Multiple Use SiPM IC (MUSIC) for photodetector readout

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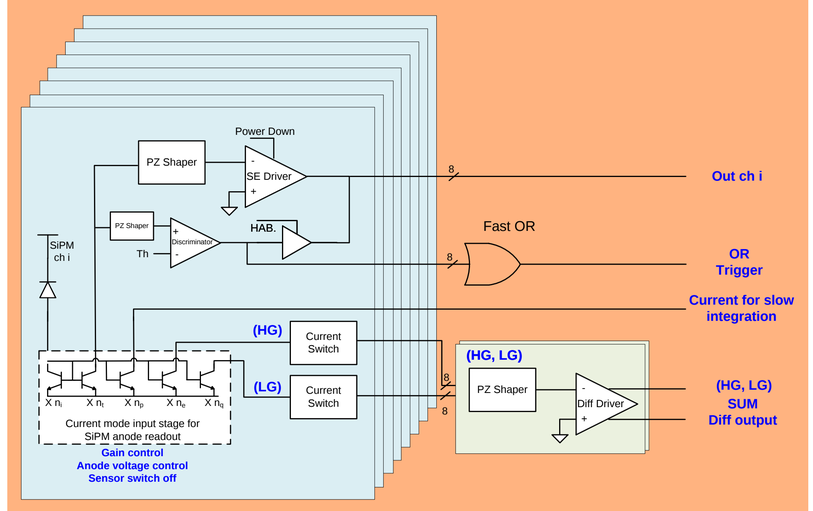
Design Overview

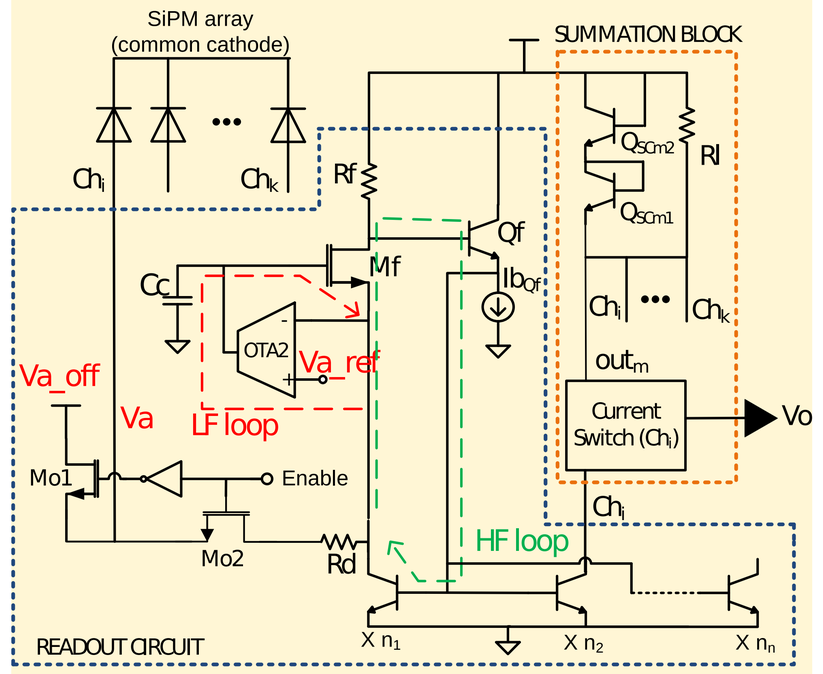
8 channel SiPM readout ASIC based on a novel low input impedance current conveyor.

- Three opation modes
- Pixel summing in differential mode
- Digital Single Ended outputs
- Individual analog SE channels
- Fast OR trigger
- Tunable Pole Zero Cancelation
- Slow Control SPI
- 0.35µm SiGe BiCMOS

