FET Power Ver.1 Assemble Manual

2010/12/28

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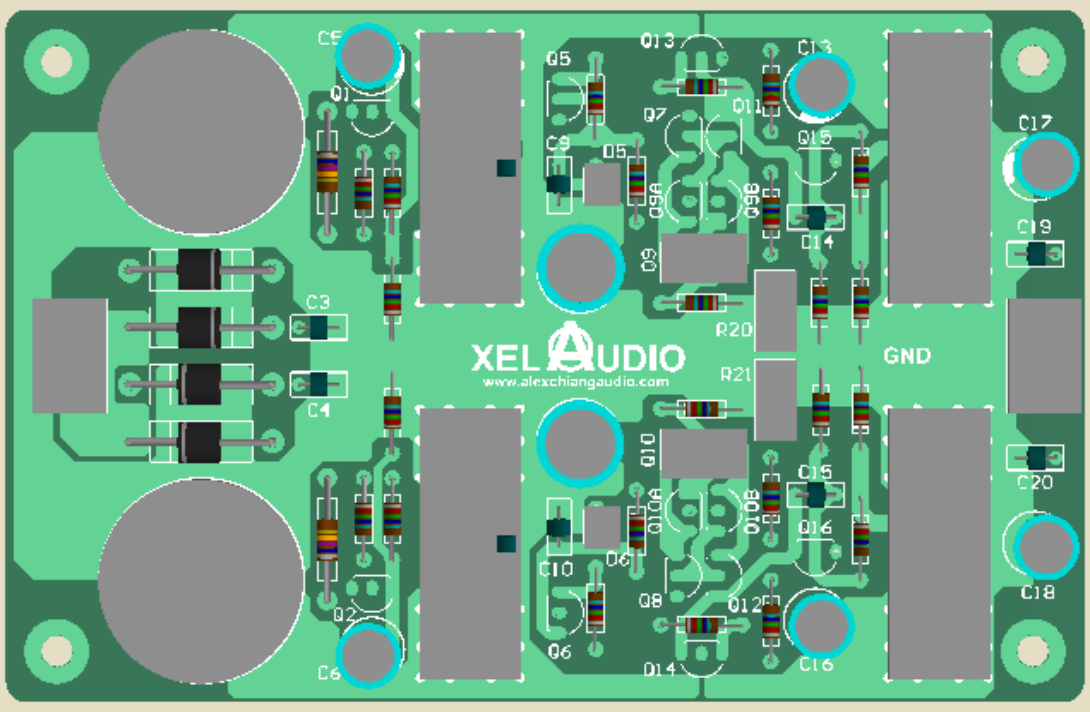
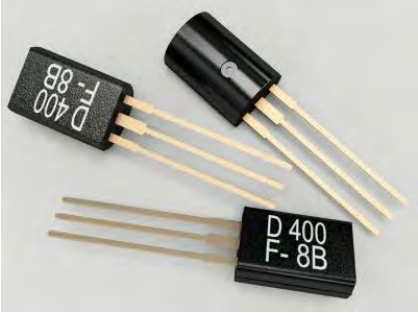
Components

