

Voice Echo Processor Module, Delay Device for Sound Effects, Echo, Reverb

The voice echo or digital delay sound effects project presented here is suitable for applications such as Karaoke, multimedia, musical instrument effects, electronics toys, animatronics, etc. The project is based on PT2399 chip, with an operating supply of 5V DC, and approx. 30mA current consumption. Two potentiometers are provided to set the delay and repeat. The delay range is adjustable from 50ms to 280ms.

The PT2399 is a single chip echo processor IC utilizing CMOS technology. It accepts analog audio input signal, and a high sample rate ADC converts the analog signal into a bit stream that is stored in internal 44Kbit RAM. After processing the bit stream it will be de-modulated by DAC and lowpass filter. Overall delay time is determined by internal VCO clock frequency, and user can easily change the VCO frequency by changing the external resistance. The PT2399 performs low distortion (THD<0.5%@0.5Vrms) and low noise (No<-90dBV) characteristics for audio purposes.

Note1: With this board, the delay range is 50ms to 280ms which is adjustable using the potentiometer. The actual delay range is 31.3ms to 342ms, to achieve this alter the value of resistor R9 and Trimmer potentiometer Pr2.

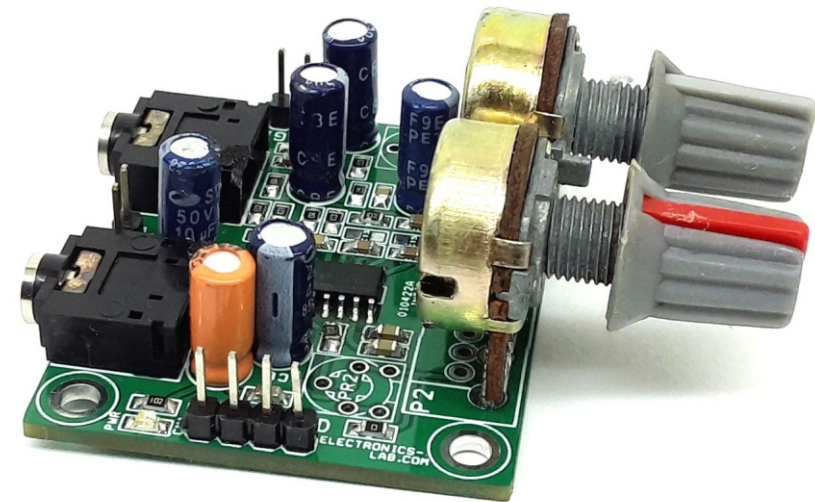
Note2: The PCB has provision to mount Trimmer pot or 16MM potentiometer, install any of this as per requirement, PR1 Trimmer Pot = P1 16MM potentiometer, PR2 Trimmer Pot = P2 16MM potentiometer.

Connections and Other Important Details

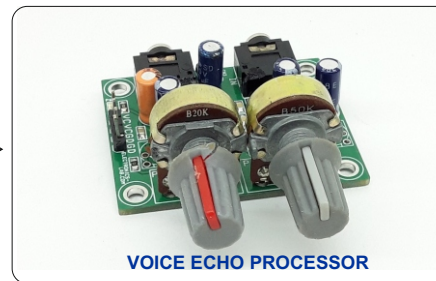
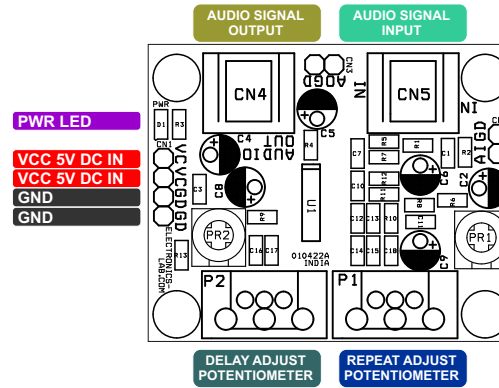
- **CN1:** Power Supply Input >> Pin1 = VCC 5V DC, Pin2 = VCC 5V DC, Pin3 = GND, Pin4 = GND
- **CN2:** Audio Signal Input from Musical Instruments or Microphone Preamplifier >> Pin1 = Audio Signal Input, Pin2= GND
- **CN3:** Audio Signal Output >> Pin1 = Audio Signal Output, Pin2= GND
- **CN4:** Optional 3.5MM EP Female Connector for Audio Output
- **CN5:** Optional 3.5MM EP Female Connector for Audio Input
- **PR1 or P1:** Potentiometer to Adjust the Delay
- **PR2 or P2:** Potentiometer to Adjust the Repeat
- **D1:** Power LED

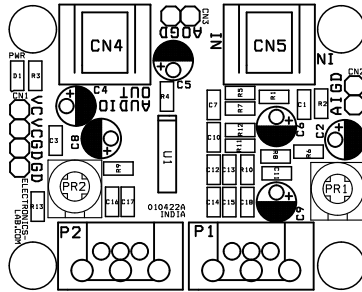
Features

- Power Supply 5V DC @ 30mA
- Delay Range 50ms to 280ms (Read Note 1)
- Accept Standard Audio Signal
- On Board Potentiometer for Delay Adjust
- On Board Potentiometer for Repeat Adjust
- ON Board Power LED



APPLICATIONS: KARAOKE Mixer , CD/DVD Player/Recorder , Multimedia , Animatronics, Music Instrument effecter , Electronics Toy





BOM						
NO.	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	4 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
2	1	CN2	2 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5315-ND
3	1	CN3	2 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5315-ND
4	2	CN4,CN5	3.5MM STEREO EP SOCKET FEMALE	CUI AUDIO	DIGIKEY	CP1-3525N-ND
5	1	C1	3K9PF/50V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	2	C2,C6	4.7uF/50V OR 16-25V ELECTROLYTIC	PANASONIC	DIGIKEY	P10321-ND
7	3	C3,C16,C17	0.1uF/50V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
8	1	C4	100uF/16V OR 25V ELECTROLYTIC	UNITED CHEM	DIGIKEY	565-EMHL250ARA101MF80GCT-ND
9	2	C5,C9	10uF/50V ELECTROLYTIC	NICHICON	DIGIKEY	493-12569-1-ND
10	2	C7,C10	560PF/50V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
11	1	C8	47uF/16V OR 25V ELECTROLYTIC	NICHICON	DIGIKEY	493-10997-1-ND
12	1	C11	0.01uF/50V SMD SZIE 0805	YAGEO/MURATA	DIGIKEY	
13	2	C12,C14	8K2PF/50V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
14	2	C13,C15	DNP			
15	1	C18	3K3PF/50V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
16	1	D1	LED RED SMD SIZE 0805	LITE ON INC	DIGIKEY	160-1427-1-ND
17	1	PR1	50K POTENTIOMETER PCB MOUNT 16MM	BOURNS INC	DIGIKEY	PDB181-K220K-503B-ND
18	1	PR2	20K POTENTIOMETER PCB MOUNT 16MM	BOURNS INC	DIGIKEY	PDB181-K420K-203B-ND
19	2	R1,R12	15K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
20	1	R2	100K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
21	1	R3	1K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
22	1	R4	4K7 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
23	5	R5,R6,R7,R10,R11	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
24	1	R8	5K6 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
25	1	R9	2.2K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
26	1	R13	0E SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
27	1	U1	PT2399 SMD SO16	EBAY	DIGIKEY	http://www.princeton.com.tw