

DESCRIPTION

The PT2399 is a single chip echo processor IC utilizing CMOS technology. Which accept analog audio input signal, a high sample rate ADC transfer the analog signal into a bit stream then storage to internal 44Kbit RAM, after processing the bit stream will de-modulate by DAC and lowpass filter. Overall delay time is determined by internal VCO clock frequency, and user can easy to change the VCO frequency by changing the external resistance. The PT2399 performs low distortion (THD<0.5%@0.5Vrms) and low noise (No<-90dBV) characteristic for audio purpose, and pin arrangement and application circuit are optimized for easy PCB layout and cost saving advantage.

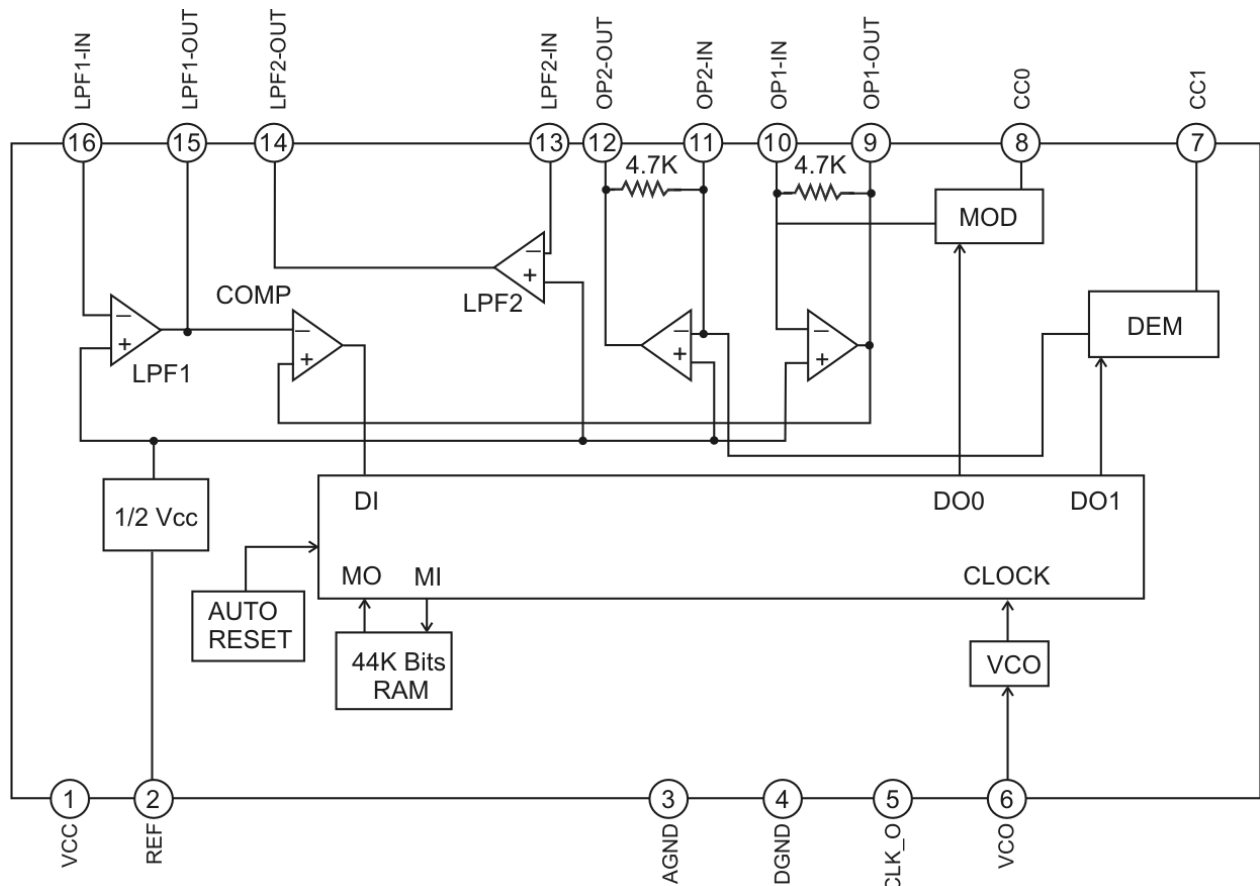
FEATURES

- CMOS technology
- Least external components
- Auto reset Function prevent POP noise
- Low noise, SNR better than 90dB (typical)
- Low distortion, THD= 0.5%(typical)
- User adjustable VCO clock frequency.

