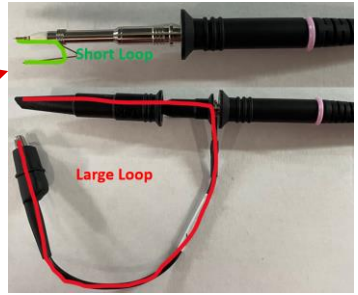
Probing in high voltage noisy systems

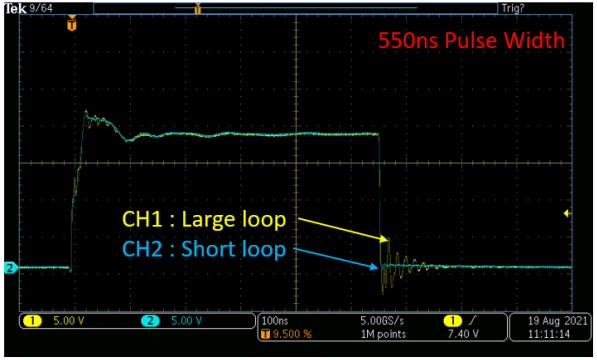
TI HVP-HPD-Isolated Gate Drivers

Feb 9, 2024

Probing Recommendations

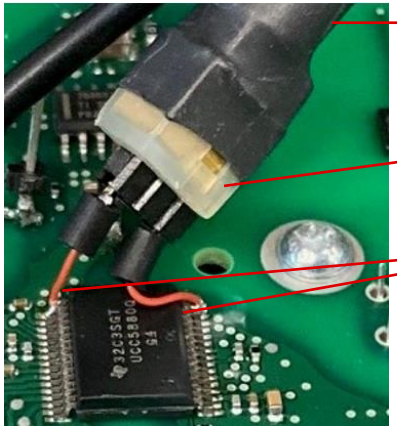
- Use high bandwidth probe (1GHz preferably),
  - Single ended probe to measure referenced to low side ground (GND1) TPP1000 – 1Ghz up to 300V, TPP0850 –(800Mhz up to 1.2KV)
  - For Isolated ground signals, use optical isolated probe like IsoVu TIVP1
- Plan full bandwidth possible (at least 5x the highest frequency of interest)
  - Zoom into the region of interest and use the highest sampling rate of the scope.
- Using short ground loop
- Ensure probe cable is not laying over noisy node/power stage, as it can couple into the measurement.
- Avoid connecting low side ground and power ground simultaneously to the Oscilloscope to avoid ground loops





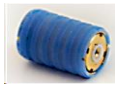
Measuring noisy signal

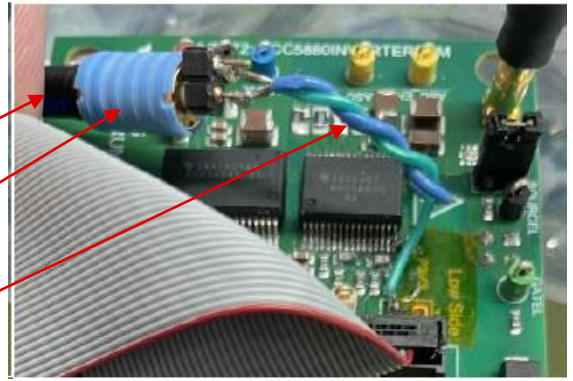
- Recommended to use IsoVu probe to measure noise across low side GND and high side GND (switch node) or any signal wrt to isolated ground
  - IsoVu probe used with 3pin 100mil header tip connected across isolated grounds. Minimize the length of external cable connected at the tip.



- To measure signal at low side GND, using TPP1000 with MMCX probe tip, MMCX to 100 mil header connector and twisted pair of cable.


TEKTRONIX MMCX Probe Tip


Square Pin to MMCX Adapter, 0.100" Spacing (131-9717-xx)


Short twisted pair of cable