

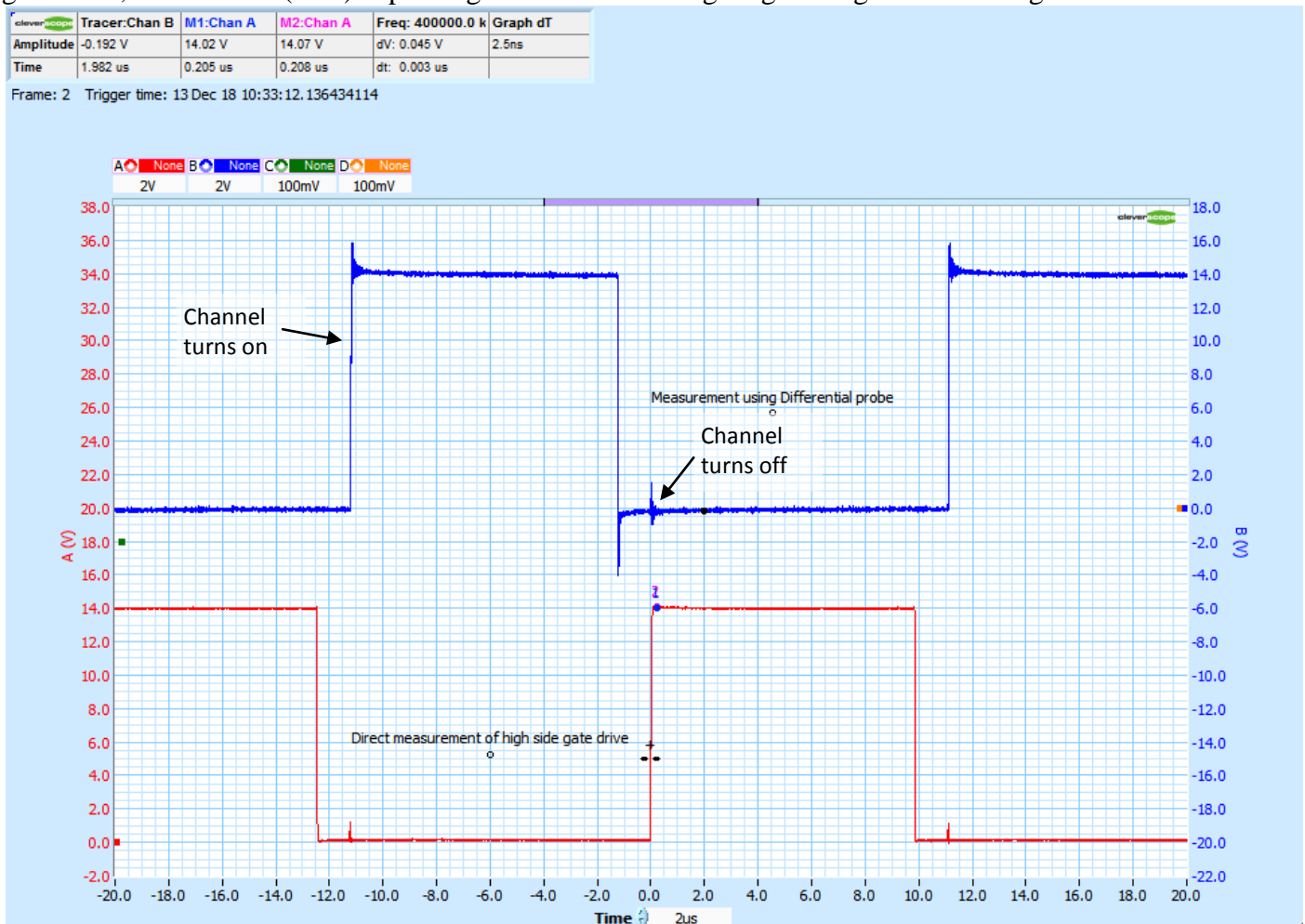
## Comparison between Diff probe and CS448

### Summary

A Pintek DP25 (Common mode rejection ratio > 50 dB at 1MHz) was compared with a CS448 probing a high side gate drive slewing common mode in about 10ns (30 MHz BW).

