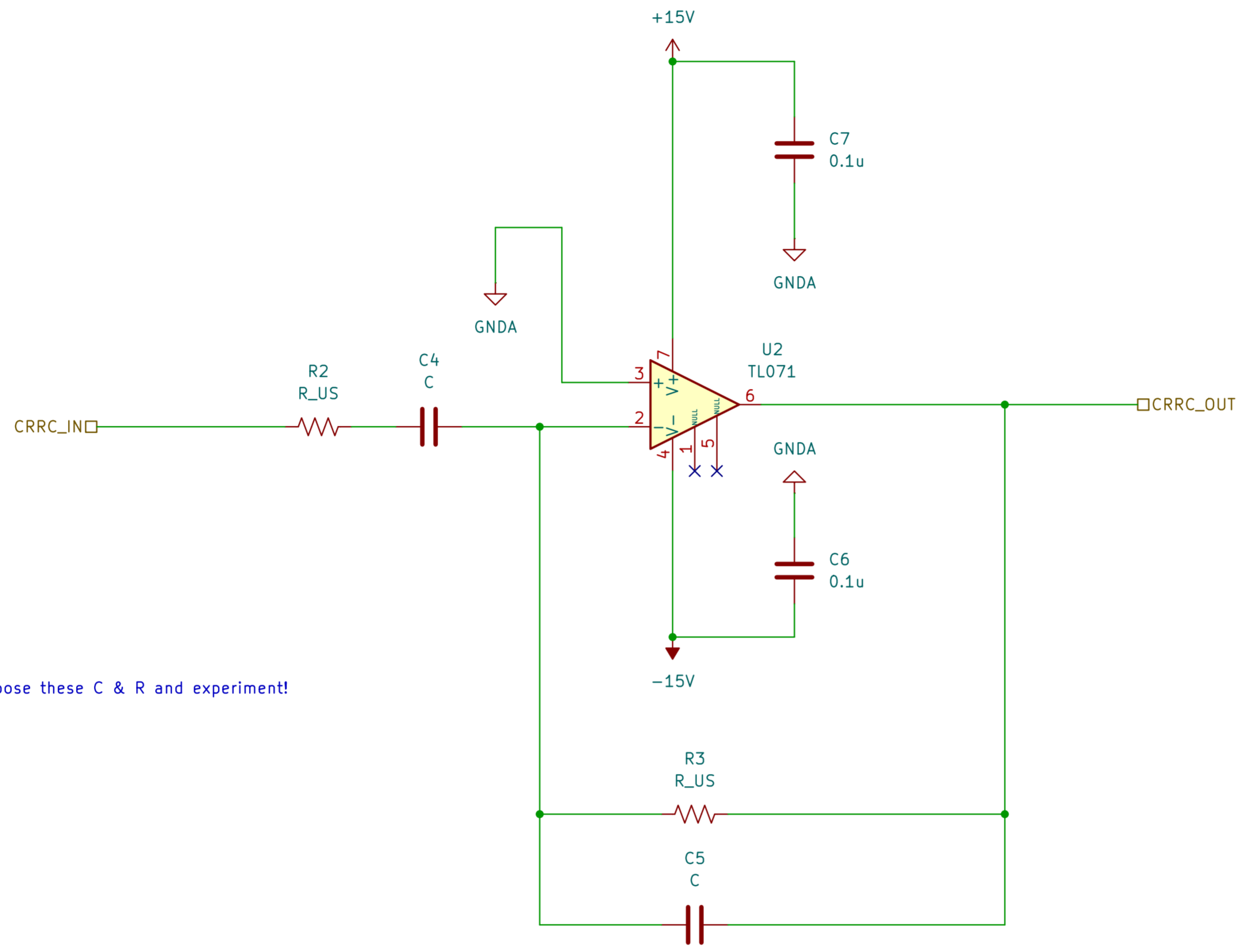
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Date: 2024-07-02

Rev:

KiCad E.D.A. 8.0.2

Id: 2/4



exercise: choose these C & R and experiment!