P C B



C

T



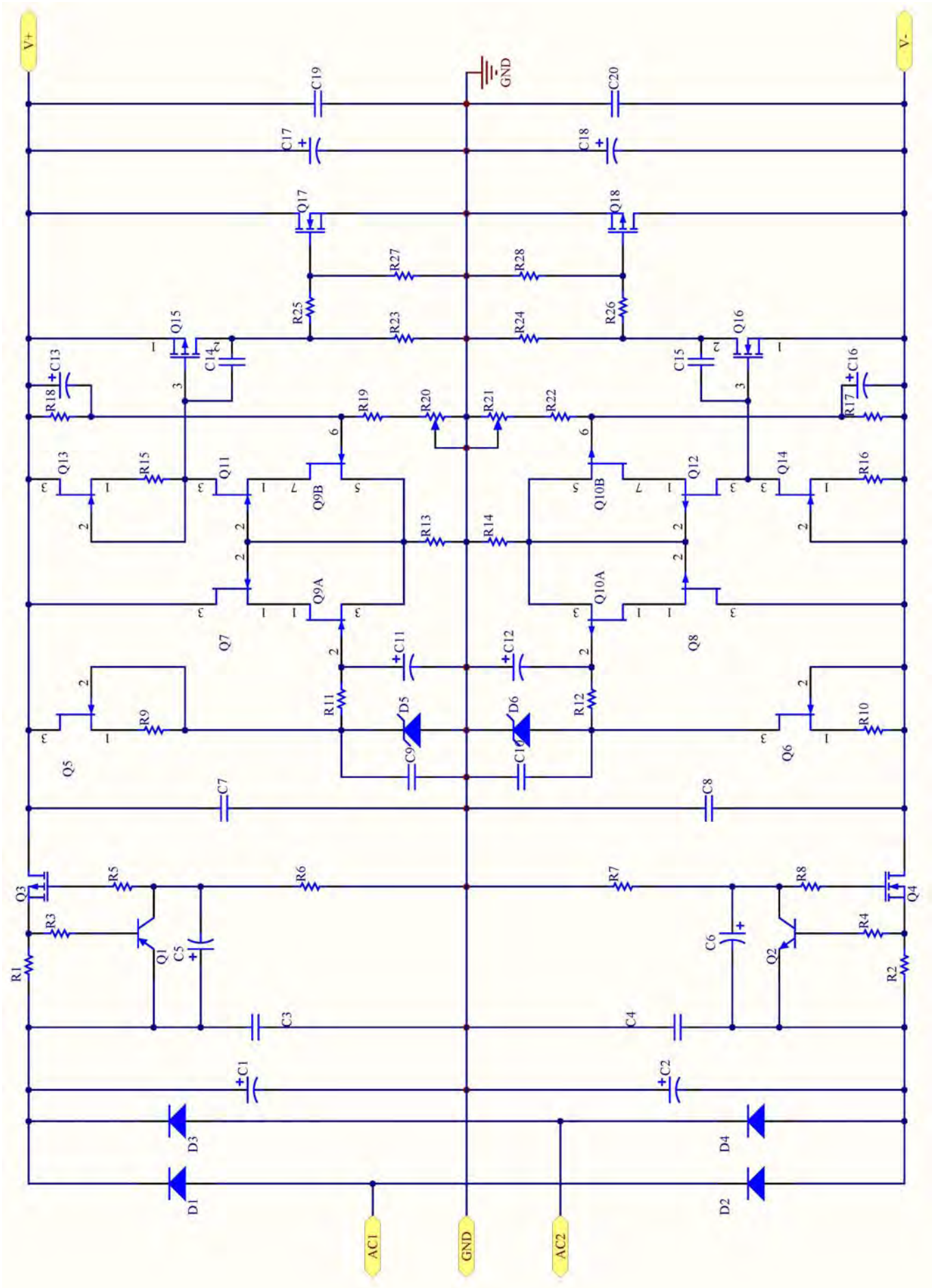
R

D

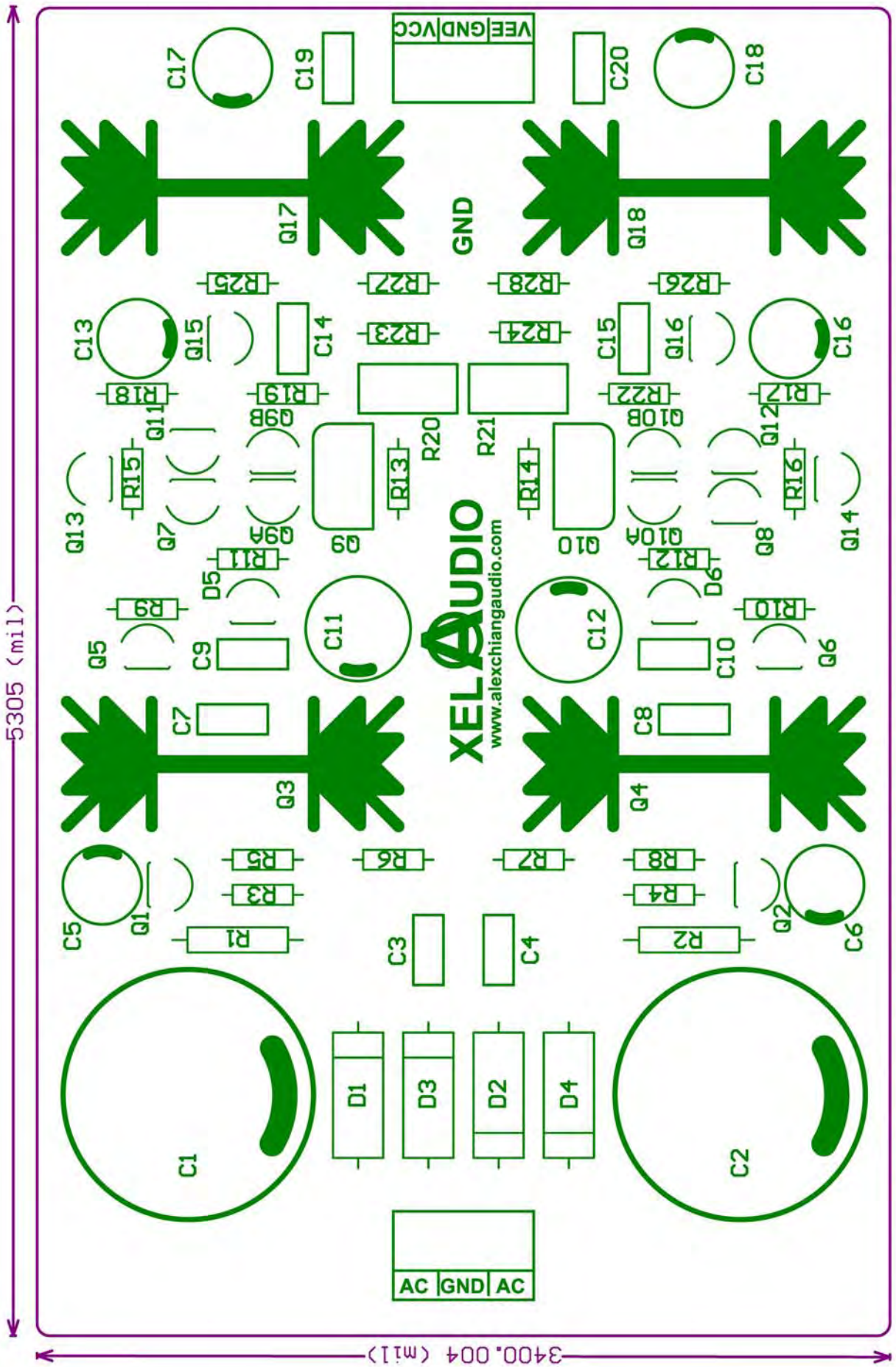
Bill of Materials

No	Comment	Designator	Quantity
1	**3300U**	C1, C2	**2**
2	**104**	C3, C4, C7, C8, C9, C10, C19, C20	**8**
3	**47U**	C5, C6, C13, C16, C17, C18	**6**
4	**220U**	C11, C12	**2**
5	**30P**	C14, C15	**2**
6	**Diode**	D1, D2, D3, D4	**4**
7	**LM329**	D5, D6	**2**
8	**BC556**	Q1	**1**
9	**BC546**	Q2	**1**
10	**2SJ313**	Q3, Q18	**2**
11	**2SK2013**	Q4, Q17	**2**
12	**2SK30**	Q5, Q6, Q13, Q14	**4**
13	**2SK246**	Q7, Q11	**2**
14	**2SJ103**	Q8, Q12	**2**
15	**2SK389**	Q9	
16	**2SJ109**	Q10	
17	**2SK170**	Q9A,Q9B (Replace 2SK389)	**2**
18	**2SJ74**	Q10A,Q10B (Replace 109)	**2**
19	**2SJ148**	Q15	
20	**2SK982**	Q16	
21	**2SJ168**	Q15 (Replace 2SJ148)	**1**
22	**2SK1062**	Q16 (Replace 2SK982)	**1**
23	**4.3**	R1	**1**
24	**4.3**	R2	**1**
25	**220**	R3, R4, R5, R8	**4**
26	**10K**	R6, R7, R23, R24	**4**
27	**240**	R9, R10	**2**
28	**3K3**	R11, R12, R19, R22	**4**
29	**1K8**	R13, R14	**2**
30	**330**	R15, R16	**2**
31	**8K2**	R17, R18	**2**
32	**5K**	R20, R21	**2**