APPLICATIONS

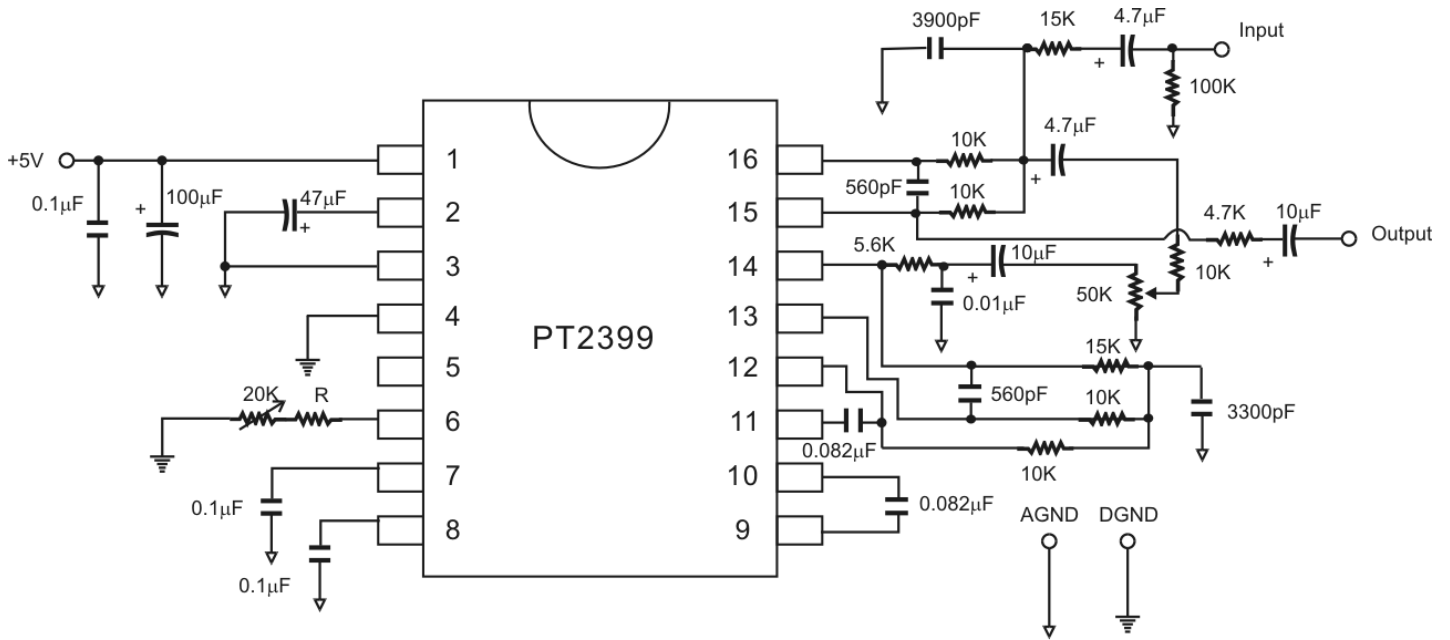
- KARAOKE Mixer
- CD/DVD Player/Recorder
- Multimedia TV
- Car Entertainment System
- Music Instrument effector
- Electronics Toy

