GEM-Based SDHCAL

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1 Readout ASIC

To read out the GEM-based SDHCAL, we chose an ASIC called MICROROC (MICRO-mesh gaseous structure Read-Out Chip), developed at IN2P3 by OMEGA/LAL and LAPP microelectronics groups. The MICROROC is a 64-channel mixed-signal integrated circuit based on 350nm SiGe technology. Each channel of the MICROROC chip is made of a very low noise fixed gain charge preamplifier optimized for a detector capacitance of 80 pF and able to handle a dynamic range from 1fC to 500fC, two different adjustable shapers (A high gain shaper for small signal and a low gain shaper for large signal), three comparators for tri-threshold readout and a random access memory used as a digital buffer. Other blocks, like 10-bit DAC, configuration register, bandgap voltage reference, LVDS receiver are shared by 64 channels.

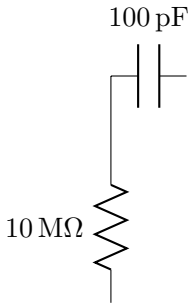
1.1 Analog Part of Microroc

The analog part of Mi

2 调研

调研中发现，窄脉冲大电流LED驱动电路主要以储能电容瞬间放电的方式来完成LED的电流驱动。总结窄脉冲LED电流驱动电路的方式有如下两种：能量压缩、高带宽跨导放大。

2.1 能量压缩驱动



参考文献

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