

Kyle Morris

INST140

24APR2018

Logic Probe Report

This logic probe project posed several interesting lessons.

- Researching the use of a 555 timer chip as a toggle latch, and figuring out how to use that output to alternatively switch two MOSFETs controlling comparator outputs.
- Determining the appropriate resistor sizes for the TTL voltage divider was a bit tricky, but I was fortunate with the practical values of the resistors in my kit.
- The biggest lesson I learned was to check the internal circuit schematic on the data sheet to know whether an IC can source and sink, or just sink current. The LM324 Op-Amp has a totem-pole output and can source and sink current, but the LM339 Comparator has an open-collector output and can only sink current. I usually like to source current to LEDs so that the LED is lit when the output is high, since the LM339 can't do that, and I didn't think to check if it could, I hadn't gotten the LM339 to work until I had a revelation this past weekend.