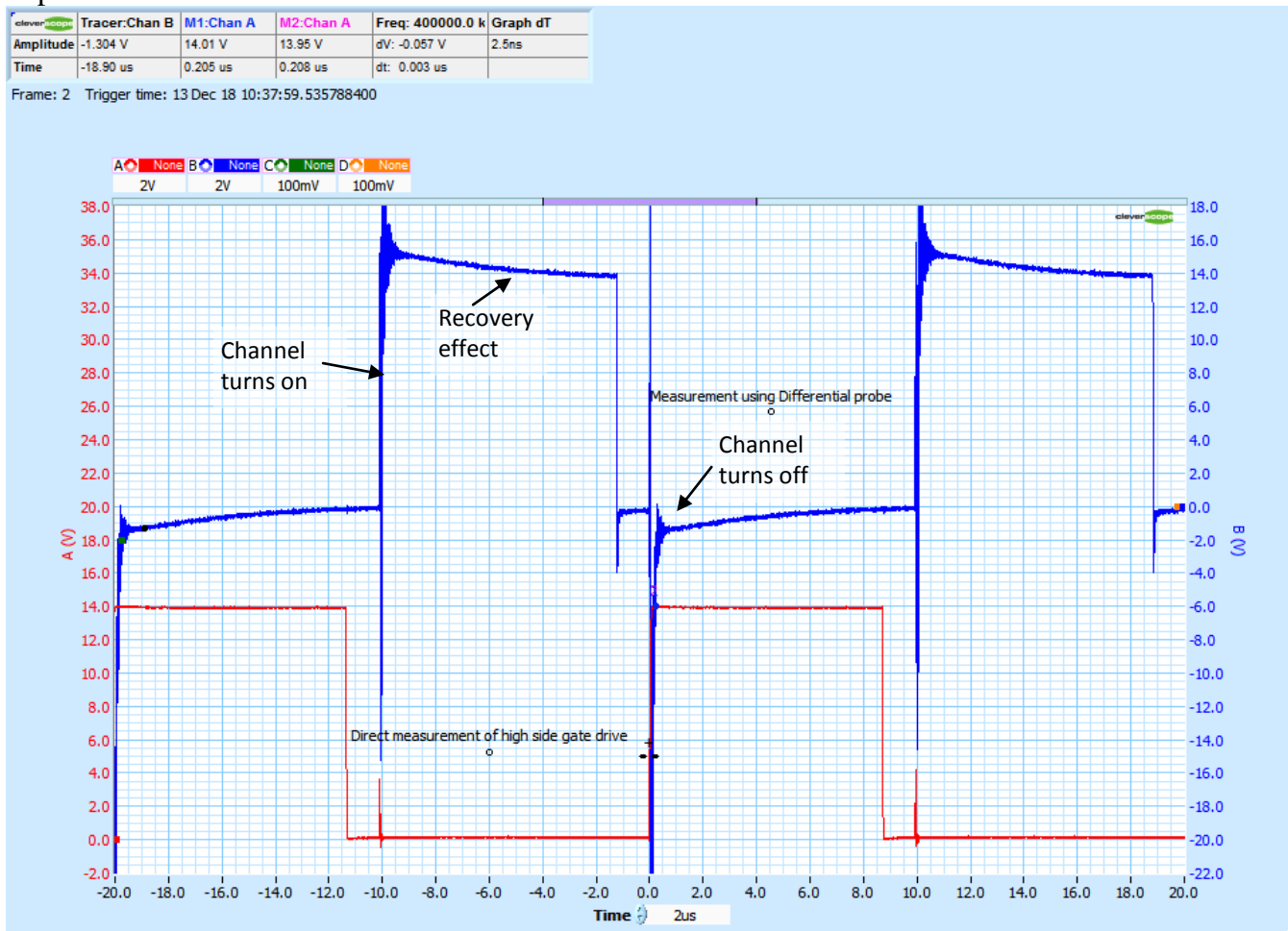
### Measurements

With 7V common mode swing, Chan A (red) is direct connect to CS448 probing one half bridge high side gate drive, and Chan B (blue) is probing the other half bridge high side gate drive using a Pintek DP25:



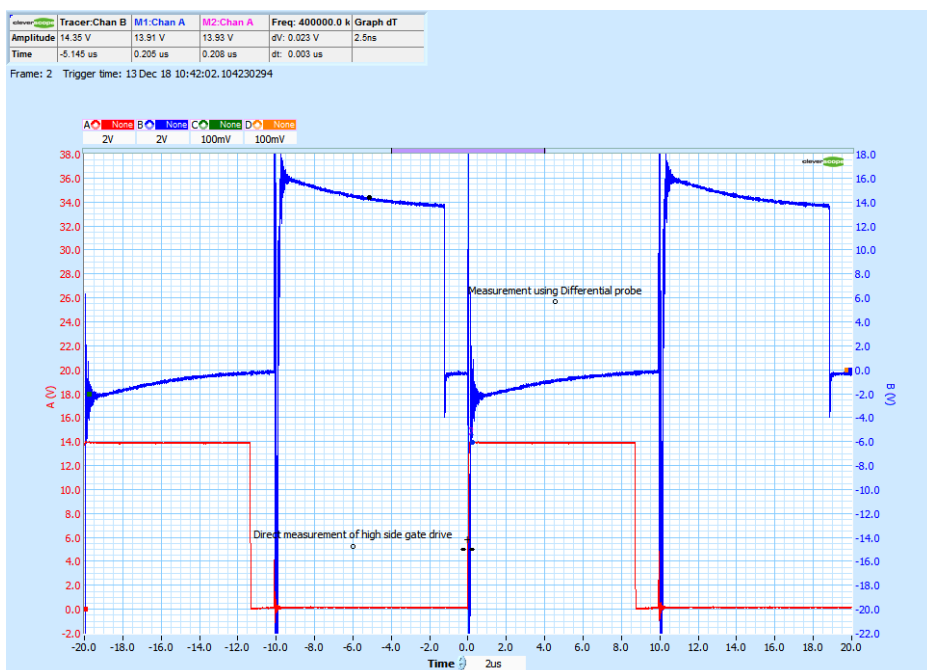
Even at 7V common mode swing the high edge rate (10ns common mode slew) causes ringing, which is not real, on the differential probe based signal.

