

9Bits, 500MSPs, time-based two-step ADC GF 22FDX/ GF 22FDX-PLUS



OVERVIEW

The Time-Based ADC from InCirT is a compact, low-power 9-bit analog-to-digital converter designed in GlobalFoundries 22FDX technology. The design combines a time-based conversion principle with a two-step ADC architecture, achieving efficient performance and reduced power consumption. It supports sampling rates up to 500 MSPS and handles analog input frequencies up to the Nyquist limit. Including the sample-and-hold (S/H) circuit, the ADC occupies a compact silicon area of $150\ \mu\text{m} \times 250\ \mu\text{m}$.

KEY FEATURES

- Compact footprint
- Up to 500 MSPs sampling clock
- Up to 250 MHz input signal bandwidth
- SFDR 50dB at 110MHz of signal bandwidth
- Power consumption is less than 23mW including the Sample and Hold Amplifier
- Differential input voltage
- GF22FDX-/PLUS CMOS technology

TARGET APPLICATIONS

- Wireless Communications
- Radar Applications
- Satellite communications
- Wireline communications

DELIVERABLES

- GDSII layout
- Verilog (or SystemVerilog) model
- Integration support
- DRC, LVS reports
- Datasheet including characterization results
- Timing View (Liberty)
- CDL netlist for LVS
- LEF files
- Verification report

BLOCK DIAGRAM

