Power supply

VCC
CONTROL0 1 — 2 CONTROL1
DAN202K D1

VCC
CONTROL2 — 1 CONTROL3
DAN202K D4

VCC
D0 1 — 2 D1
DAN202K D2

VCC
C1 68µ

VCC TP1 TestPoint
GND
VCC TP3 TestPoint
GND

Hardware detection

VCC
4.7k R4
STATUS5
CONTROL3 3
D3 DAN202K
TP2 TestPoint

Audio output

Note:
Mono signal is output
as stereo with short
circuit protection for
mono headphones

Note:
Audio Jack can be one of
– Belden/Lumberg IES100-3
– Kobiconn 161-3402-E
– Kycon STPX-3501-3N-1
They all look the same.

AUDIO_OUT
100 R1
100 R7
GND
J2 161-3402-E
T R S

Parallel port

J1 DB25_Male

1 CONTROL0
14 CONTROL1
2 D0
15 STATUS3
3 D1
16 CONTROL2
4 D2
17 CONTROL3
5 D3
18
6 D4
19
7 D5
20
8 D6
21
9 D7
22
10 STATUS6
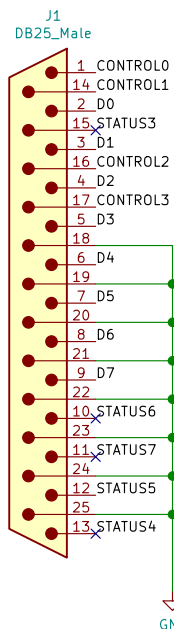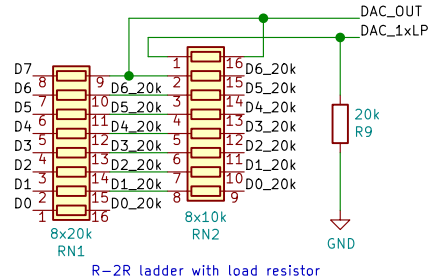23
11 STATUS7
24
12 STATUS5
25
13 STATUS4

GND

Digital to analog conversion
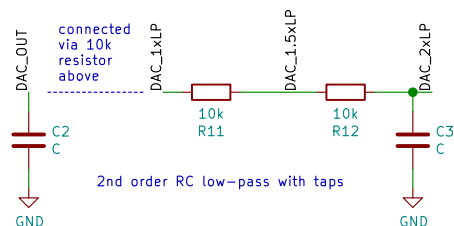
Note:
8x20k can be one of
– CTS 767163203G
– BI Technologies 8A203
– Bourns 4816P-1-203(LF)

Note:
8x10k can be one of
– CTS 767163103G
– BI Technologies 8A103
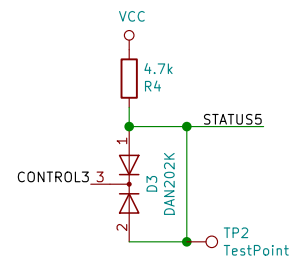– Bourns 4816P-1-103(LF)

D7 8
D6 9 D6_20k
D5 7 D5_20k
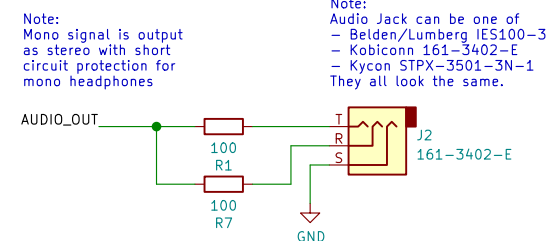D4 6 D4_20k
D3 5 D3_20k
D2 4 D2_20k
D1 3 D1_20k
D0 2 D0_20k

8x20k RN1

16 D6_20k
15 D5_20k
14 D4_20k
13 D3_20k
12 D2_20k
11 D1_20k
10 D0_20k

8x10k RN2

DAC_OUT
DAC_1xLP
20k R9
GND

R-2R ladder with load resistor

DAC & amp output filtering

DAC_OUT
connected via 10k resistor above
DAC_1xLP
DAC_1.5xLP
DAC_2xLP

C2 C
10k R11
10k R12
C3 C
GND

2nd order RC low-pass with taps

Volume control

VCC
20k R3
CONTROL1 1
MMST2907A Q3

VCC
20k R2
CONTROL0 1
MMST2907A Q2

VCC
20k R5
CONTROL3 1
MMST2907A Q4

DAC_1xLP
20k R13
Q8 MMST2222A

DAC_1.5xLP
20k R10
Q7 MMST2222A

DAC_2xLP
10k R14
Q9 MMST2222A

GND

Output amplifier

VCC
10k R6
VCC
BCX51-10 Q1
Q5 MMST2222A
AUDIO_OUT
DAC_2xLP
MMST2907A Q6
470 R8
load resistor
GND
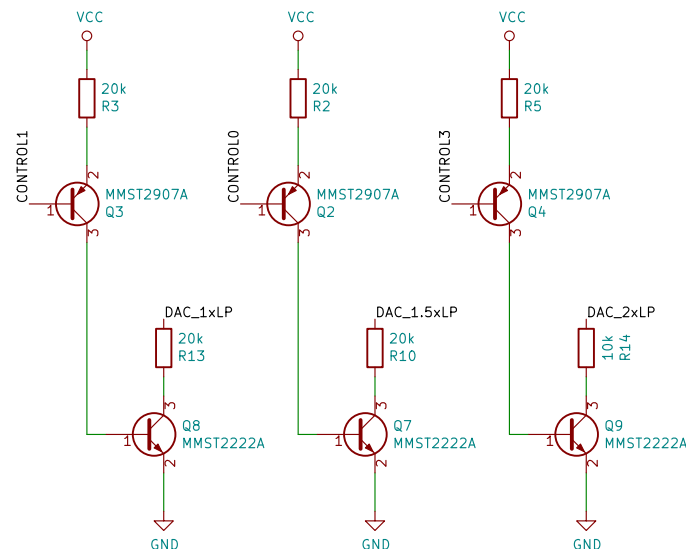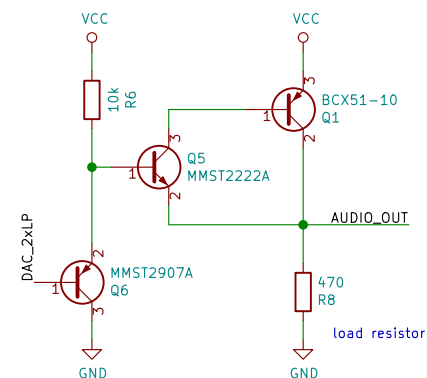
Note:
This schematic uses ordinary SC-59 packages, while the relevant components actually all use reversed SC-59 packages.
Pin numbers 1 and 2 have therefore been swapped. The pin positions remain identical.

Parallel Port Headphone DAC

Port-powered, with volume control
(SoundJr replica)
Benedikt Freisen

Sheet: /
File: parallel_port_headphone_dac.sch

Title: Parallel Port Headphone DAC

Size: A4 | Date: 2019-05-10 | Rev:
KiCad E.D.A. kicad 5.1.2-5.1.2 | Id: 1/1