

# FLANCHER 9

FLANCHER 9 (FL9) is a voltage controlled, stereo, analog, modulation device. It is capable of very short delays and will be the perfect choice for Flanger effects, but also Vibrato or pseudo ring-mod sounds. It can also be used as a stereoizer device that can help place elements into a mix.

## **POWER SUPPLY (PSU)**

A 9V DC negative center power supply rated at 500mA is required to operate the FL9 pedal. Higher current ratings are acceptable, but lower currents will not work properly.

## **AUDIO I/O**

FL9 supports various input configurations:

For stereo signals, you can use either two mono jacks in the INPUT L and INPUT R, or a stereo jack in the INPUT L.

For mono signals, connect your mono cable directly to INPUT R.

The signal is automatically duplicated to both channels.

For output, you can utilize both OUTPUT L and OUTPUT R with two mono jacks or a stereo jack connected to OUTPUT L.

## **VCAs**

FL9 utilizes precision VCAs to simultaneously control audio gain for both left and right channels.

DRY is the level of the dry signal, WET is the level of the BBD Delay signal, and FEED is the feedback amount.

Be careful when using the FEED knob at high values.

This can cause sudden and unpredictable build-ups of sound and volume, potentially leading to self-oscillation and distortion.

## **DELAY TIME**

As the left and right channels operate independently, you can adjust the delay time for each side using the TIME L (left) and TIME R (right) knobs.

The delay time ranges from 0.4 to 9ms.

## **LFO**

FLg's LFO offers variable waveform modulation, morphing from a triangle wave to a sine wave via the TRI/SINE knob.

The triangle wave has double the amplitude of the sine wave.

The LFO frequency/period ranges from 20 seconds up to audio rate frequencies (500Hz) and is adjusted using the FREQ knob.

The DEPTH L and DEPTH R knobs control the amount of LFO applied to TIME L and TIME R respectively.

The PHASE knob allows for de-phasing of the LFO applied to TIME L compared to TIME R.

The Red/Green LEDs indicate the relationship between the LFOs on the left and right sides.

## **CV CONTROL**

Each knob can be independently controlled by sending 0/5V signals to the appropriate mini-jack.

Plugging in a jack turns the associated knob into an attenuator, with a full range when turned clockwise.

For 0/10V signals, set the knob to NOON or lower.

An Expression Pedal to CV (0/5V) converter is provided for musicians not using modular synths.

Connect your Expression Pedal to the EXP input and use the provided mini-jack cable to control the desired knobs.

## **PHASE MIX & PHASE FEEDBACK**

The DRY+/- button selects between in-phase or out-of-phase mixing of Dry and Wet signals, while the FB+/- button toggles between positive and negative feedback.

The LED indicators show the selected settings.

Differences are more noticeable with minimal LFO depth modulation.

For classic flanger sounds, both LEDs should be On or Off.

Other combinations are less common but offer unique effects.

# MN3009

## 256-STAGE LOW NOISE BBD

### General description

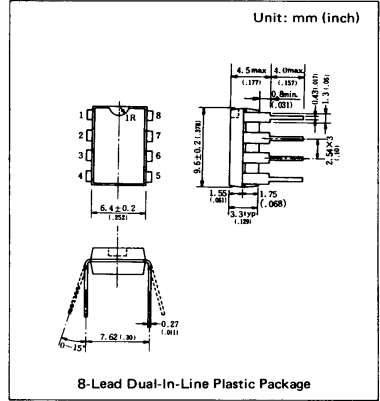
The MN3009 is a 256-stage BBD having a wide dynamic range and low distortion characteristics. The MN3009 provides a signal delay of up to 12.8msec and is particularly suitable as a device for generation of vibrato and/or chorus effects in electronic musical instruments.

### Features

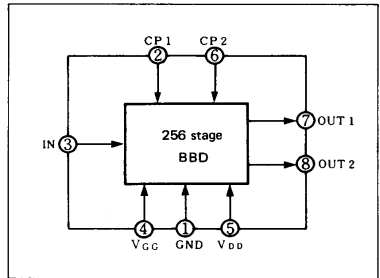
- Variable delay time of audio signals: 0.64 ~ 12.8ms.
- Clock component cancellation capability.
- No insertion loss:  $L_i = 0\text{dB}$  typ.
- Wide dynamic range:  $S/N = 88\text{dB}$  typ.
- Wide frequency response:  $f_i \leq 14\text{KHz}$ .
- Low distortion:  $\text{THD} = 0.3\%$  typ. ( $V_i = 0.78\text{Vrms}$ ).
- Clock frequency range: 10 ~ 200KHz.
- P channel silicon gate process.
- 8-Lead Dual-In-Line Plastic Package.

### Applications

- Vibrato and/or chorus effect in electronic musical instrument.
- Reverberation effect in electronic musical instruments.
- Variable or fixed delay of analog signals.



### Block Diagram



### Quick Reference Data

| Item                      | Symbol           | Value             | Unit |
|---------------------------|------------------|-------------------|------|
| Supply Voltage            | $V_{DD}, V_{GG}$ | -15, $V_{DD} + 1$ | V    |
| Signal Delay Time         | $t_D$            | 0.64~12.8         | ms   |
| Total Harmonic Distortion | THD              | 0.3               | %    |
| Signal to Noise Ratio     | S/N              | 88                | dB   |