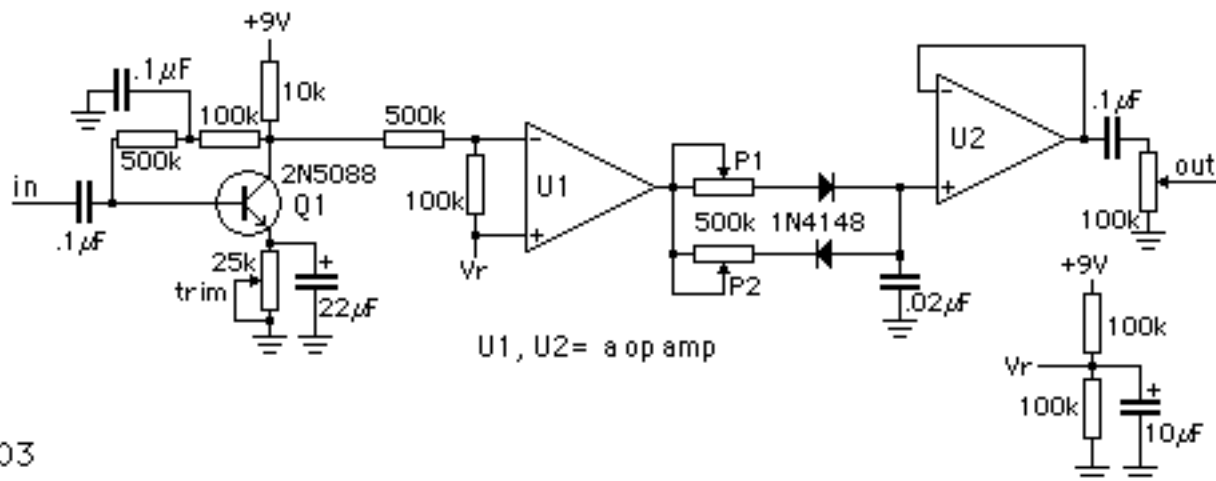


Simple Square wave Shaper made Simpler



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This is a square wave shaper pretty much taken from a old article appearing in Polyphony Magazine back in the 80s by Bobby Beausoleil. The original circuit was called a Simple Square Wave Shaper and intended for analog synthesizer use. I adapted it for simple electric guitar use.

It works like this: the guitar signal is amplified by the transistor stage and squared off by U1. The square wave is sculpted by that weird RC network consisting of P1, P2, two diodes, and a .02µF cap. Setting P1 and P2 to minimum resistance yields a decent square wave output. As either P1 OR P2 resistance is turned up, either the leading or trailing edge of the square wave begins to slant until the output resembles a sawtooth-y wave. When BOTH P1 and P2 are set to max resistance, the output wave resembles a trapezoid like form. U2 buffers the wave shaper and sends the signal on it's merry way.

The part of the circuit that performs this magic is sometimes used as a slew rate limiter or a AR generator depending on the application. Here, it's used for audio frequencies. The square wave sound is pretty recognizable to most guitarists, the saw-like wave is a different distorted sound, almost brassy in character, and the trapezoid sounds kinda like a heavily filtered fuzz.

For best results, the 25k trimmer on the emitter of Q1 MUST be set properly, lest the "gating" action of U1 get too choppy. Simply adjust for best sensitivity.