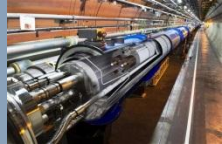


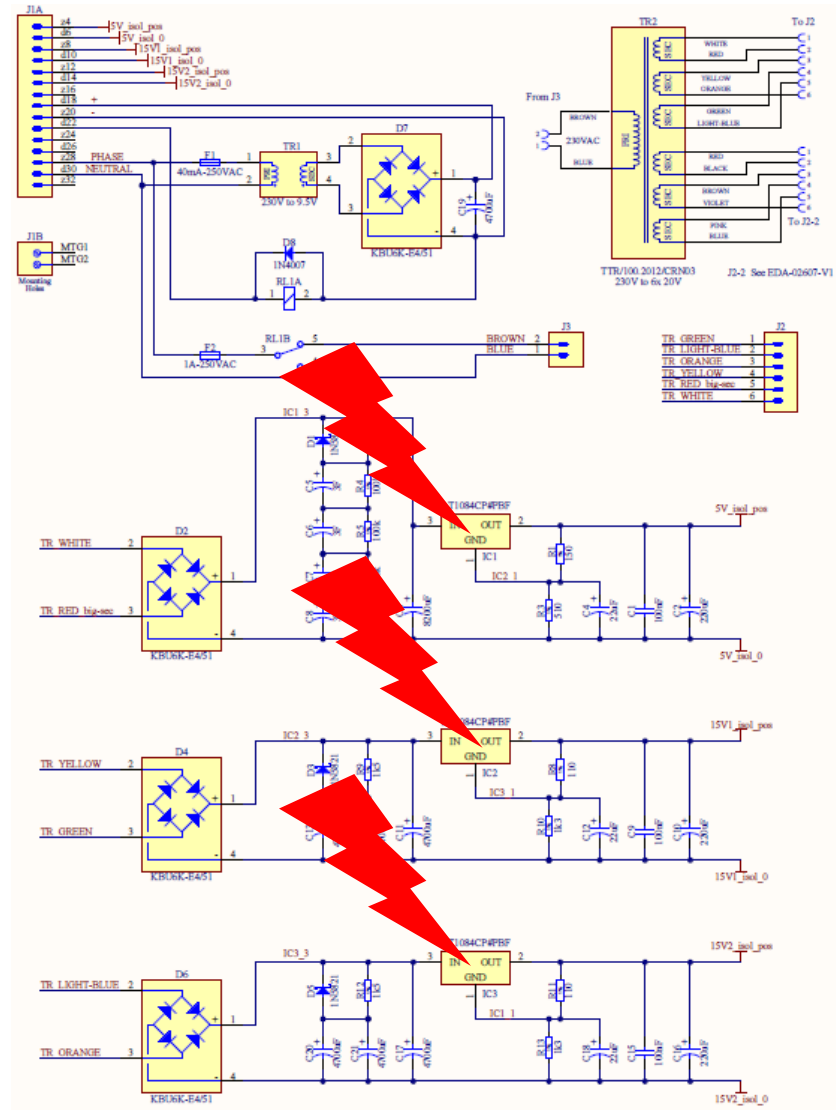


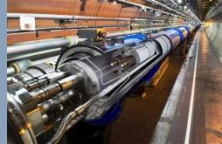
DQLPR - are there any R2E issues?

R. Denz, TE-MPE-EP

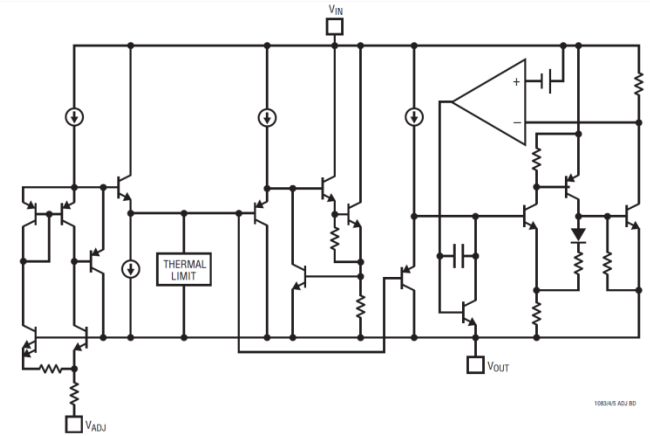


- ➔ Power supply units will feed DQLPU type A → need also to be installed in the DS areas down to half-cell 8
- ➔ “New” design is a variant of the power packs successfully deployed within the nQPS layer of the QPS
- ➔ Classic design for a linear power supply using a low dropout linear adjustable power regulator to improve efficiency (LT1084)
 - Linear regulators basically exhibit sufficient radiation tolerance but there are not so many data on low dropout devices.
 - Test campaign launched in 2009 @ PSI to check especially for an eventual vulnerability to SEU.



