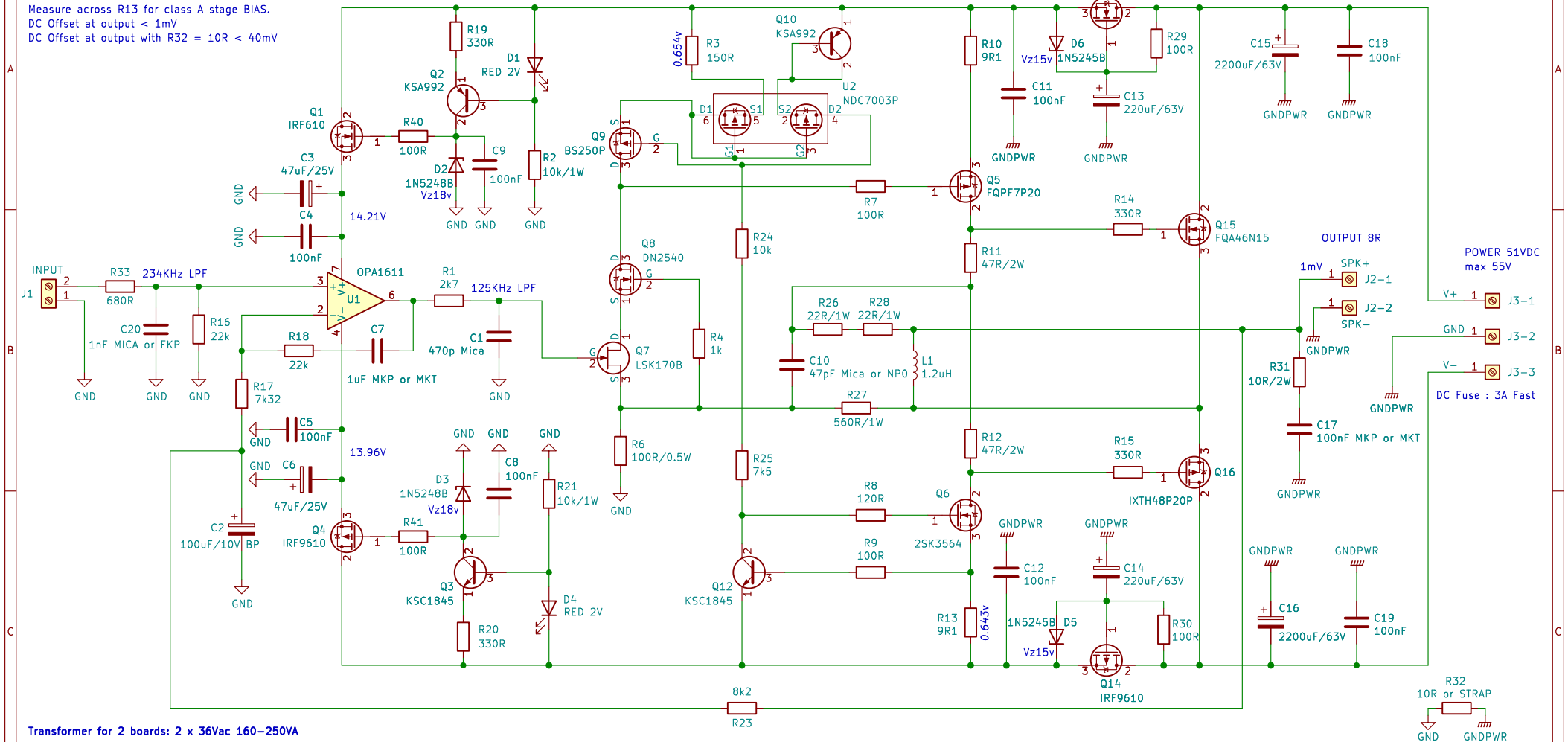


Q7, Q8 : Erno Borbely cascode  
 Q9, U2 : Wilson current mirror (CCS)  
 R23, R17, CA2 : DC servo  
 Measure across R3 for current mirror.  
 Measure across R13 for class A stage BIAS.  
 DC Offset at output < 1mV  
 DC Offset at output with R32 = 10R < 40mV

If you use a potentiometer in front of the amp, do not wire the LFE (not wire C20 and replace R33 by 100R).

Do not power on the board without opamp.



Transformer for 2 boards: 2 x 36Vac 160–250VA

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).

U1 : OPA1611 (BIPOLAR) or OPA828 (JFET)  
 U2: NDC7003P or PJS6839  
 Q1, Q13 : IRF610  
 Q2, Q10 : KSA992  
 Q3, Q12 : KSC1845  
 Q4, Q14 : IRF9610  
 Q5 : FQP3P20, FQPF7P20 or IRF9610 (isolator)  
 Q6 : FQP3N30, 2SK3564 or IRF610 (isolator)  
 Q7 : LSK170B (TH) or JFE150 (SMD SOT23–5)  
 Q8 : DN2540 or DN2535  
 Q9, Q11 : BS250P or ZVP2106A  
 Q15 : FQA46N15, IXFH50N85X or IRFP240 (isolator)  
 Q16 : FQA36P15, IXTH48P20P or IRFP9240 (isolator)

100nF capacitor : Wima MKS2  
 1W resistor : Vishay PR01  
 2W resistor : Vishay CCF02 or PR02  
 D1, D4 : LED RED 2V TLHR5400  
 D2, D3 : 1N5248B  
 D5, D6 : 1N5245  
 C3, C6 : Nichicon UKZ1E470MPM  
 C13, C14 : Vishay MAL215058221E3  
 J1: KF127 or JST B2B–XH–A–GU

For resistor < 150R : sort then or use 1% range.  
 0.25W, 0.5W resistor : Vishay MRS25 or CCF07 or MB  
 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 UES1A101MPM.  
 C7 : 1uF Wima MKP2D041001N00JSSD or MKS48041002C00JF00.  
 C10 : 47pF Mica CDE CD15ED470J03 or ceramic NPO.  
 C15, C16 : 2200uF 63v Vishay MAL204B58222E3  
 C17 : 100nF capacitor FKP3C031004C00JSSD or MKT1822410255.  
 C18, C19 : 0.1uF/160V MKP Vishay MKP1839410164  
 C20 : 1nF CD15FA102J03 or FKP2C011001D00HSSD.  
 J2 and J3: FASTON 250 PCB connector (TE Connectivity 63849–1)

For input sensibility at 1.5v: R17 = 7.32k  
 For input sensibility at 0.750v: R17 = 3.3k  
 The value of R25 depends on the input voltage (42v = 2K7, 50v = 7K5, 60v = 8k2).  
 Remember to take off the resistors of 1W and more from the PCB when you solder them.

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: 2023–09–24

KiCad E.D.A. kicad 7.0.7

Rev: 2.0.2

Id: 1/1