Results

The TENS7000 estim is a pulsed current source. Current is controlled by the intensity setting, voltage will rise as high as needed, subject to a limit of several hundred V, in order to achieve the target current. Current is delivered in 210 microsecond square pulses repeating at 100Hz. In an electric chastity cage, 10mA is the threshold of perception, 20mA tingles, 30mA is unpleasant, 40mA is painful, 50mA is as high as I was willing to go, and 90mA is the maximum the device would deliver to a short circuit.

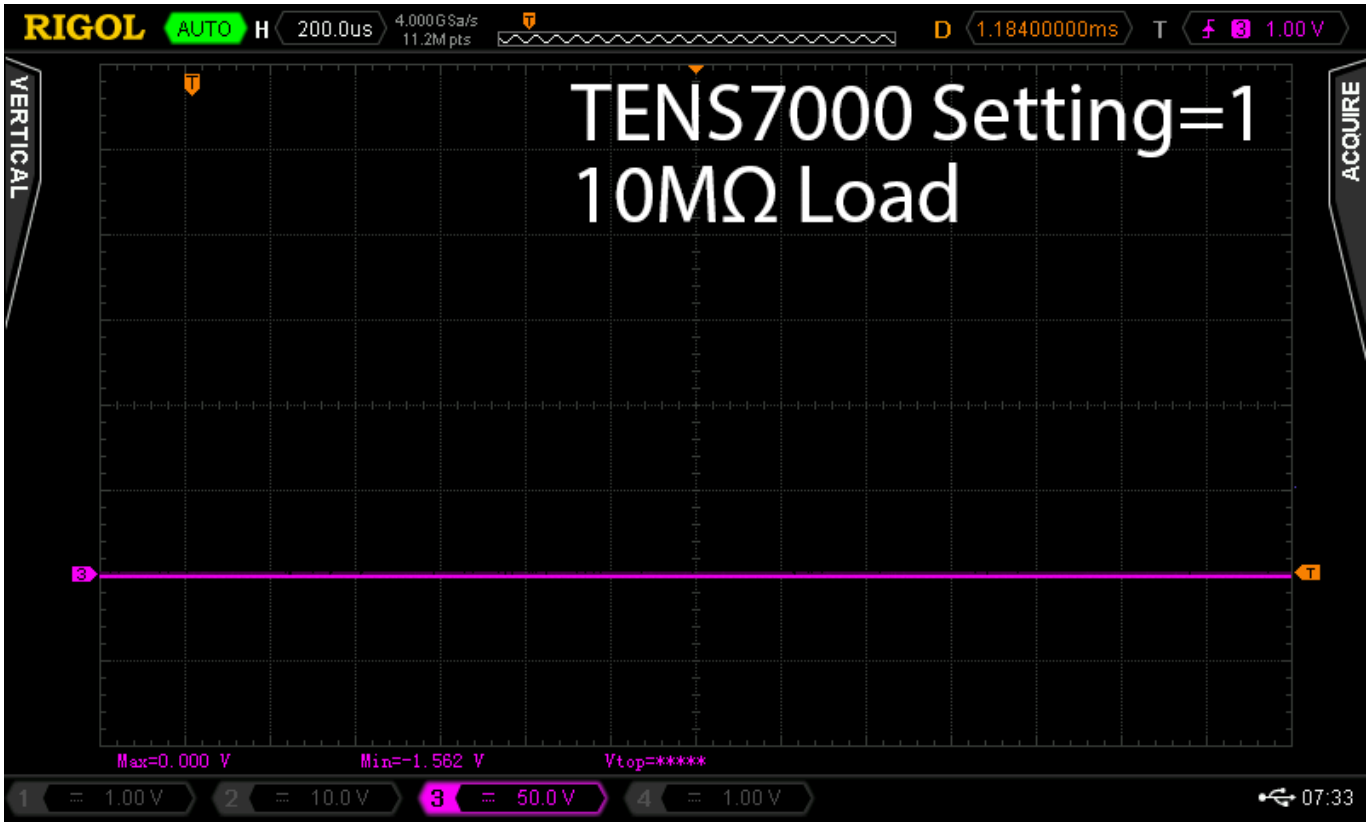
Details

The core circuit is a 9V battery switched using a Darlington BJT into the primary of a 1:16 transformer; the secondary is the output. There is enough series resistance to limit the theoretical 5A/16=312mA short circuit output to an actual maximum short circuit output of 90mA or so at the highest setting. That's on maximum; knobs control current and the useful range seems to be 10-50mA, a range which is inconveniently squashed between settings “2” and “3” (out of 1-8).