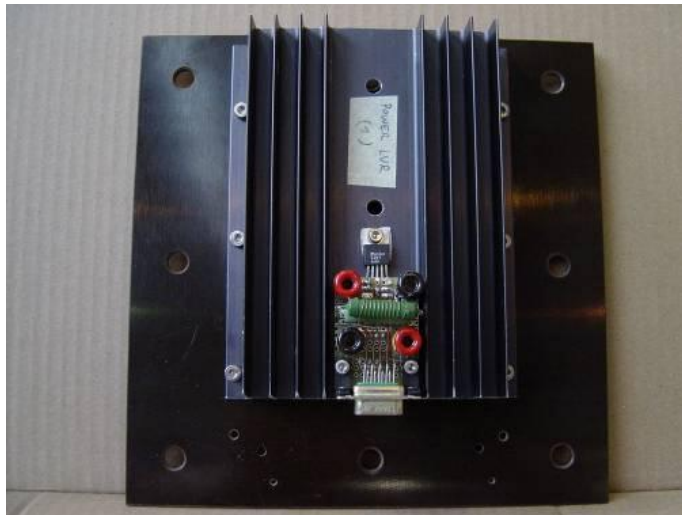


- ➔ Device tested @ PSI (64 MeV p+ OPTIS) in 2009 by Lustermann et al. (PH-CMS) for nQPS upgrade
- ➔ LT1084 successfully tested @ PSI up to $4.4 \times 10^{11} \text{ pcm}^{-2}$ (630 Gy); test limit, not device limit

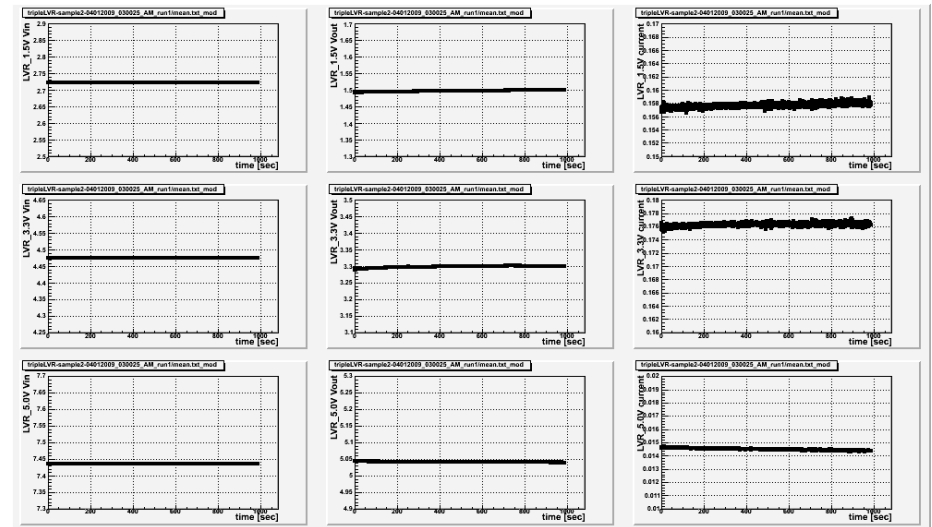


1084AS ADJ BD

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- ➔ 872 devices installed in LHC tunnel areas; no faults in 2012 (one unit replaced in total)
 - 32 units in not so calm areas around IP 1 and 5
- ➔ Fluence in “hot” areas like 9R5, 11R5, 11L1 reaches (week 44) $\sim 1 \times 10^{10} \text{ cm}^{-2}$
 - No radiation induced faults reported 😊
- ➔ Conclusion:
 - No R2E related problems expected up to LS2 and beyond
 - Further tests not regarded as necessary
 - As an option you may upgrade to



AZ12 rectifier tube