

THAT4301

Gain Reduction Indicator (above-threshold Indicator)

The circuit within this application note features THAT4301 to provide the essential function of an RMS level detector (RMS). Since writing this note, THAT has introduced several Analog Engines®, which combine a VCA and an RMS with optional opamps in one part.. With minor modifications, these newer ICs are generally applicable to the design shown herein, and may offer advantages in performance, cost, power consumption, etc., depending on the design requirements. We encourage readers to consider the following alternatives in addition to the 4301:

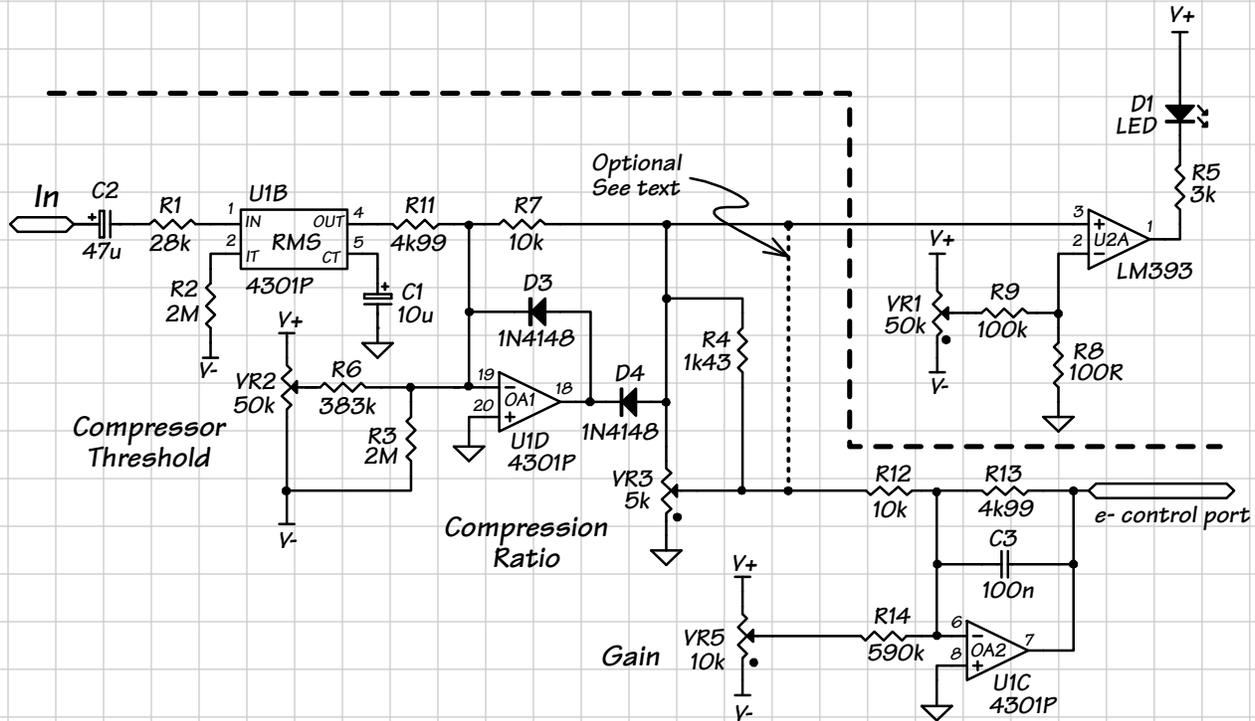
- *Low supply voltage and power consumption: 4320*
- *Low cost, supply voltage, and power consumption: 4315*
- *Low cost and power consumption: 4305*
- *Standalone RMS detector: 2252*

For more information about making these substitutions, please contact THAT Corporation's technical support group at apps_support@thatcorp.com.

THAT Corporation

45 Sumner St, Milford, MA 01757-1656 USA; www.thatcorp.com; info@thatcorp.com

The following circuit assumes that you are using the THAT 4301 in a typical compressor / limiter application. Below the dashed line, the circuit has an RMS detector, a threshold amplifier, and a control port buffer nearly identical to the compressor / limiter schematic shown in the 4301 data sheet.



The difference lies in the portion of the circuit above the dashed line. The comparator, 1/2 of an LM393, senses the output of the threshold amplifier, and when this voltage goes below ground, the LM393 (U2) switches low to indicate that the voltage at the control port is changing. This should work quite nicely unless the wiper of VR3 is turned all the way to ground. If that is a problem, you may instead connect the input of the comparator to the wiper of VR3, shown by the dotted line. This connection is less desirable because the wiper is a higher impedance point most of the time, but it will alleviate the grounded-wiper problem.

The purpose of VR1 is to null out the offset voltage of U2.