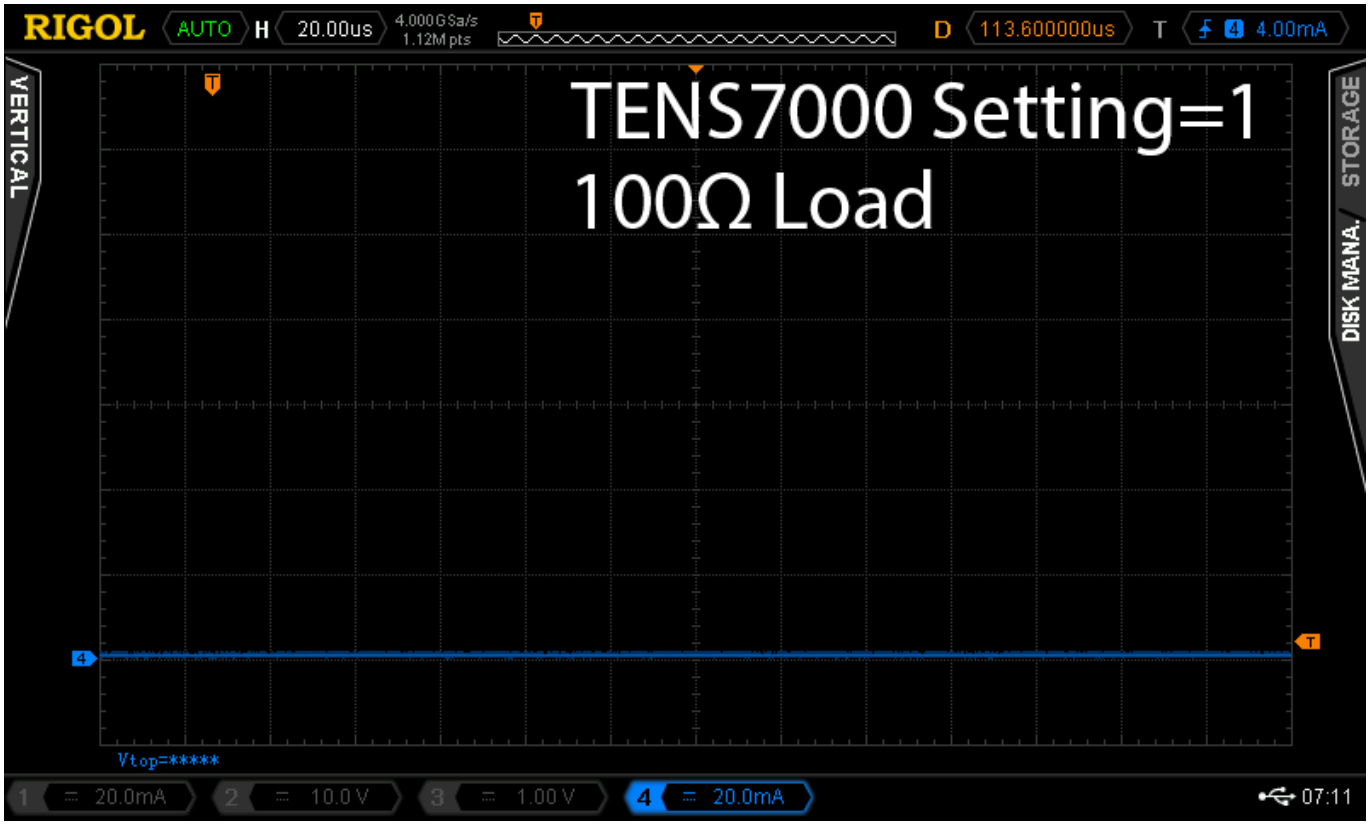
Measurements

I tested the TENS7k with three loads: open (10MΩ), short (100Ω), and realistic. I decided I could get away with such a large “short” resistance because I tested 1Ω, 10Ω, and 100Ω loads and found similar qualitative behavior in each: 93mA rectangular current pulses at 1Ω, 92mA rectangular current pulses at 10Ω, and 90mA rectangular current pulses at 100Ω.