BLOCK DIAGRAM



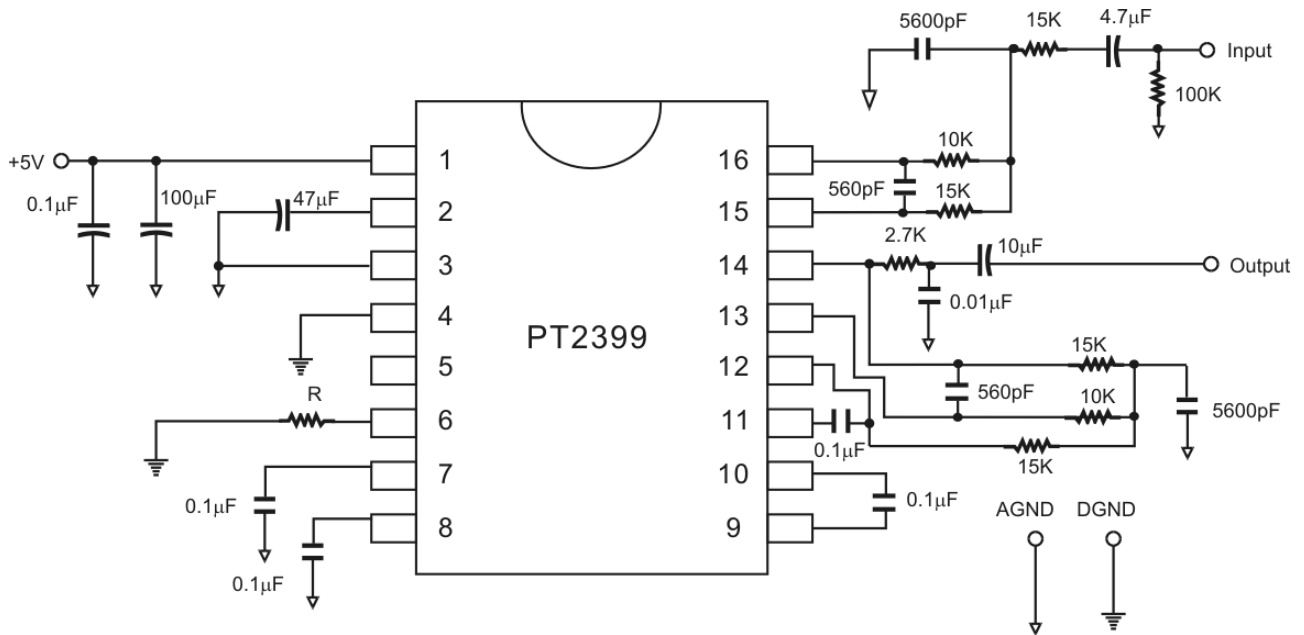
APPLICATION CIRCUIT

ECHO



Note:
 External Resistor having a value of 10 KΩ to 50 KΩ may be used. The recommended Resistor Value(R) is 10 KΩ. When the value of the Resistor (R) increases, the range of the Delay Time also increases.

SURROUND/DELAY

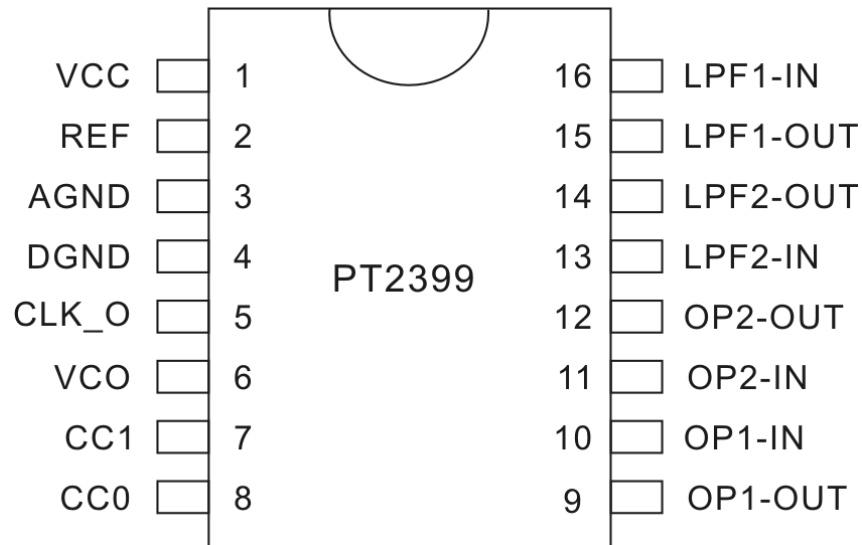


Note: Please refer to Table 1 for the Resistor/Delay Time values.

ORDER INFORMATION

| Valid Part Number | Package Type | Top Code |
|-------------------|----------------------|-----------|
| PT2399 | 16 Pins, DIP, 300mil | PT2399 |
| PT2399S | 16 Pins, SOP, 300mil | PT2399S |
| PT2399-SN | 16 Pins, SOP, 150mil | PT2399-SN |

PIN CONFIGURATION



PIN DESCRIPTION

| Pin Name | I/O | Description | Pin No. |
|----------|-----|---|---------|
| VCC | - | Analog supply voltage input | 1 |
| REF | - | Analog reference voltage (1/2VCC) | 2 |
| AGND | - | Analog ground | 3 |
| DGND | - | Digital ground | 4 |
| CLK_O | O | System clock output pin | 5 |
| VCO | I | VCO Frequency adjustment | 6 |
| CC1 | - | Current control 1 | 7 |
| CC0 | - | Current control 0 | 8 |
| OP1-OUT | O | OP amplifier 1 input/output. This pin can be used as modulated/Demodulated integrator by connecting capacitor | 9 |
| OP1-IN | I | | 10 |
| OP2-IN | I | OP Amplifier 2 input/output. This pin can be used as Modulated/Demodulated Integrator by connecting Capacitor | 11 |
| OP2-OUT | O | | 12 |
| LPF2-IN | I | Low pass filter 2 input/output pin | 13 |
| LPF2-OUT | O | | 14 |
| LPF1-OUT | O | Low pass filter 1 input/output pin | 15 |
| LPF1-IN | I | | 16 |

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