



### 3. PAM8007 Demo Board Description

PAM8007 demo board is design for PAM8007 demo and evaluation, targeted to be used in providing a simple and convenient evaluation environment for the PAM8007. 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

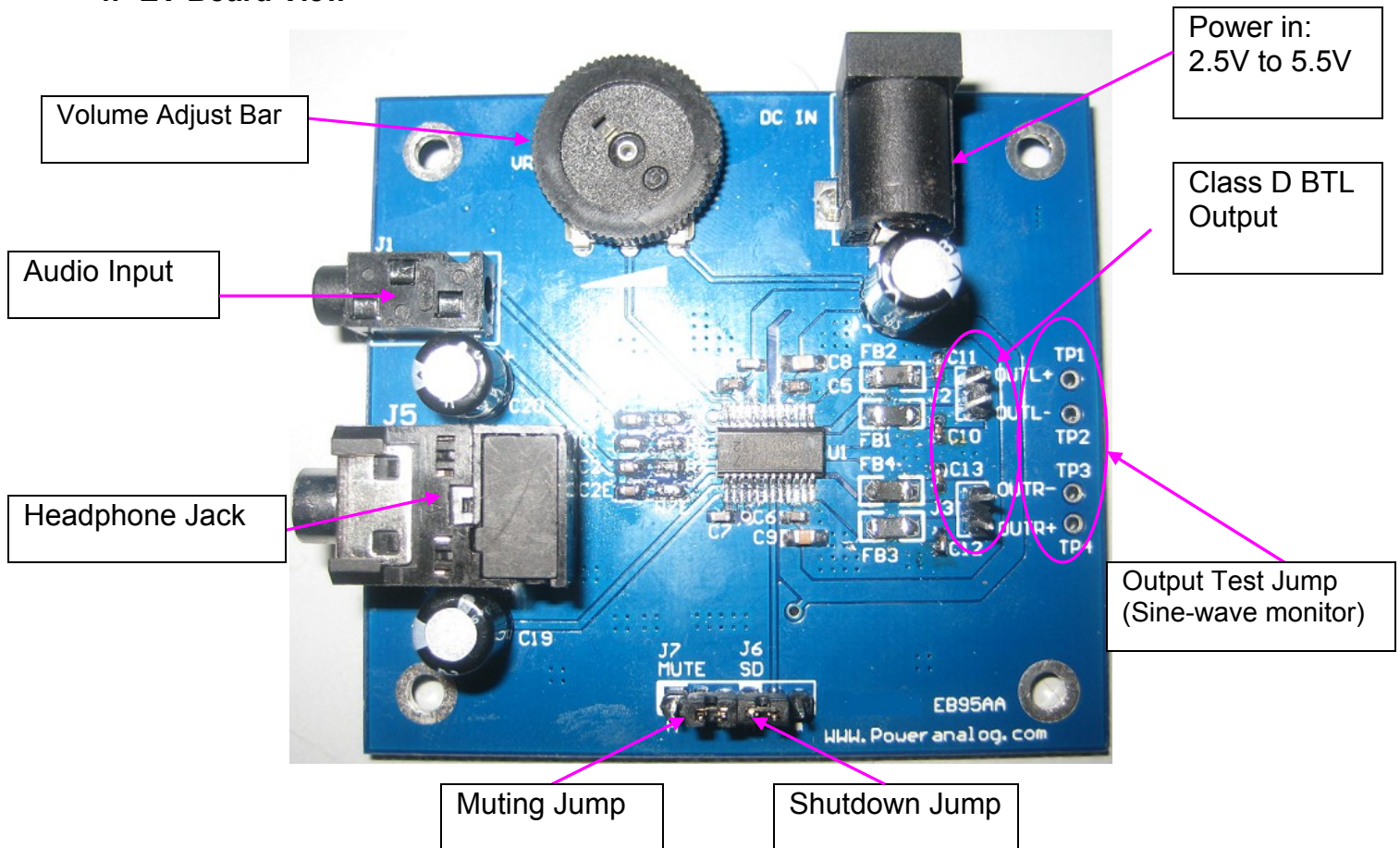


Figure 2 Demo Board Top View

EV Board Operational Sequence:

