Distortion

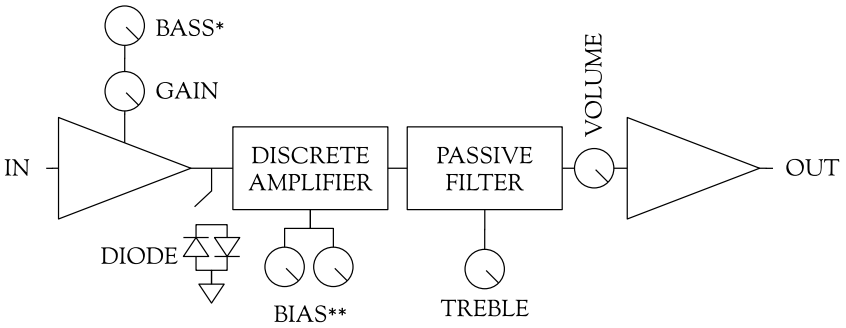
User Manual

Design statement:

The Touch My Dang Heart Distortion sandwiches a fixed-gain two-transistor amplifier between op-amp input and output stages.

This approach combines the convenience and reliability of a conventional op-amp-and-diodes distortion with the unique quality of transistor saturation and a pre-clipping bass-cut to mitigate (or emphasize) square-wave "fuzziness." Finally, via a toggle, the user can access more traditional distortion-pedal sounds by adding hard-clipping diodes between the input stage and the discrete amplifier, which in turn becomes a sort of colorful recovery stage.

Block diagram:



*interacts with GAIN, no effect at 0% GAIN, full effect at 100% GAIN
**internal trimpots: test points should measure 6V (left) and 3V (right)

Controls overview:

- **BASS:** pre-clipping active filter; flat response at 100% rotation; turn counterclockwise to remove bass; this bass-cut is more prominent at higher GAIN settings
- **TREBLE:** post-clipping passive filter network; flat response at 60% rotation; turn clockwise to add treble and vice versa
- **GAIN:** input gain
- **VOLUME:** output volume
- **DIODE:** toggle up to engage hard-clipping diodes for a more conventional distortion character

I/O overview:

- **INPUT/OUTPUT:** use shielded ¼" TS "instrument" cables. The input jack establishes the ground connection, so a TS cable must be plugged in to the input for the unit to power on.
- **POWER:** use standard 9V 2.1-mm center-negative "pedal power." Do not exceed 18V.