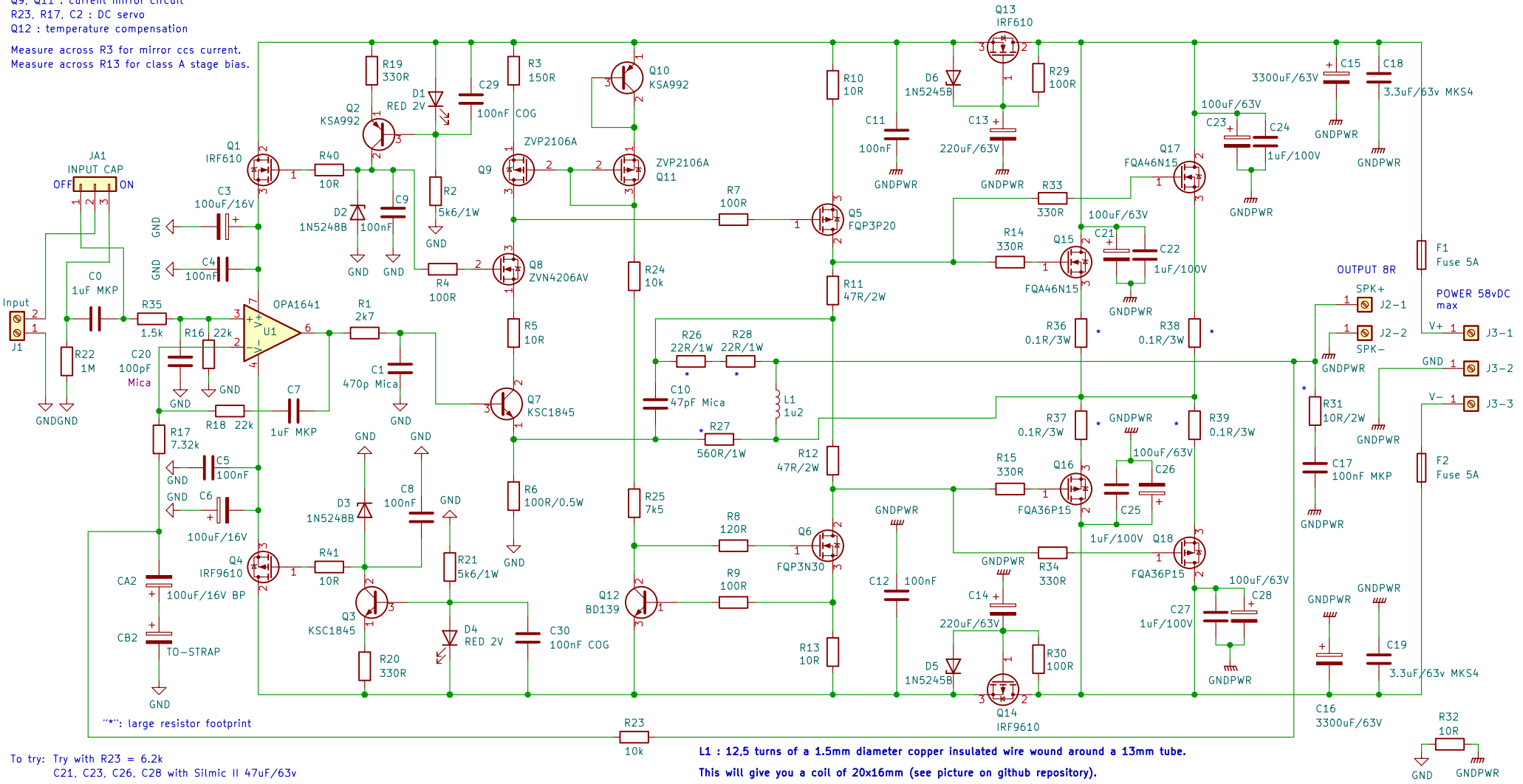
Q7, Q8 : cascode circuit (R3 = current setup, need to adjust R5/R6)
Q9, Q11 : current mirror circuit
R23, R17, C2 : DC servo
Q12 : temperature compensation
Measure across R3 for mirror ccs current.
Measure across R13 for class A stage bias.
Do not power on the board without opamp.
