

PAM8010 EV Board User Guide

AE Department

1. Revision Information

Date	Revision	Description	Comment
2011/05/19	V1.0	Initial Release	

2. EV Board Schematic

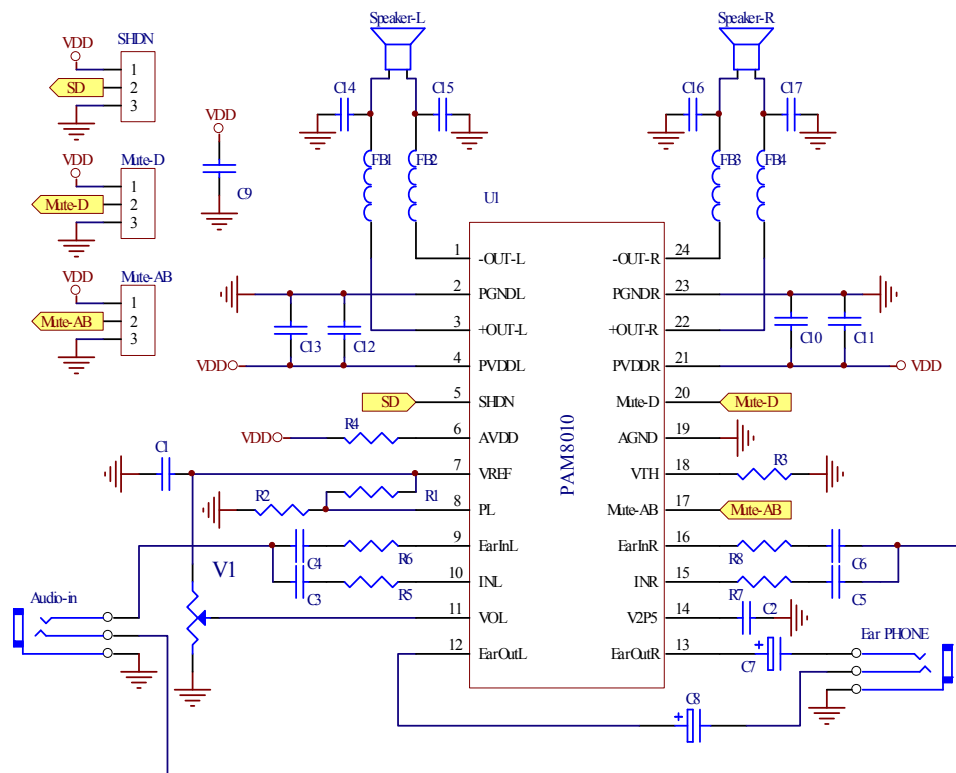


Figure 1 Demo Board Schematic

3. PAM8010 Bemo Board Description

PAM8010 demo board is designed for PAM8010 demo and evaluation, targeted to be used in providing a simple and convenient evaluation environment for the PAM8010. Requires parts, potentiometer for standard RCA jacks for audio inputs, pin jacks for power supply and signal outputs, low-pass RC output filter for each channel, etc. on the board make it easy to be evaluated.