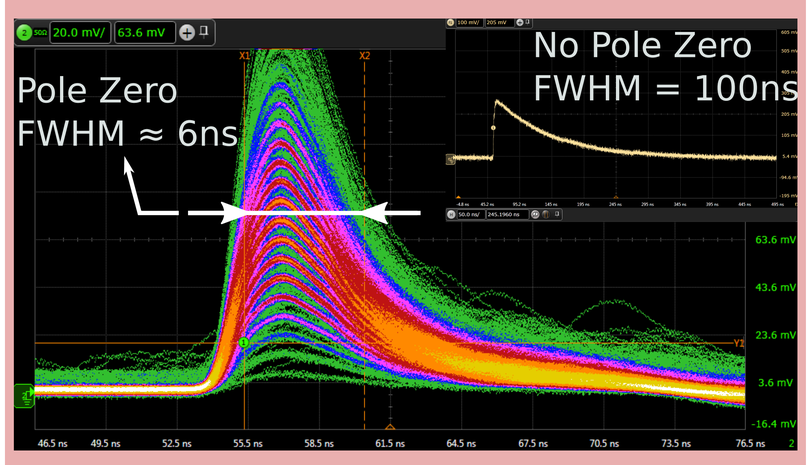
Block Diagram



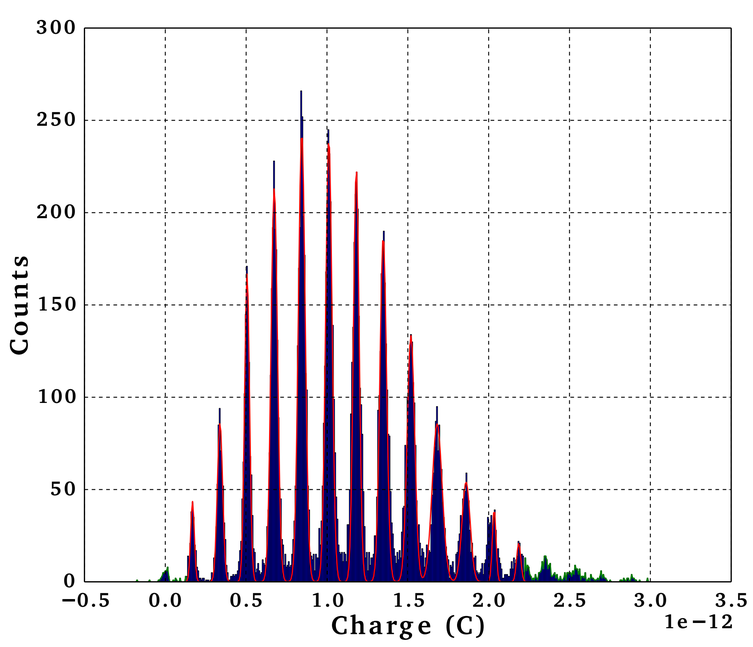
Input Stage



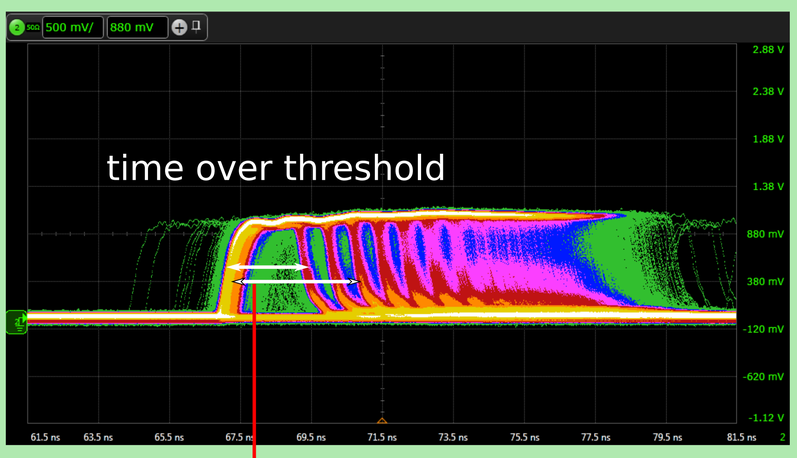
Analog SE independent channel



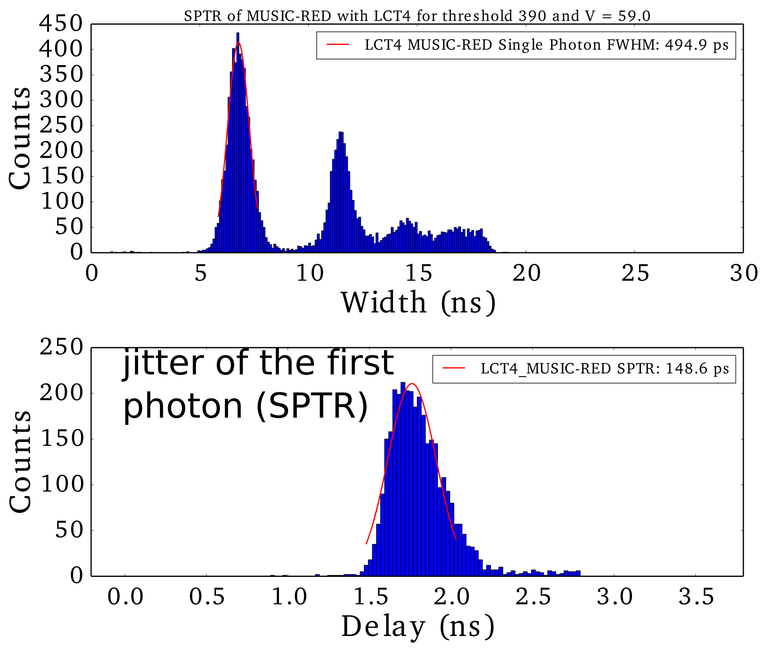
charge spectrum



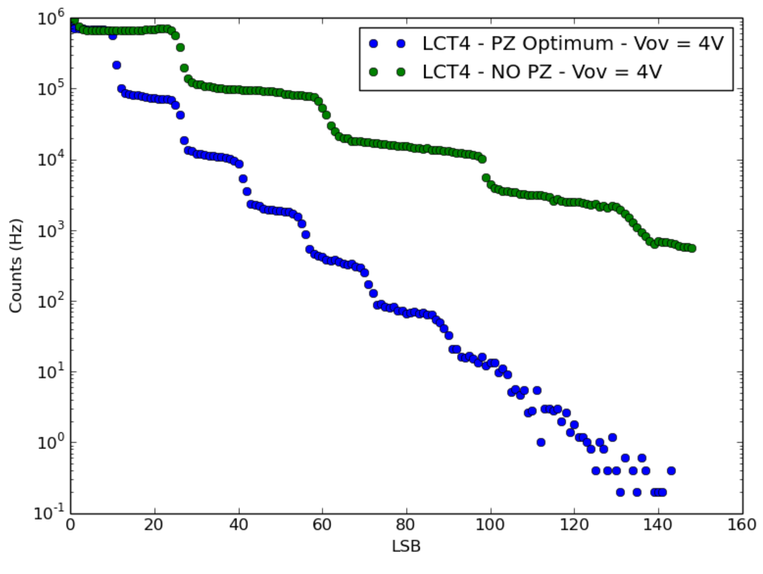
Digital SE independent channel



pulse width hystogram

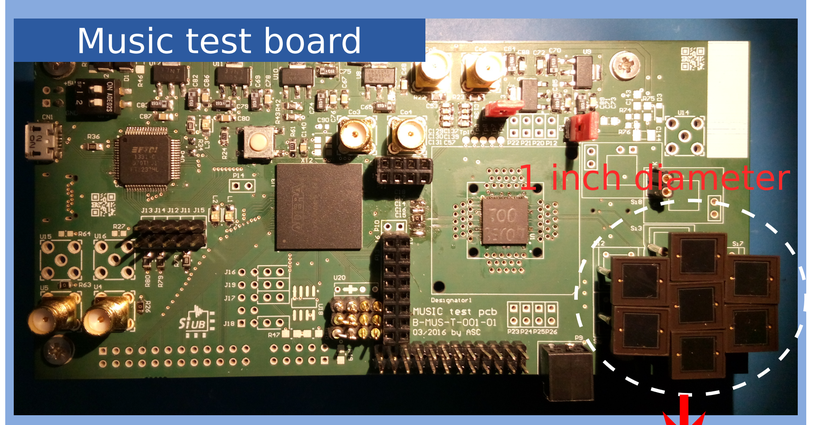


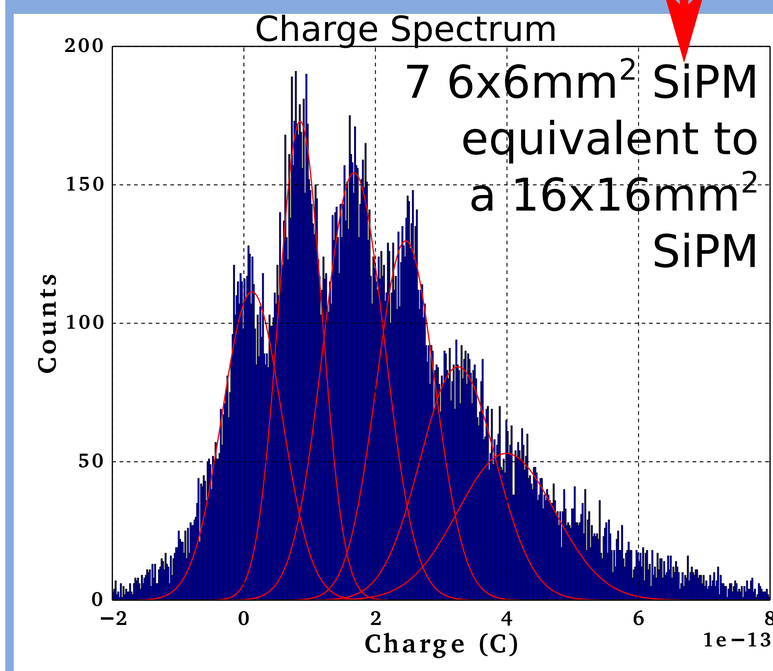
Dark Count



7 channel summation

Music test board

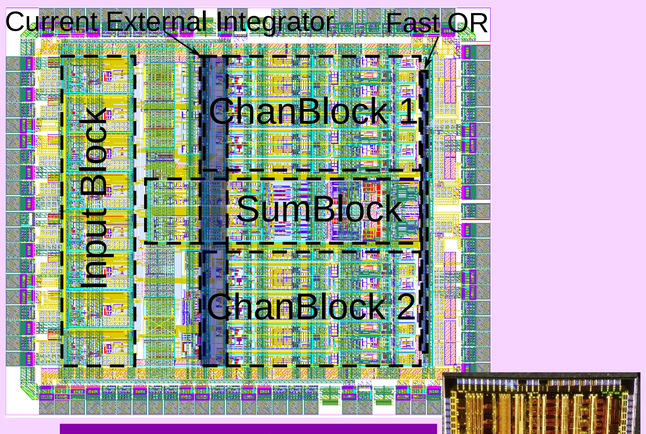




low gain

high gain

Chip Die



Die size
3.2 x 2.7 mm
area of 9 mm²

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