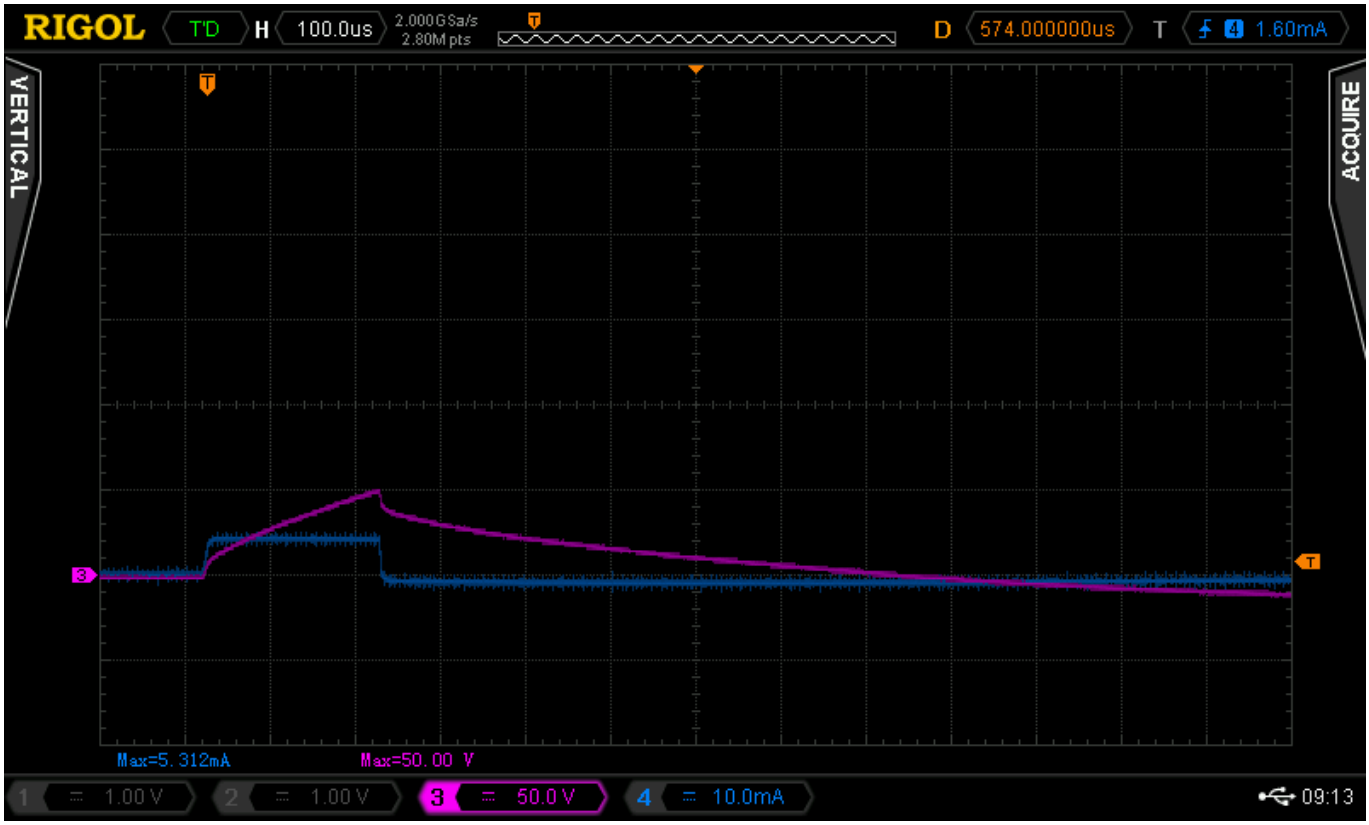
Open Circuit



Short Circuit



Realistic Circuit



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