



Echo IC with Built-in Microphone Amplifier & Output Mixer

PT2390

DESCRIPTION

PT2390 is a digital echo IC utilizing CMOS Technology. Microphone Amplifier, Output Mixer, internal 44K RAM and Vocal Switch are all integrated in a single chip to provide a digital echo IC of the the highest standard. Very low distortion and high S/N Ratio qualities, not to mention the built-in VCO feature which eliminates the need for an external crystal oscillator are just some of the features of PT2390. Pin assignments and application circuit are optimized for easy PCB Layout and low cost effectiveness.

FEATURES

- CMOS Technology
- Least External Component
- 5V Power Supply
- 2 Microphone Amplifier and KARAOKE Automatic Vocal Changer
- Built-in 44K RAM
- Built-in VCO, eliminating the need for a crystal oscillator
- Low Total Harmonic Distortion : Microphone Pre-Amplifier <0.09% (typ.)
: Echo Processor < 0.5% (typ.)
- High S/N Ratio : Microphone Pre-Amplifier > 85 (no - weighting)
: Echo Processor > 80 dB (no - weighting)
- Available in 28-pin, DIP or SO Package

APPLICATIONS

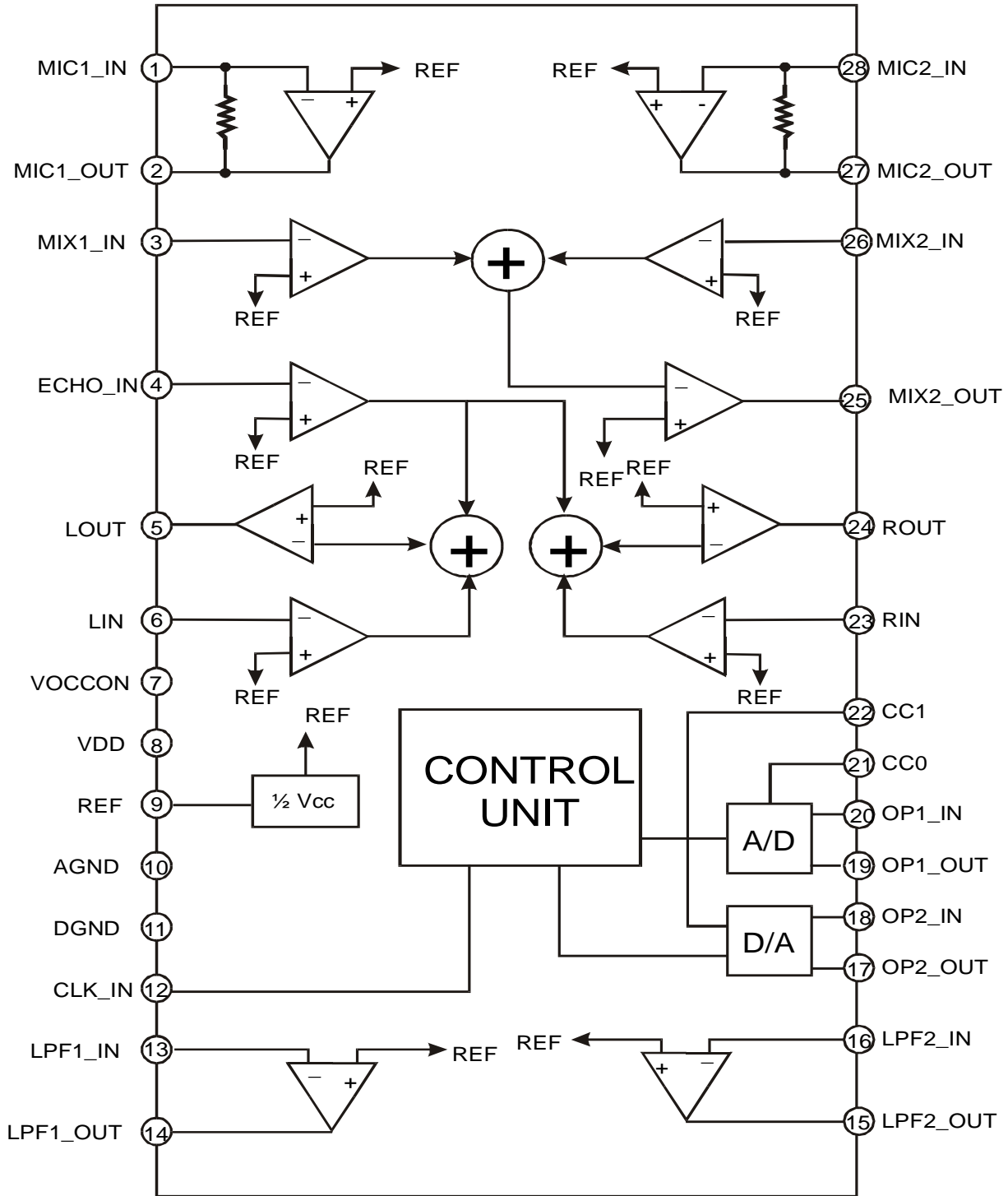
- DVD, VCD
- KARAOKE
- VCR
- Mini Compo
- Other Audio Equipments