4. EV Board View

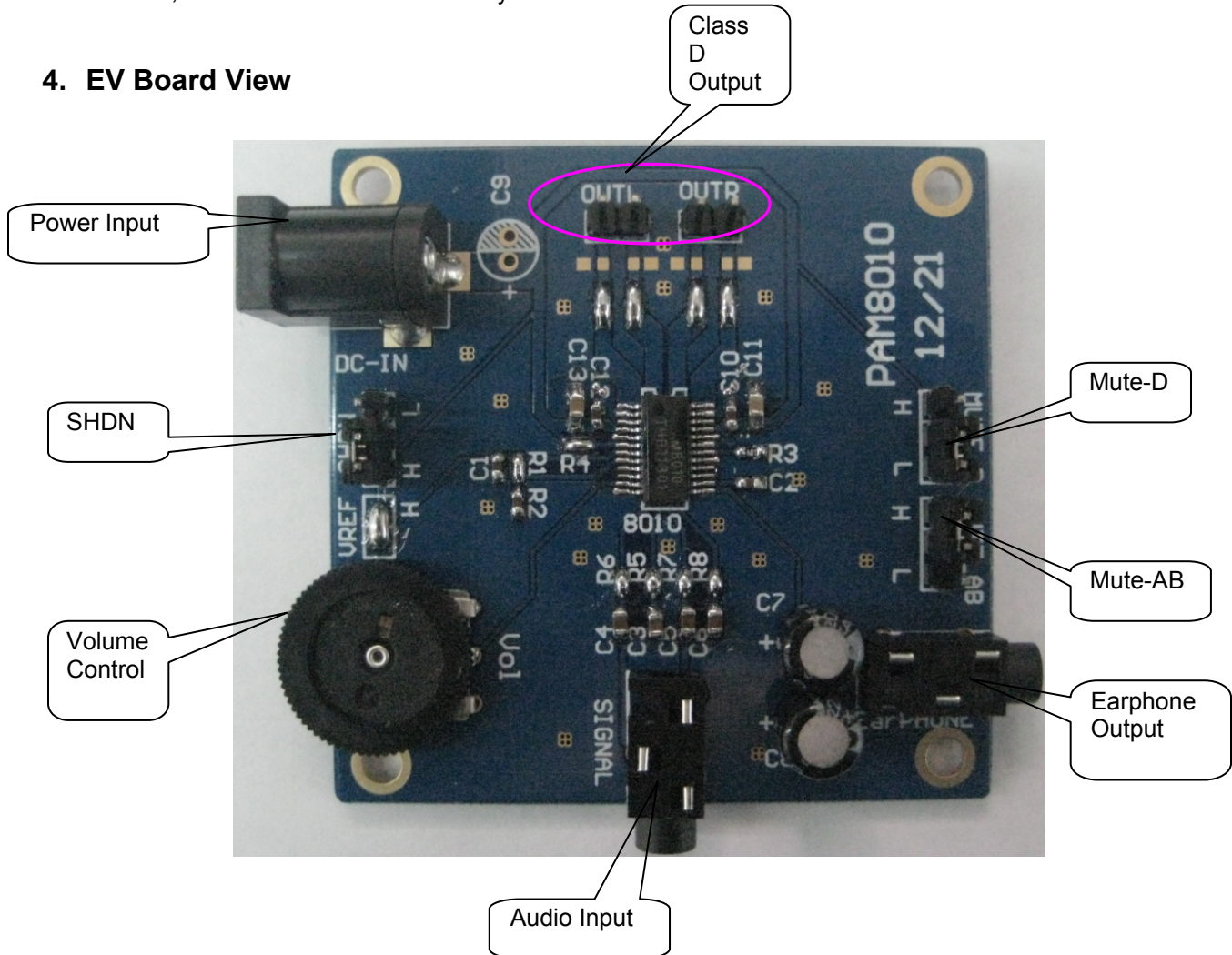


Figure 2 Demo Board Top View

EV Board Operational Sequence:

- a. Preset the power supply to between 2.5V and 5.5V.
- b. Connect power supply to EV board power.
- c. Connect audio input from audio input jack.
- d. Connect the SPKs to the BTL output jack.
- e. Turn on the power supply and verify that the sound quality of speaker.
- f. Turn on the power supply and verify that the sound quality of speaker.

EV Board BOM List

Item	Value	Type	Rating	Description
C11,C13	10uF	X5R/X7R,Ceramic/0805	10V	PVDD main decoupling CAP
C10,C12	1uF	X5R/X7R,Ceramic/0603	10V	PVDD coupling CAP
C3,C4,C5,C6	0.47uF	X5R/X7R,Ceramic/0805	10V	Input coupling CAP
C2	1uF	X5R/X7R,Ceramic/0603	10V	V2P5 bypass CAP
C1	1uF	X5R/X7R,Ceramic/0603	10V	Vref bypass CAP
VR1	50K			VOL Bias
C7,C8	220uF	Electrolytic	10V	Class AB output Blocking CAP
FB1,FB2,FB3,FB4	2A/120Ω	0805		For EMI
C14,C15,C16,C17	1nF	X5R/X7R,Ceramic/0603	10V	

