

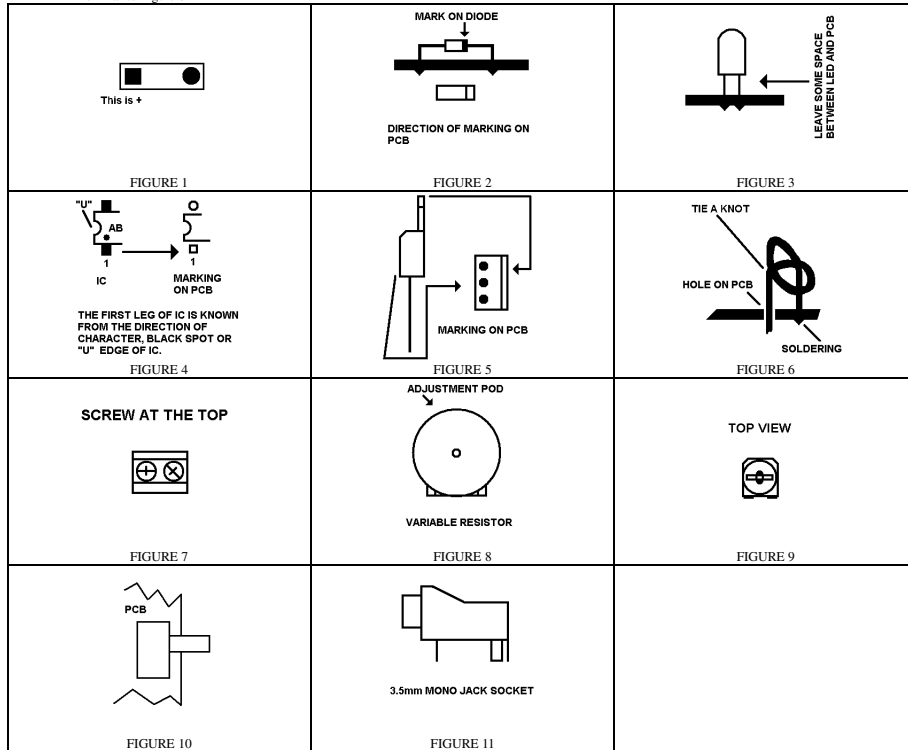
# STEREO AUDIO AMPLIFIER BY USING LM386

PRODUCT CODE: M00270039

DESCRIPTION: This can be the audio amplifier from the headphone output of smart phone, CD player..... to speaker.

**READ BEFORE INSTALLATION:**

- Put the component on the side of screen printing and solder on the back of PCB without printing.
- Placing direction of component.
- 1. On component, longer leg is "+".
- 2. On PCB marking, square pad as Figure 1 is always "+".
- 3. For diode, please install as Figure 2.
- Do not put the LED to very bottom, just install as Figure 3.
- For any IC, finding out which leg is first leg (FIGURE 4) is important. Also, solder the socket (chair) to the PCB and the IC sit on the top.
- For 9V Battery Adaptor, Red is B+ and Black is B-. Also, please tie a knot after the red and black wire has passed the neighbors hole before soldering. This is similar to Figure 6.

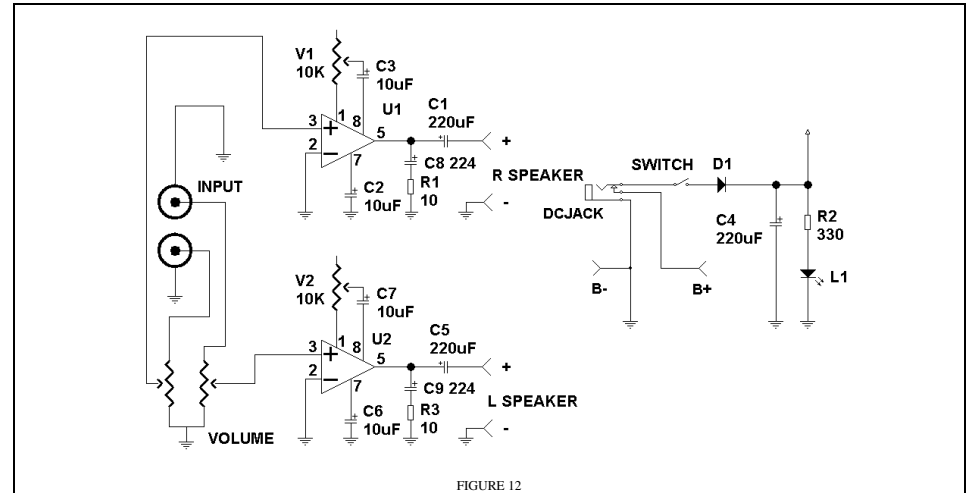


**CIRCUIT EXPLANATION:**

Please read the below together with the circuit diagram in Figure 12.

