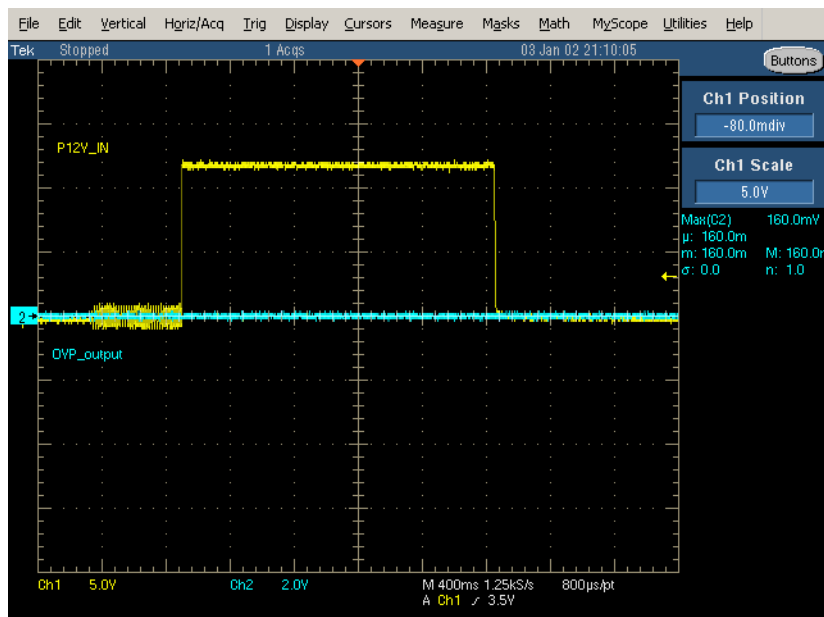


Issue : Using 12V adapter. The board is not booting any more.

Analysis: When we got the 3 failure boards. The eFuse protect IC already damage, input voltage short to output voltage. Thus, same DCDC IC (P1V2, P3V3 and VDDEE) also damage due to 12V input voltage. We try to change DCDC IC, but the voltage is also abnormal. We find the BGA (DDR, SOC) also damage. We can't change BGA IC in RD side. It should go RMA process and take these failure boards back to factory.

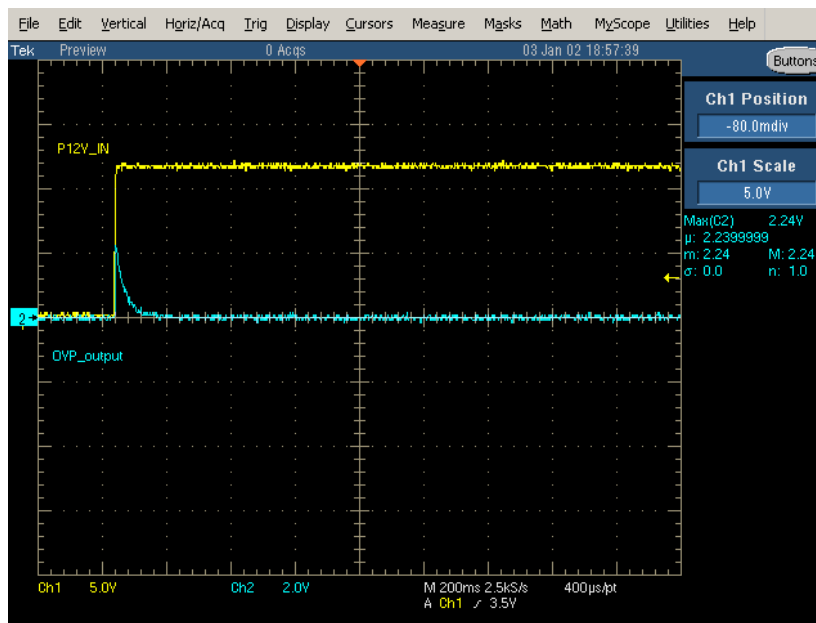
Debug:

1. When using 12V adapter for DC plug in and plug out.



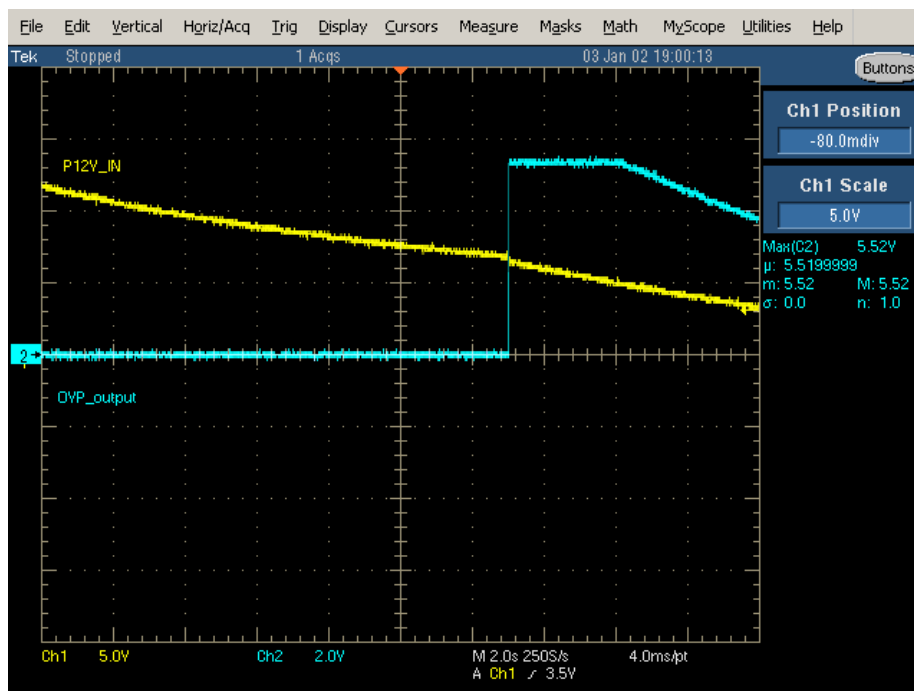
We can see the eFuse output voltage will keep almost 0V. It can protect our system. We did 20 times, the results is the same.

2. When using 12V adapter for AC plug in



We can see the eFuse output maximum voltage is 2.24V. It can also protect our system.

3. When using 12V adapter for AC plug out



We can see 12V voltage drop very slow, due to the adapter has large capacitance inside. The eFuse will turn on and turn off during the voltage drop. It will cause eFuse abnormal behavior.

So we suggest when doing the 12V adapter AC plug out, you should wait for the voltage drop to 0V, then plug in the 12V adapter. Or, it will get high risk of eFuse IC damage.