Breadboard activity schematic

Dan Weatherill

Sheet: /CRRc_shaper/

File: CRRc_shaper.kicad_sch

Title: UK Instrumentation Summer School

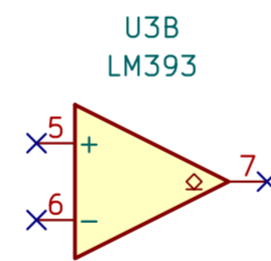
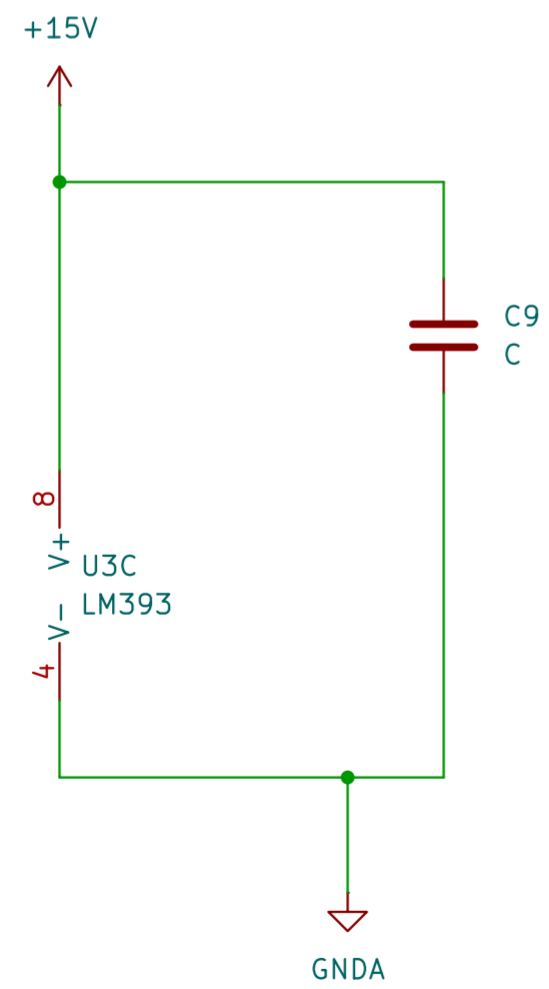
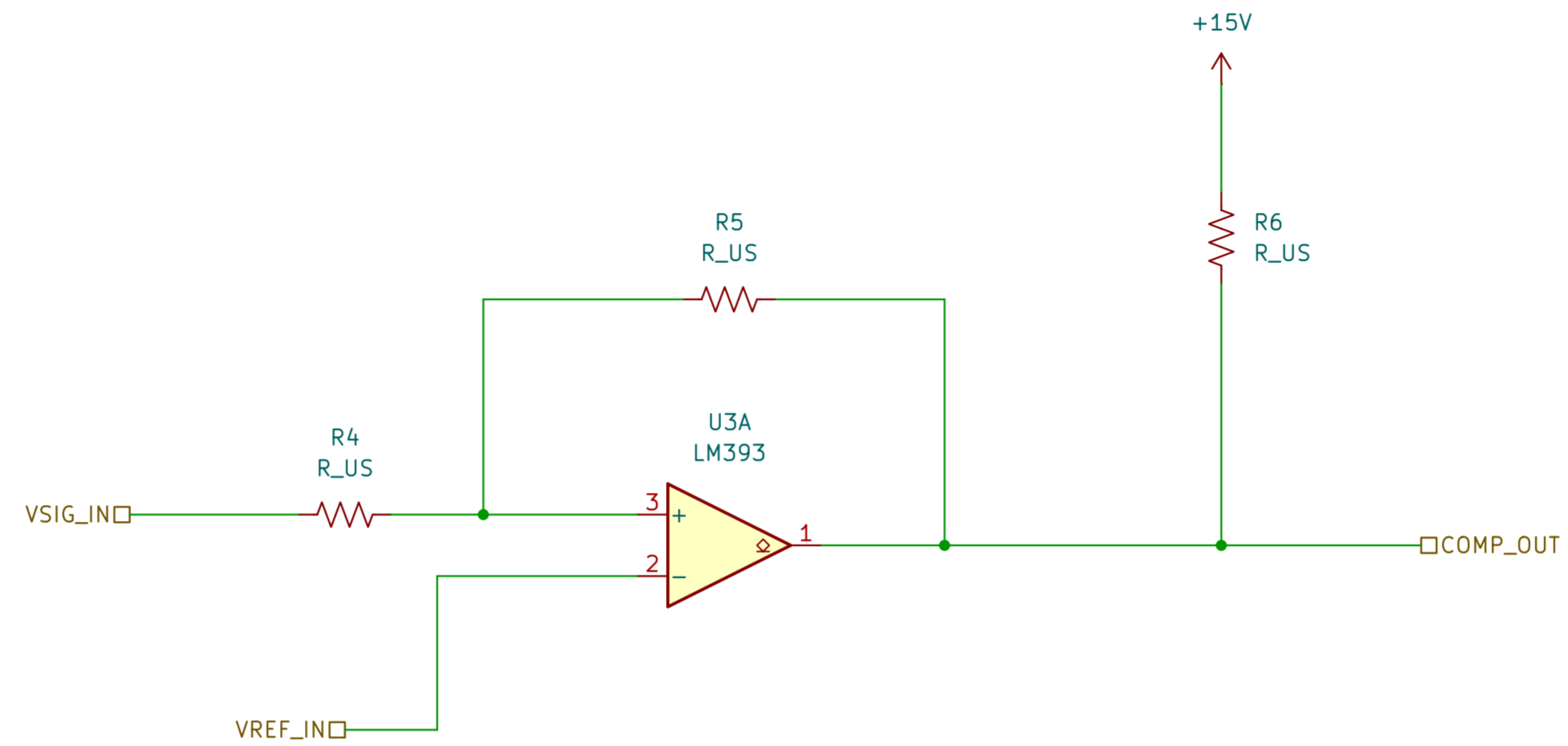
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Rev:

KiCad E.D.A. 8.0.2

Id: 3/4



Breadboard activity schematic

Dan Weatherill

Sheet: /comparator/

File: comparator.kicad_sch

Title: UK Instrumentation Summer School

Size: A4

Date: 2024-07-02

Rev:

KiCad E.D.A. 8.0.2

Id: 4/4