

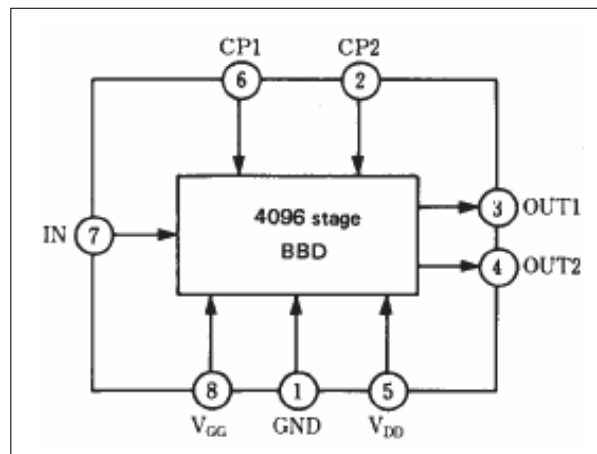
1. Description

The V3205 is a 4096-stage low-noise, low-voltage BBD analog delay line that provides analog signal delays of up to 204.8 ms and is particularly suitable for the generation of sound effects (reverb, echo, phaser, flanger, etc.) in audio equipment such as karaoke microphones, guitar effects pedals, etc.

2. Features

- **Variable Delay of Audio Signals: 20.48 ms ~ 204.8 ms**
- **Wide Supply Voltage: 4 ~ 9 V**
- **Wide Dynamic Range: S/N = 67 dB typ.**
- **Package outline: Special DIL-8 (V3205D)**
- **ROHS compliant (PB-free)**

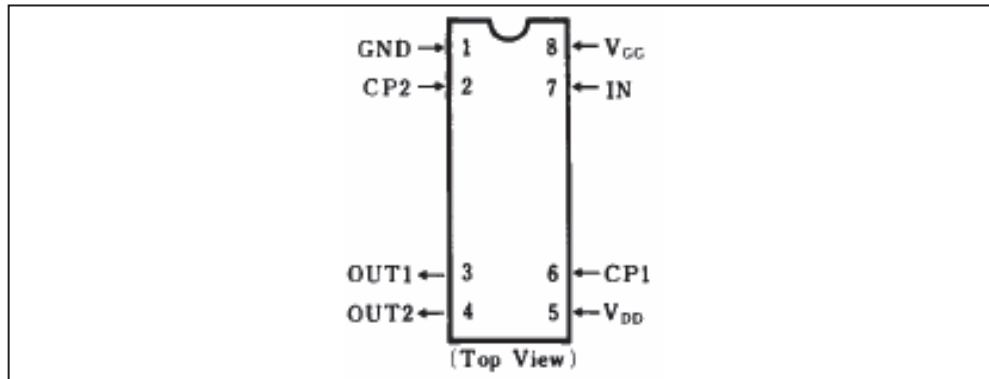
3. Block Diagram



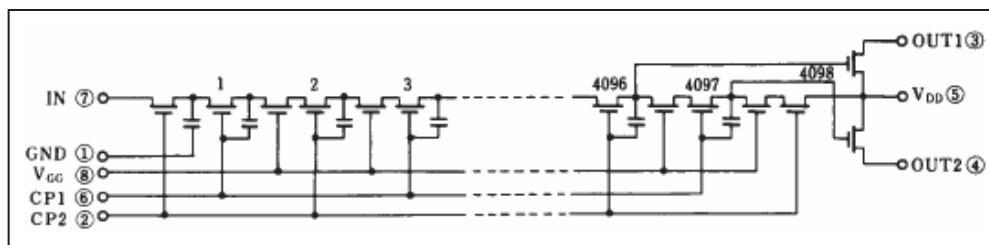
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Rev. 1.0

4. Pin Configuration



5. Circuit Diagram



6. Quick Reference Data

| Item | Symbol | Value | Unit |
|---------------------------|------------------|--------------------|------|
| Supply Voltage | V_{DD}, V_{GG} | +5, 14/15 V_{DD} | V |
| Signal Delay Time | t_D | 20.48 ~ 204.8 | ms |
| Total Harmonic Distortion | THD | 0.8 | % |
| Signal to Noise Ratio | S/N | 67 | dB |

7. Absolute Maximum Ratings (Ta=25°C)

| Item | Symbol | Rating | Unit |
|-------------------------|-------------------------------|------------|------|
| Terminal Voltage | $V_{DD}, V_{GG}, V_{CP}, V_i$ | -0.3 ~ +11 | V |
| Output Voltage | V_O | -0.3 ~ +11 | V |
| Operation Ambient Temp. | T_{opr} | -20 ~ +60 | °C |
| Storage Temp. | T_{stg} | -55 ~ +125 | °C |