JA1
INPUT CAP
OFF
ON
Input
J1
C0
1uF MKP
R22
1M
GNDGND
R35
1.5k
R16 22k
C20
100pF
Mica
R18 22k
C7
1uF MKP
U1
OPA1641
R1
2k7
C1
470p Mica
R17
7.32k
C5
100nF
C6
100uF/16V
CA2
100uF/16V BP
CB2
TO-STRAP
C3
100uF/16V
C4
100nF
R19
330R
D1
RED 2V
C29
100nF COG
Q2
KSA992
R40
10R
D2
1N5248B
C9
100nF
R2
5k6/1W
R4
100R
Q1
IRF610
R3
150R
Q10
KSA992
ZVP2106A
Q9
ZVP2106A
Q11
Q8
ZVN4206AV
R5
10R
Q7
KSC1845
R6
100R/0.5W
D3
1N5248B
C8
100nF
R21
5k6/1W
Q4
IRF9610
R41
10R
Q3
KSC1845
R20
330R
D4
RED 2V
C30
100nF COG
R24
10k
R25
7k5
R8
120R
R9
100R
Q12
BD139
R7
100R
Q5
FQP3P20
R10
10R
C11
100nF
R11
47R/2W
R12
47R/2W
R13
10R
Q6
FQP3N30
C12
100nF
R26
22R/1W
R28
22R/1W
C10
47pF Mica
L1
1u2
R27
560R/1W
Q13
IRF610
D6
1N5245B
R29
100R
C13
220uF/63V
R33
330R
R14
330R
Q15
FQA46N15
C21
100uF/63V
C22
1uF/100V
R36
0.1R/3W
R38
0.1R/3W
Q17
FQA46N15
C23
100uF/63V
C24
1uF/100V
C15
3300uF/63V
C18
3.3uF/63v MKS4
F1
Fuse 5A
OUTPUT 8R
SPK+
J2-1
J2-2
SPK-
POWER 58vDC
max
V+
J3-1
GND
J3-2
V-
J3-3
F2
Fuse 5A
R31
10R/2W
C17
100nF MKP
R37
0.1R/3W
R39
0.1R/3W
R15
330R
Q16
FQA36P15
C25
1uF/100V
C26
100uF/63V
R34
330R
Q18
FQA36P15
C27
1uF/100V
C28
100uF/63V
R30
100R
D5
1N5245B
C14
220uF/63V
Q14
IRF9610
C16
3300uF/63V
C19
3.3uF/63v MKS4
R32
10R
R23
10k
GND
GNDPWR
"*": large resistor footprint
To try: Try with R23 = 6.2k
C21, C23, C26, C28 with Silmic II 47uF/63v
L1 : 12,5 turns of a 1.5mm diameter copper insulated wire wound around a 13mm tube.
This will give you a coil of 20x16mm (see picture on github repository).
For input sensibility at 1.5v: R17 = 7K32
For input sensibility at 0.750v: R17 = 3K3
Exicon ECW laterals:
R11,R12 = 10R 2W, R14 = 510R and R15 = 390R
U1 : OPA1641 (JFET) or OPA1611 (BIPOLAR)
Q1, Q13 : IRF610
Q2, Q10 : KSA992
Q4, Q14 : IRF9610
Q3, Q7 : KSC1845 or 2SC2240
Q5 : FQP3P20
Q6 : FQP3N30
Q8 : ZVN4206AV or 2N7000 (not TA)
Q12 : BD139
Q9, Q11 : ZVP2106A or BS250P (Diodes Inc)
Q15, Q17 : FQA46N15
Q16, Q18 : FQA36P15
C0 : CDE 1uF 100v 930C1W1K-F
C15, C16 : Vishay 256 PMG-SI
C18, C19 : Wima MKS4C043303G
100nF : Wima MKS2
D1, D4 : LED RED 2V
D2, D3 : 1N5248B
D5, D6 : 1N5245
D7 : Onsemi 1N5819RLG
1W resistor : Vishay PR01
2W resistor : Vishay CCF02 or PR02
1/4Watt, 1/2Watt resistor : Vishay MRS25 or CCF07
R26, R28 : TE Connectivity H4P22RFZA
R27 : Ohmite 560R 1W WNB560FET
R31 : Ohmite 10R 2W WNC10RFE
R36, R37, R38, R39 : Noble RGC5 or KOA BPR58 0.1R 5W (white sugar)
C3, C6 : ELNA Silmic II RFS 100uF 16V
C4, C5, C29, C30 SMD : 100nF COG TDK C3216C0G1H104J160AA
C3, C5, C13, C14, C21, C23, C26, C28 : Panasonic FC
C7 : use MKP capacitor (MKP1F041005I00JYSD or MKP4D041005D00JSSD).
C17 : use MKP capacitor (FKP3D031004D00JF00 or MKP1F031004B00KI00).
C2 : use bipolar capacitor (Nichicon Muse UES1A101MPM).
C1, C10 : use Mica CDE CD15 or Polystyrene capacitor.
J2 and J3: FASTON 250 PCB connector (TE Connectivity 63849-1)
Q17 a QUAD405 audiophile approach
Modified by Stef for the Q17-P2 project
by eng. Tiberiu Vicol
Sheet: /
File: Q17-P2.kicad_sch
Title: Q17-P2 Amplifier
Size: A4
Date: 2022-01-23
Rev: 1.2.7
KiCad E.D.A. kicad (6.0.0-0)
Id: 1/1