33	**100**	R25, R26	**2**
34	**1K**	R27, R28	**2**

Schematic


V+
V-
GND
C19
C20
C17
C18
Q17
Q18
R27
R28
R25
R23
R24
R26
Q15
Q16
C14
C15
C13
C16
R18
R19
R20
R21
R22
R17
Q13
R15
Q11
Q9B
Q10B
Q12
Q14
R16
R13
R14
Q9A
Q10A
Q7
Q8
C11
C12
R11
R12
D5
D6
C9
C10
Q5
Q6
R9
R10
C7
C8
Q3
R5
R6
R7
R8
Q4
R3
Q1
C5
C6
Q2
R4
R1
R2
C3
C4
C1
C2
D3
D4
D1
D2
AC1
GND
AC2

Layout Placement



Adjustment

1. CCS Current

140mA total CCS current R1 (R2) = 0.66/140mA =**4.7** Ohm.

300mA total CCS current R1 (R2) = 0.66/300mA =**2.2** Ohm.

2. Performance

	Low power version	High power version
Input voltage range	16-32V	16-32V
Output voltage range	12-28V	12-28V
Min. Diff. Vin/Vreg	4V	4V
Max. load current	100mA	300mA
Max. shunt current	75mA	150mA (SK 104 63.5mm)
Noise 5Hz-30kHz	<10µ (Typ. 5µV)	<10µV (Typ. 5µV)
Absolute max. V_{in}	35V	35V
Absolute max. V_{reg}	30V	30V

3. Heat-Sink

Heat-Sink	Thermal res. Rth (K/W)	Max. Power dissipation	CCS 4V Vin-Vreg	Shunt element Vreg=24V
SK 104 25mm:	14K/W	2.14W	525mA	89mA
SK 104 38.1mm	11K/W	2.72W	680mA	113mA
SK 104 50.8mm	9K/W	3.33W	830mA	138mA
SK 104 63.5mm	8K/W	3.75W	930mA	156mA