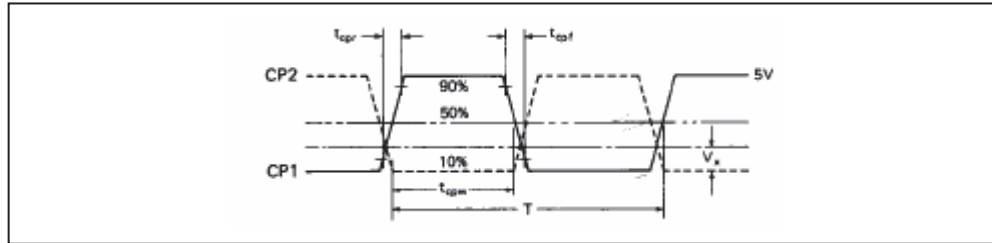
8. Operating Conditions (Ta=25°C)

| Item | Symbol | Condition | Min | Typ. | Max | Unit |
|-------------------------|-----------|-----------|-----|----------------|--------------|------|
| Drain Supply Voltage | V_{DD} | | +4 | +5 | +9 | V |
| Gate Supply Voltage | V_{GG} | | | $14/15 V_{DD}$ | | V |
| Clock Voltage High | V_{CPH} | | | V_{DD} | | V |
| Clock Voltage Low | V_{CPL} | | 0 | | +0.5 | V |
| Clock frequency | f_{CP} | | 10 | | 100 | KHz |
| Clock Pulse Width *1 | t_{CPW} | | | | $0.5T^*2$ | |
| Clock Rise Time *1 | t_{CPR} | | | | 500 | ns |
| Clock fall Time *1 | t_{CPF} | | | | 500 | ns |
| Clock Input Capacitance | C_{CP} | | | | 2800 | pF |
| Clock Cross Point | V_X | | 0 | | $0.3V_{CPH}$ | V |

9. Electrical Characteristics (Ta = 25°C, VDD = VCPH = 5V, VCPL = 0V, VGG = 14/15 VDD, RL=100k)

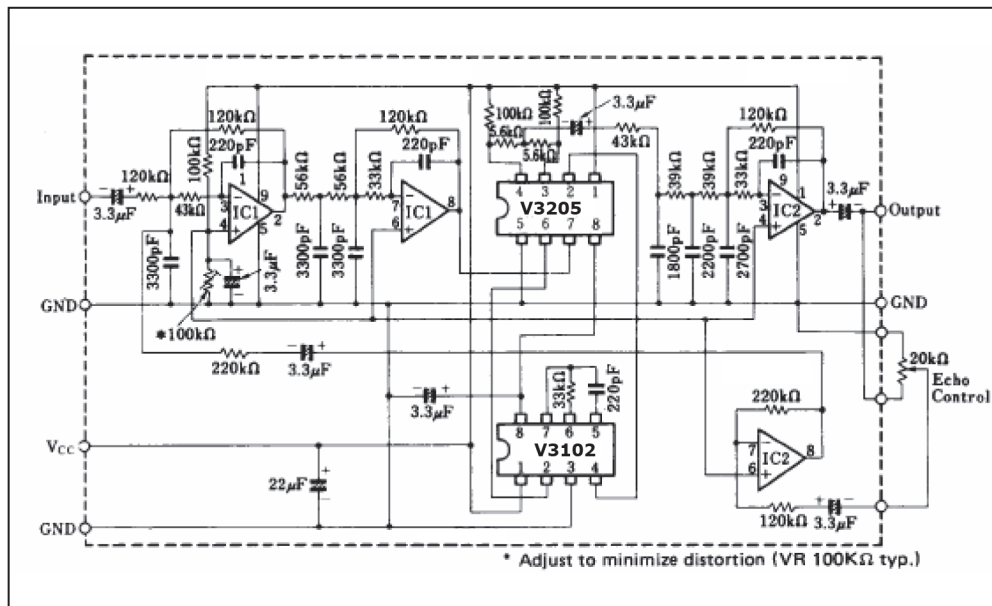
| Parameter | Symbol | Condition | Min | Typ. | Max | Unit |
|---------------------------|----------|---|-------|------|-------|------------|
| Signal Delay Time | t_O | | 20.48 | | 204.8 | ms |
| Input Signal Frequency | f_i | $f_{CP} = 40\text{kHz}$, Output Attenuation $\leq 3\text{dB}$ | 6 | | | kHz |
| Input Signal Swing | V_i | THD = 2.5% | 0.36 | | | V_{rms} |
| Insertion Loss | L_i | $f_{CP} = 40\text{kHz}$, $f_i = 1\text{kHz}$ | -4 | 0 | 4 | dB |
| Total Harmonic Distortion | THD | $f_{CP} = 40\text{kHz}$, $f_i = 1\text{kHz}$, $V_i = 0.25 V_{rms}$ | | 0.8 | 2.5 | % |
| Output Noise Voltage | V_{ON} | $t_{CP} = 100\text{kHz}$, Weighted by "A" curve | | | 0.35 | mV_{rms} |
| Signal to Noise Ratio | S/N | | | 67 | | dB |

* 1 Clock Pulse Waveform



*2 $T = 1/f_{CP}$ (Clock Period)

10. Application Circuit



11. Mechanical Specifications

