Features

- Dual 6-bit Resolution
- 700 MHz Full-power Input Bandwidth (-3 dB)
- Band flatness (± 0.5 dB) from DC to 350 MHz
- 1 Gsps Sampling Rate
- SINAD = 35 dB Typ (5.7 ENOB)
  - THD = -47 dB, SFDR = -48 dB at F_S = 1 Gsps, F_{IN} = 250 MHz, (SFSR = -0.5dB FS)
- 2-tone IMD: -47 dBc Min at 1 Gsps, F_{IN} = 249 MHz, 251 MHz
- DNL = 0.35 LSB Typ, INL = 0.5 LSB Typ
- Channel-to-channel Input Offset Error: ±1 LSB Max, 0 LSB Typ
- Gain Matching (Channel-to-channel): ±0.25 dB Max, 0 dB Typ
- Phase Matching (Channel to Channel): ±2deg Max, 0 deg typ
- Channel to Channel mean difference error: 0.5lsb(rms)
- Channel to Channel max difference error: ±2 LSB Typ
- Low Bit Error Rate (10^{-9}) at 1 Gsps
- Very Low Input Capacitance: 1 pF
- 800 mV_{PP} Differential or Single Analog Inputs
- Differential or Single-ended 50Ω PECL-compatible Clock Inputs
- LVDS Output Compatibility (100Ω)
- 1:2 Data Output De-multiplexer per ADC
- LOW Power Consumption:
  - 700 mW at Vcca = Vccd = 3.15V/Vcco = 2.25V
- Power Supply: 3.15V (Analog), 3.15V (Digital), 2.25V (Output)
- Available in 80-lead TQFP Package
- Temperature range:
  - Industrial -20°C < Ta < 85°C,
  - Commercial 0°C < Ta < 70°C

Applications

- Satellite Receiver
- Direct RF Down-conversion
- Test instrumentation
- WLAN

Description

The AT76CL610 is a monolithic dual 6-bit analog-to-digital converter, designed for digitizing in-phase (I) and quadrature (Q) wide bandwidth analog signals at very high sampling rates of up to 1 Gsps (gigasamples per second). The ability to directly interface I and Q signals makes the AT76CL610 ideal for use in applications such as direct satellite demodulation.

The AT76CL610 uses an innovative architecture and is fabricated with an advanced high-speed BiCMOS process.

The two on-chip ADC cores have a closely matched 700 MHz full-power input bandwidth, providing excellent dynamic performance in undersampling applications (high IF digitizing).

The samples from each A/D converter are de-multiplexed by a 1:2 ratio and the output data stream is LVDS-compliant.

Dual ADC 6-bit 1 Gsps Converter

AT76CL610 Preliminary Specification

Summary

For more information, please contact hotline-bdc@gfo.atmel.com

Rev. 2158AS–BDC–12/02

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