LM386 is, in fact, a mono amplifier. Of course, you can install two independent circuit of LM386 for each channel so that this becoming a stereo amplifier. But there would be two resistors for volume control for each channel. The result is that the final product does not like the real amplifier. But lucky, there is a resistor in the market that can control two resistances by only turning one resistance pot. Then one volume control for controlling two channels at the same time. The input of circuit is gentle RCA input. Then this goes to the resistor "VOLUME". After this, this go to it own channel. One is left and one right. I use the Right as example. The amplifier of LM386 is, in fact, an operation amplifier. This work as pre-amplifier and power amplifier at the same time. The function of C3 is to control the amplify power of the amplifier. You may think that this is second volume control. But, this is, in fact to prevent the clipping of wave inside the amplifier or at speaker. On the other hand, this can work as balance control for two channels. The function of C1 is to confirm the voltage after C1 would swing only around zero voltages such that the diaphragm of speaker can vibrate normally. In PCB, you find there is a "+" and "-" at speaker connection. But because this is a stereo system, this is better connected the speaker with right polarity.

**CIRCUIT DIAGRAM:**



**INSTALLATION:**

Just install the component to the PCB M00260065 according to below table.

ITEM	SYMBOL ON PCB	DESCRIPTION	OUTLOOK	DIRECTION IS IMPORTANT?
1	R1	RESISTOR, 10 ohms	BROWN, BLACK, BLACK	NO
2	R2	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
3	R3	RESISTOR, 10 ohms	BROWN, BLACK, BLACK	NO
4	C1	CAPACITOR, 220uF	MARK WITH 220uF OR SAME MEANING OF VALUE	YES
5	C2	CAPACITOR, 10uF	MARK WITH 10uF OR SAME MEANING OF VALUE	YES
6	C3	CAPACITOR, 10uF	MARK WITH 10uF OR SAME MEANING OF VALUE	YES
7	C4	CAPACITOR, 220uF	MARK WITH 220uF OR SAME MEANING OF VALUE	YES
8	C5	CAPACITOR, 220uF	MARK WITH 220uF OR SAME MEANING OF VALUE	YES
9	C6	CAPACITOR, 10uF	MARK WITH 10uF OR SAME MEANING OF VALUE	YES
10	C7	CAPACITOR, 10uF	MARK WITH 10uF OR SAME MEANING OF VALUE	YES
11	C8	CAPACITOR, 22*10E4 pF	MARK WITH 224 OR SAME MEANING OF VALUE	NO
12	C9	CAPACITOR, 22*10E4 pF	MARK WITH 224 OR SAME MEANING OF VALUE	NO
13	D1	DIODE, IN4001	FIGURE 2 (MOSTLY BLACK)	FIGURE 2
14	U1	DIP 8 SOCKET	8 LEGS	NO
15	U2	DIP 8 SOCKET	8 LEGS	NO
16	L SPEAKER	SOCKET FOR SPEAKER WIRE CONNECTION	FIGURE 7	NOTE 1
17	R SPEAKER	SOCKET FOR SPEAKER WIRE CONNECTION	FIGURE 7	NOTE 1
18	INPUT	RCA JACK FOR AUDIO IN	BIGGEST COMPONENT	YES
19	V1	VARIABLE RESISTOR, 10K ohms	FIGURE 9	YES
20	V2	VARIABLE RESISTOR, 10K ohms	FIGURE 9	YES
21	L1	LED	ONE LONG LEG AND ONE SHORT LEG	YES
22	SWITCH	SLIDE SWITCH	SIX LEGS	FIGURE 10
23	DCJACK	3.5mm MONO JACK SOCKET	FIGURE 11	YES
24	B+, B-	9V BATTERY ADAPTOR	RED WIRE, BLACK WIRE	YES
25	VOLUME	VARIABLE RESISTOR, 10K ohms	FIGURE 8	YES
26	ON THE TOP OF ITEM 14	IC, LM386	8 LEGS	FIGURE 4
27	ON THE TOP OF ITEM 15	IC, LM386	8 LEGS	FIGURE 4

- After installation, you can use external DC adaptor as power sources. You can use our product M00270013 or other similar adaptor. The supply voltage range of LM386 is around 5V-12V.
- V1 and V2 is the control of power of amplifier, you can see this as balance control. On the other hand, this can prevent clipping (Too high the power entering a small power speaker) of wave in the speaker.

NOTE 1: You can say there are two directions to solder this component. Both are work but this is better the terminal is facing outside the PCB.