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BLOCK DIAGRAM

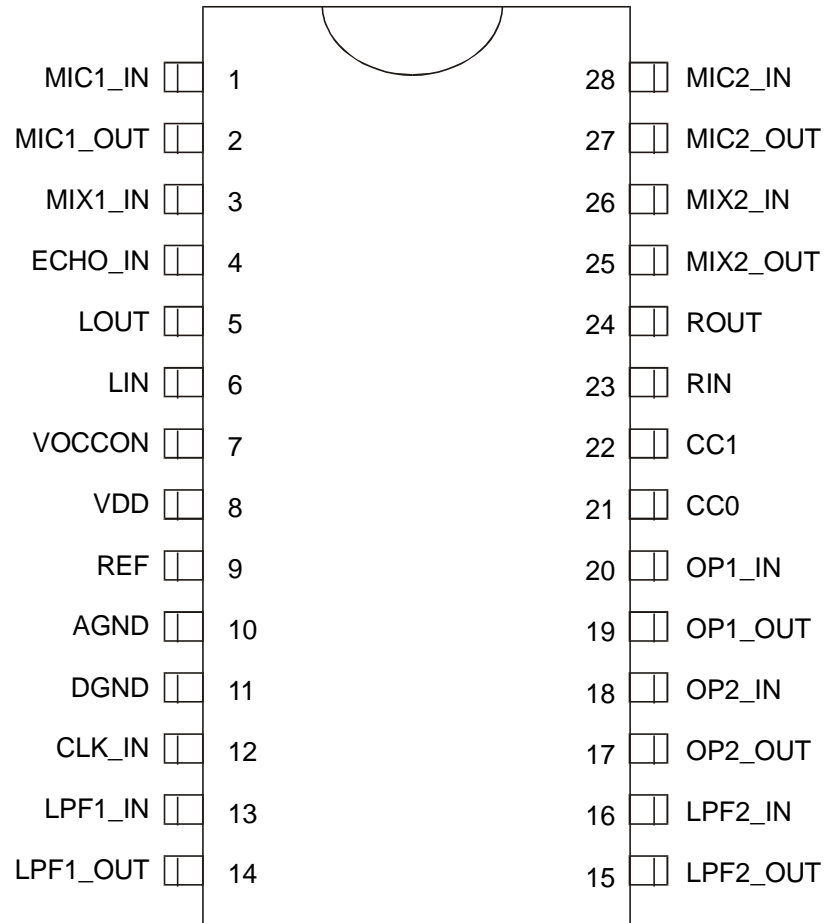




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PIN CONFIGURATION



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PIN DESCRIPTION

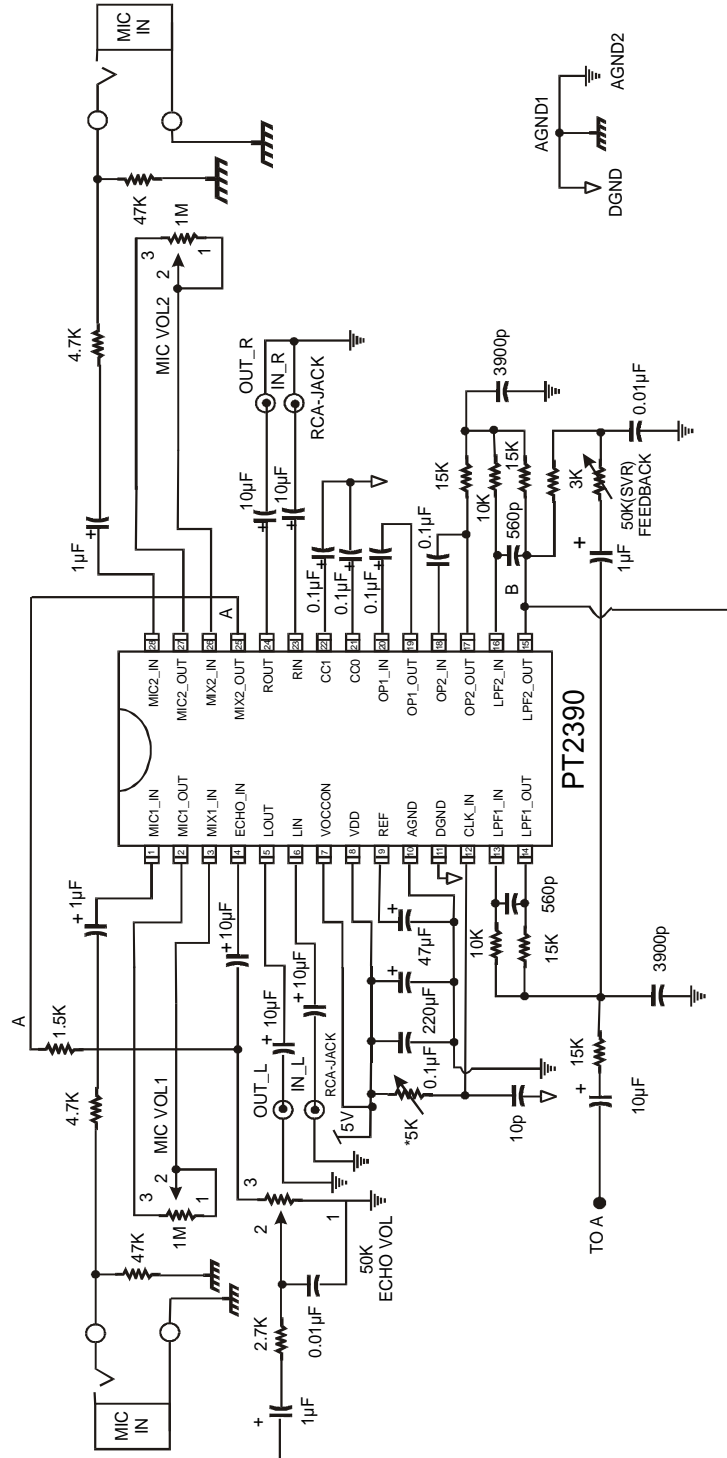
Pin Name	I/O	Description	Pin No.
MIC1_IN	I	Microphone 1 Amplifier Input	1
MIC2_OUT	O	Microphone 1 Amplifier Output	2
MIX1_IN	I	Mixer 1 Input	3
ECHO_IN	I	Echo Input	4
LOUT	O	Left Channel Output	5
LIN	I	Left Channel Input	6
VOCCON	I	Auto-Vocal Changer Control Terminal When this pin is pulled "HIGH" (VDD), RIN is connected to ROUT and LIN is connected to LOUT. When this pin is pulled "LOW" (GND), LIN is connected to ROUT and LOUT.	7
VDD	-	Power Supply	8
REF	-	Reference Voltage Connects to 47 μ f to GND	9
AGND	-	Analog Ground	10
DGND	-	Digital Ground	11
CLK_IN	I	System Clock Input	12
LPF1_IN	I	Low-Pass Filter 1 Input	13
LPF1_OUT	O	Low-Pass Filter 1 Output	14
LPF2_IN	I	Low-Pass Filter 2 Input	15
LPF2_OUT	O	Low-Pass Filter 2 Output	16
OP2_OUT	O	OP Amplifier 2 Output	17
OP2_IN	I	OP Amplifier 2 Input	18
OP1_OUT	O	OP Amplifier 1 Output	19
OP1_IN	I	OP Amplifier 1 Input	20
CC0	-	Current Control 0	21
CC1	-	Current Control 1	22
RIN	I	Right Channel Input	23
ROUT	O	Right Channel Output	24
MIX2_OUT	O	Mixer 2 Output	25
MIX2_IN	I	Mixer 2 Input	26
MIC2_OUT	O	Microphone 2 Amplifier Output	27
MIC2_IN	I	Microphone 2 Amplifier Input	28