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

## EV Board BOM List

Item	Value	Type	Rating	Description
C8,C9	10 $\mu$ F	X5R/X7R, Ceramic/0805	10V	PVDD main decoupling CAP
C5,C6	1 $\mu$ F	X5R/X7R, Ceramic/0603	10V	PVDD coupling CAP
C1,C2,C1E,C2E	1 $\mu$ F	X5R/X7R, Ceramic/0603	10V	Input coupling CAP
C4	1 $\mu$ F	X5R/X7R, Ceramic/0603	10V	VDD decoupling CAP
C7	1 $\mu$ F	X5R/X7R, Ceramic/0603	10V	Vref bypass CAP
C19,C20	220 $\mu$ F	Electrolytic	10V	Class AB output decoupling CAP
FB1,FB2,FB3,FB4	2A/120 $\Omega$	0805		For EMI
C10,C11,C12,C13	220pF	X5R/X7R, Ceramic/0603	10V	For EMI
VR1	50K			VOL Bias

## 5. External Components Selection

### Power Supply decoupling Caps (C4, C5, C6, C8, C9)

- (1) Low ESR for good THD, PSRR
- (2) C5,C6 and C4, 1.0 $\mu$ F ceramic for higher frequency transients, spikes.
- (3) C8 and C9, Additional 10 $\mu$ F 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 (C1, C2, C1E2, C2E)

- (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 recommended.

### VREF Bypass Capacitor (C7)

- (1). 1 $\mu$ F ceramic recommended.
- (2). Need place very closely to the pin for good THD, PSRR

### Class AB Output Capacitors (C19, C20)

- (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

## 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 PAM8007's pins.
- (2) The output route should be far away from audio input route.

## 7. PCB Layout Example

Top Layer

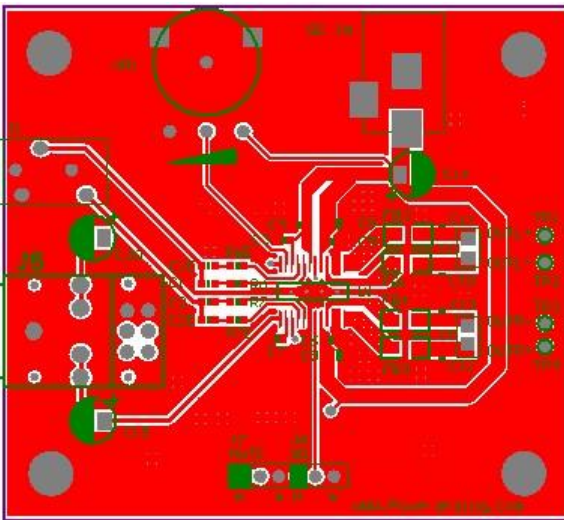


Figure 3

Bottom Layer

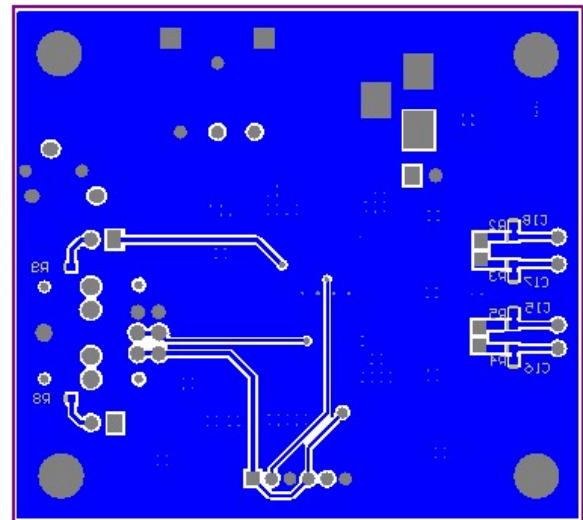


Figure 4