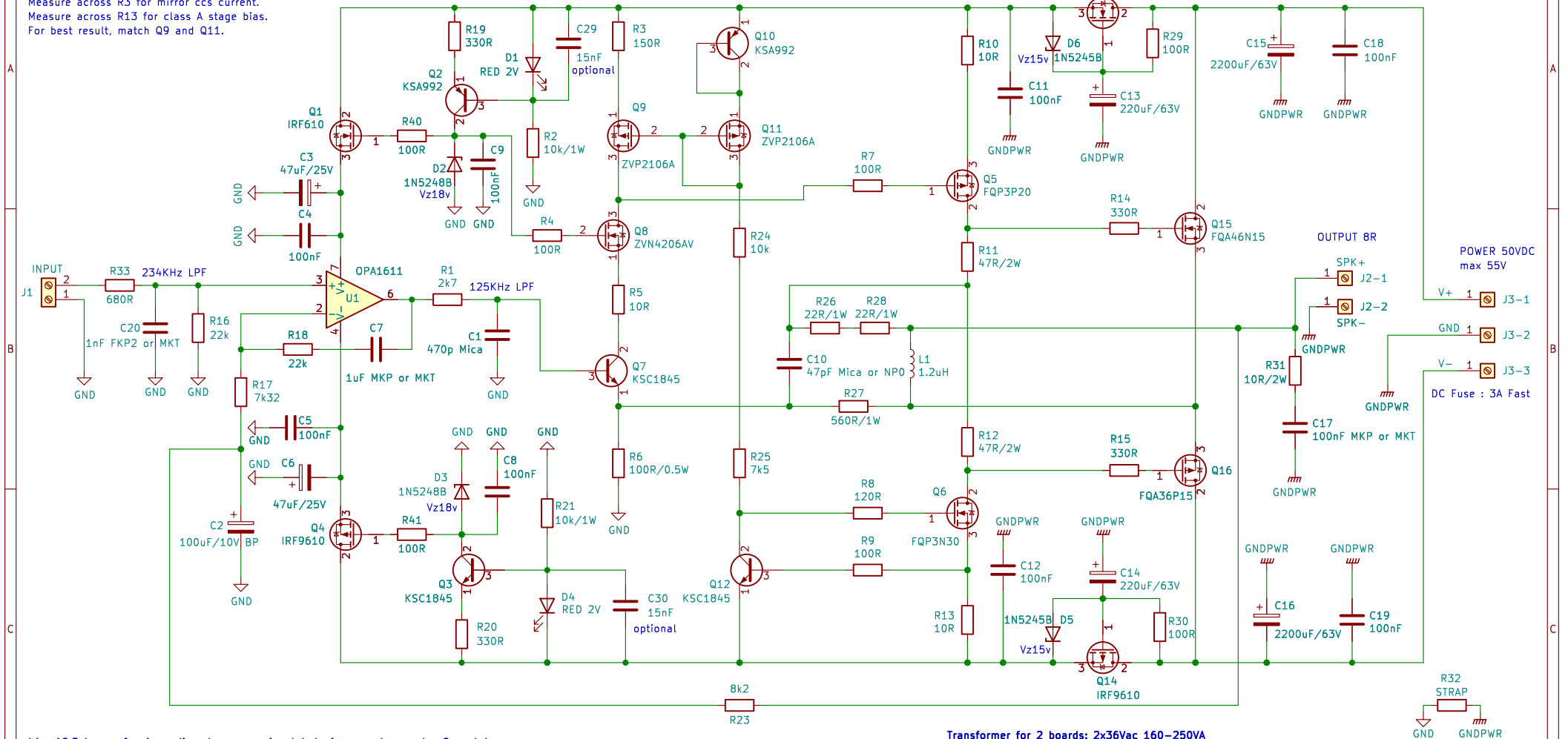


Q7, Q8 : cascode circuit (R3 = current setup, need to adjust R5/R6)  
 Q9, Q11 : current mirror circuit  
 R23, R17, C2 : DC servo  
 Measure across R3 for mirror ccs current.  
 Measure across R13 for class A stage bias.  
 For best result, match Q9 and Q11.

Do not power on the board without opamp.



L1 : 19.5 turns of a 1mm diameter copper insulated wire wound around a 8mm tube.

This will give you a coil of 10x20mm (see picture on github repository).

Transformer for 2 boards: 2x35Vac 160–250VA

For input sensibility at 1.5v: R17 = 7.32k  
 For input sensibility at 0.750v: R17 = 3.3k  
 Remember to take off the resistors of 1W and more from the PCB when you solder them.

U1 : OPA1641 (JFET) or OPA1611 (BIPOLAR)

Q1, Q13 : IRF610

Q2, Q10 : KSA992

Q4, Q14 : IRF9610

Q3, Q7 : KSC1845 or 2SC2240GR

Q5 : FQP3P20 (need isolator)

Q6 : FQP3N30 or FQP3N50C (need isolator)

Q8 : ZVN4206AV or 2N7000G

Q9, Q11 : BS250P or ZVP2106A

Q12 : KSC1245

Q15 : FQA46N15 or FQA40N25 (need isolator)

Q16 : FQA36P15 or IXTH48P20P (need isolator)

Transformer: 2x35v 160VA

J1: KF127 or JST B2B–XH–A–GU.

100nF capacitor : Wima MKS2

C3, C6 : Nichicon UKZ1E470MPM

1W resistor : Vishay PR01

2W resistor : Vishay CCF02 or PR02

D1, D4 : LED RED 2V TLHR5400

D2, D3 : 1N5248B

D5, D6 : 1N5245

C13, C14 : Vishay MAL215058221E3

C15, C16 : Vishay 048 (MAL20485B222E3) or Nichicon UFW (UFW1J222MHD) or Wurth WCAP–ATG8 (B60010781028).

Q5, Q15, Q6, Q16 and Q20 need film Insulator and insulating washer spacer.

For resistor < 150R : sort then or use 1% range.

0.25W, 0.5W resistor : Vishay MRS25 or CCF07

R27 : 560R 1W 1% Ohmite WNB560FET or Vishay CMF60560R00JKR6

R26, R28 : 22R 1% 1W TE Connectivity H4P22RFZA

C1 : 470pF CDE CD15FD471J03F or polystyrene capacitor.

C2 : Non polar capacitor Nichicon Muse UE51A101MPM.

C7 : 1uF Wima MKP2D041001N00JSSD or MKS4B041002C00JF00.

C10 : 47pF Mica CDE CD15ED470J03 or ceramic NPO.

C17 : 100nF capacitor FKP3C031004C00JSSD or MKT1822410255.

C20 : 1nF Wima FKP2C011001D00HSSD or Vishay MKT BFC237085102.

J2 and J3: FASTON 250 PCB connector (TE Connectivity 63849–1)

Q17 a QUAD405 audiophile approach

Modified by Stef for the Q17–Mini project

by eng. Tiberiu Vicol

Sheet: /

File: Q17–Mini.kicad\_sch

**Title: Q17–Mini Amplifier**

Size: A4 Date: 2023–08–24

KiCad E.D.A. kicad 7.0.6–0

Rev: 1.4.6

Id: 1/1