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APPLICATION CIRCUIT



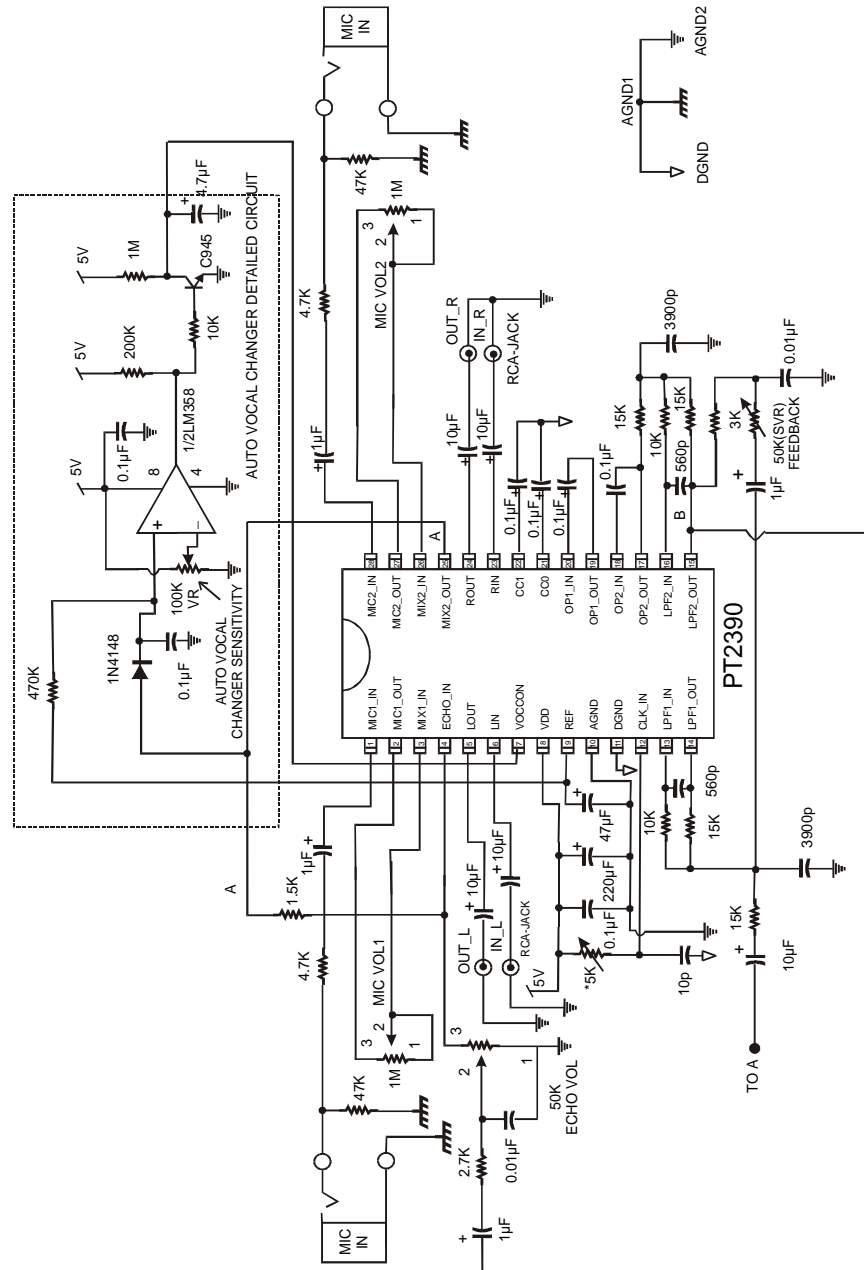
Note: * = You can adjust the 5K Variable Resistor value in order to change the Oscillator Frequency. The Oscillator waveform can be measured from Pin No.12. It must be kept in mind that the probe's capacitor can cause erroneous oscillator waveform measurement.



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AUTO-VOCAL CHANGER APPLICATION CIRCUIT



Guidelines in using this Application Circuit:

1. IN_R must be connected to Human Vocal Input.
2. IN_L must be connected to KARAOKE Music

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ORDER INFORMATION

Valid Part Number	Package
PT2390	28 Pins, DIP (300 mil)
PT2390-S	28 Pins, SO (300 mil)