With 300V common mode swing, things get much worse, and we see recovery slew in the diff probe response:

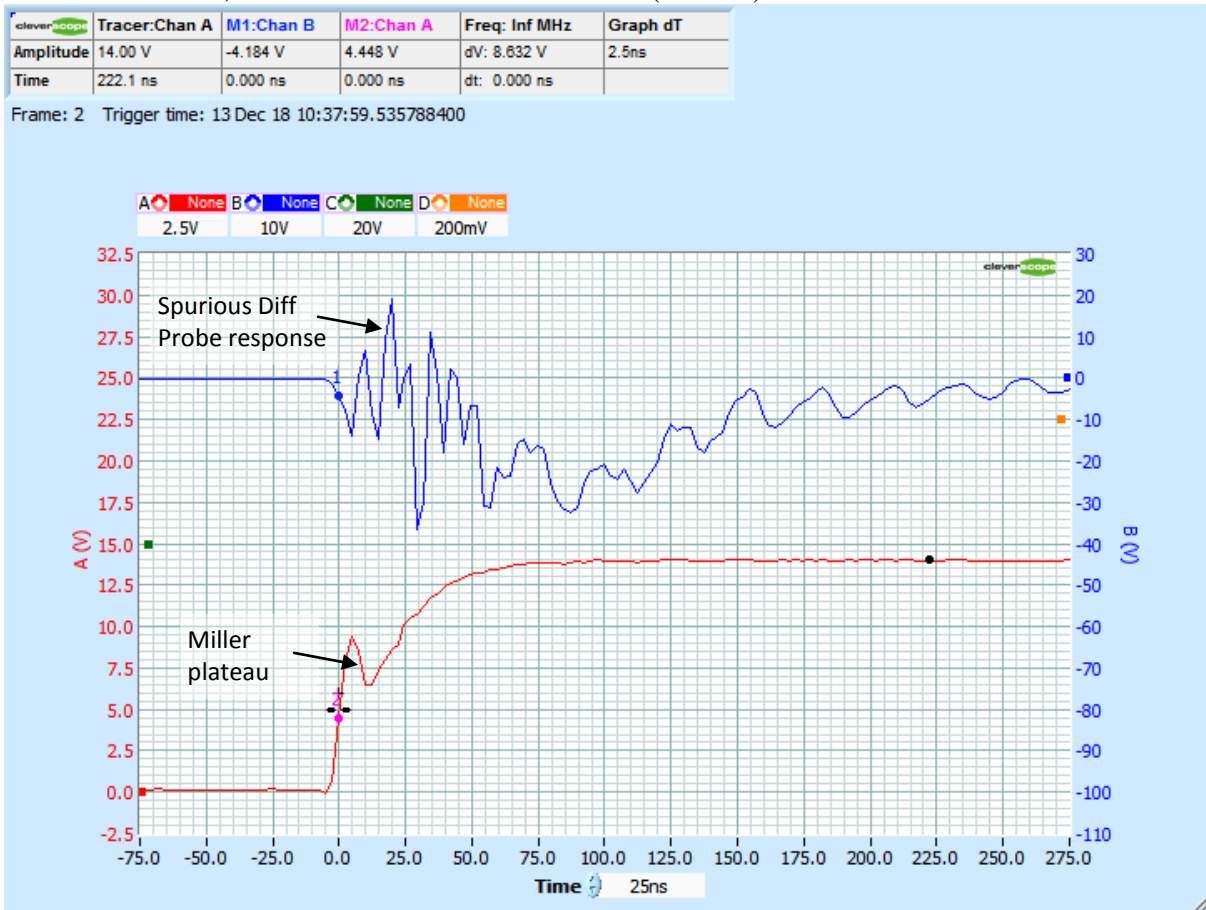


The differential probe is exhibiting very large common mode slew induced ringing which is spurious, and simply not real. The CS448 shows the true signal.

Increasing the common mode voltage to 500V caused the diff probe common mode response to become much worse:



Here is the half bridge probed by the DP25 turning off, while the CS448 half bridge turns on, note the Chan B axis is 10V/div, with 300V common mode slew (in 10ns):



Zooming on the opposite edge, DP25 half bridge turning on, no useful information can be seen. The CS448 shows the Miller capacitance pulsing the gate high during turn off:

