Introduction

The PGA User Module implements an opamp based non-inverting amplifier with user-programmable gain. This amplifier has high input impedance, wide bandwidth, and selectable reference.

Feature

■ Power Voltage : 1.2V< (CMOS switch is possible for power range)
■ Readout Rate : 250MHz< (Current consumption, Devices dependence)
■ Current Consumption : 50uA (Readout-rate, Bit-line parasitic CAP (Cp) dependence)
■ Delay Time : 2nsec (Cp=2pF), 3nsec (Cp=4pF) (exclude effect of wire resistance)
■ Control of timing is easy because pre-charge is unnecessary by the current detection type.
■ Low power consumption is possible because it has only to be settling during 1 select.
■ CMOS inverter composition is used as the first stage amplifier, and high-speed and low power consumption is realized.
■ Offset cancel operation is done in blanking period, and faulty operation due to the element dispersion is prevented.
■ This IP can use 90nm device low voltage of 1V.

Equivalent Circuit

■ The AB class amplification composition that low consumption power is possible is applied to each stage.
■ A low power supply voltage operation is possible by circuit topology which can set up bit line potential optionally.

![Equivalent Circuit Diagram](image-url)