5. External Components Selection

Power Supply decoupling Caps (C10, C11, C12, C13)

- (1) Low ESR for good THD, PSRR
- (2) C10 and C12 1.0μF ceramic for higher frequency transients, spikes
- (3) C11 and C13, additional 10μF or greater for low frequency noise filtering and serves as a local storage capacitor for supplying current during large signal transients on the amplifier outputs
- (4) Need place very closed to the IC

Input Capacitors (C3, C4, C5, C6)

- (1) Form a high pass filter with R_i , and the cut off frequency is $f_c = 1/2\pi R_i C_i$
- (2) Low leakage current needed, ceramic recommend

Class AB Output Capacitors (C7, C8)

- (1) Form a low pass filter with R_L , and the cut off frequency is $f_c = 1/2\pi R_L C_O$
- (2) Low leakage current needed

V2P5 Bypass Capacitor (C2)

- (1) 1μF ceramic recommend
- (2) Need place very closely to the pin for good THD, PSRR

6. PCB Layout Guidelines

Grounding

- (1) Use plane grounding or separate grounds
- (2) Do not use one line connecting power GND and analog GND
- (3) Output noise grounds must tie to system ground at the power in exclusively.
- (4) Signal currents for the inputs need to be returned to quiet ground. This ground only ties to the signal components and the GND pin.

Others

- (1) The power supply de coupling capacitors need to place very close to the PAM8010's pins.
- (2) The output route should be far away from audio input route.

7. PCB Layout Example

Top Layer

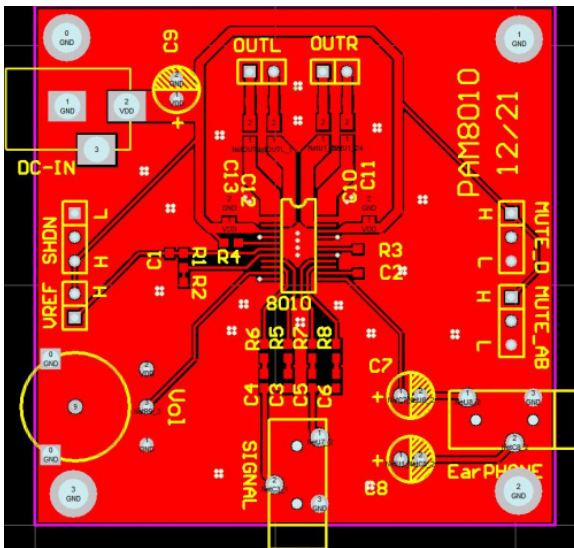


Figure 3

Bottom Layer

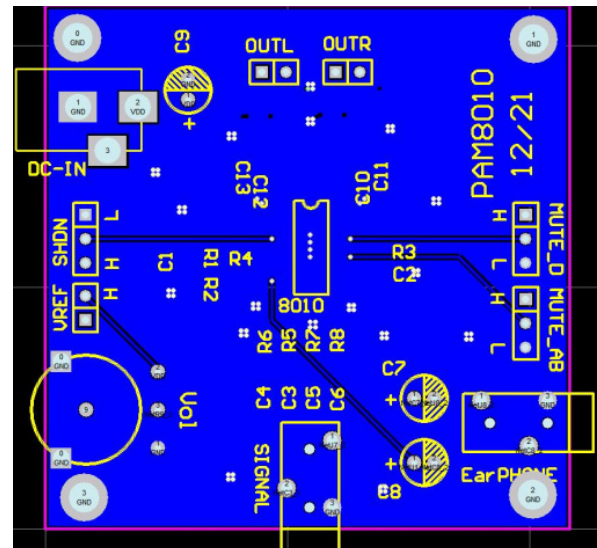


Figure 4