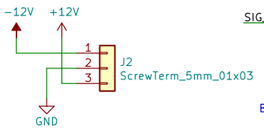
CONNECTORS

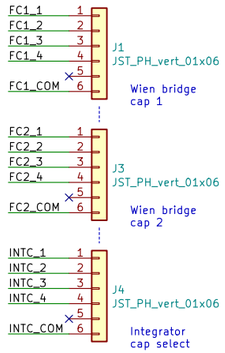
Dual DC Input



Signal Output

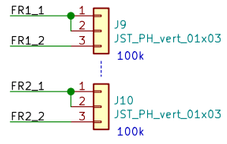
Board mount BNC receptacle

Frequency Range Rotary Switch



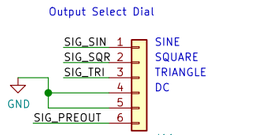
3P4T PANEL MOUNT ROTARY SWITCH

Frequency Dial



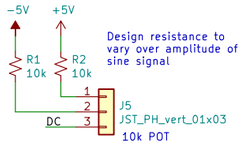
2G POT

Output Select Dial

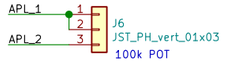


SP4T PANEL MOUNT ROTARY SWITCH

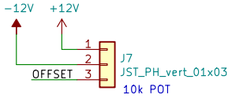
Duty Cycle Dial



Amplitude Dial



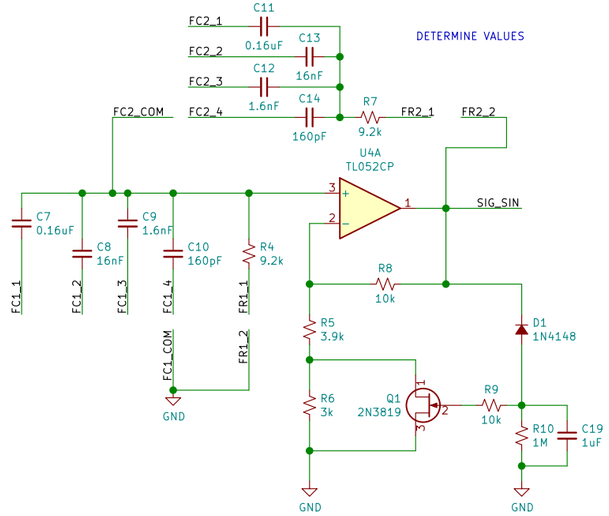
DC Offset Dial



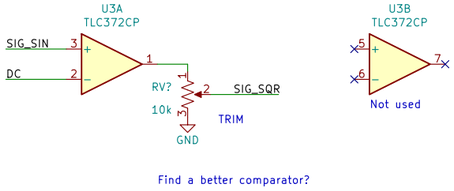
ALL POT CONN JST PH 3P
1 END
2 END
3 WIPER

SINE GENERATOR

Wien bridge with selectable frequency decade capacitors, dual gang frequency potentiometer, and JFET AGC

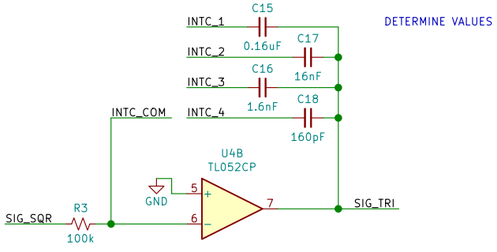


SQUARE GENERATOR



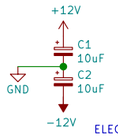
Find a better comparator?

TRIANGLE GENERATOR



POWER

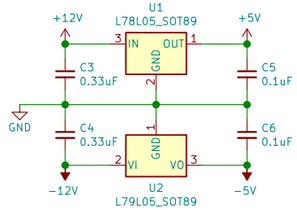
Input Bypass



ELECTROLYTIC

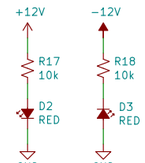
FIND FOOTPRINT

+/−12V −> +/− 5V

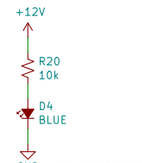


INDICATORS

Power (onboard)



Power (external)



Mount on enclosure

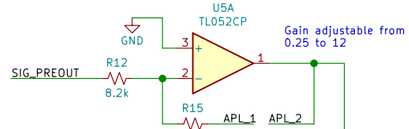
OUTPUT SELECT

SP4T SWITCH

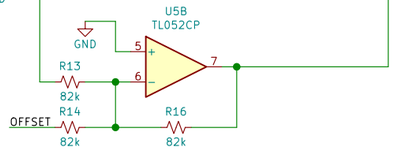
Off board

OUTPUT AMPLITUDE / OFFSET

Output Amplitude Control
Inverting Amp



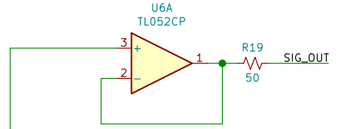
Output DC Offset + Buffer
Unity gain summing amp



IF WANT R2R

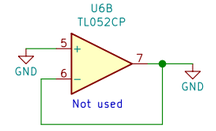
TLV272
LM6132

Output Buffer

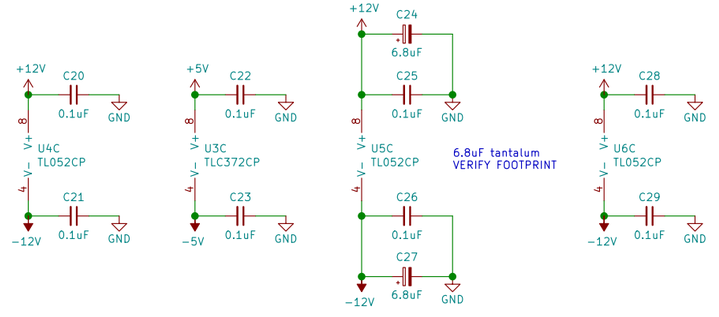


Impedance matching???

If want 1/4W out, need 1206 and probably a beefier amp



Maybe use to buffer OFFSET



FOOTPRINTS

ALL SMD PASSIVES	0805
ALL SMD LEDs	1206
ALL SINGLE/DUAL OPAMPS	DIP8 Socket

NOTES

If have time, use the AC/DC converter design. Otherwise integrate 12VDC input through a wall wart, panel mount rocker switch, board mount PTC fuse, and switching converter to +/− 12VDC

Ray Sun
EE 90
Analog Electronics Project Laboratory
California Institute of Technology

Caltech EE

Sheet: /
File: triumph−main.sch

TRIUMPH

Title: Triumph Analog Function Generator − Main Board

Size: B	Date: 2019−04−21	Rev: A
KiCad E.D.A. kicad (5.1.0)−1		Id: 1/1