ISL73141SEH

Radiation Hardened 14-Bit 1MSPS SAR ADC

The ISL73141SEH is a radiation hardened high precision 14-bit, 1Msps SAR Analog-to-Digital Converter (ADC) that features SNR of 82.1dBFS and dissipates only 60mW when operating from a 5V supply. With a 3.3V supply, the ISL73141SEH operates at 750ksps with a power consumption of 28mW.

The product features 1Msps throughput with no data latency and features excellent linearity and dynamic accuracy. The ISL73141SEH provides a high-speed SPI-compatible serial interface that supports logic ranging from 2.2V to 3.6V using a separate digital I/O supply pin.

The ISL73141SEH provides a separate power-down pin that reduces power dissipation to <50µW. The analog input signal range is determined by an external reference.

The ISL73141SEH operates across the military temperature range from -55°C to +125°C and is available in a 14 Ld hermetically sealed Ceramic Dual Flat-Pack (CDFP) package.

Applications

- Precision signal processing in satellite payloads
- Satellite telemetry systems
- Satellite propulsion and orbit control
- Attitude control of satellites
- High-end industrial
- Down-hole drilling

Features

- 1Msps throughput rate with no data latency
- Excellent linearity: ±0.2 LSB DNL, ±0.5 LSB INL
- No missing codes
- Low noise: 82.1dB SNR
- 3.3V or 5V AV_{CC} supply options
- Separate 2.2V to 3.6V digital I/O supply
- Low power: 60mW at 1Msps
  - AV_{CC} = 5V, DV_{CC} = 2.5V
- Power-down mode with <50µW power consumption
- High speed SPI-compatible serial I/O
- Full military temperature range operation
  - T_A = -55°C to +125°C
- Radiation acceptance testing
  - LDR (0.01rad(Si)/s): 75krad(Si)
- SEE hardness (see SEE report for details)
  - No SEB/SEL LET_{TH} (AV_{CC} = 6.3V): 86MeV•cm^2/mg
  - No SEFIs at LET 86MeV•cm^2/mg

Related Literature

For a full list of related documents, visit our website:

- ISL73141SEH and device page

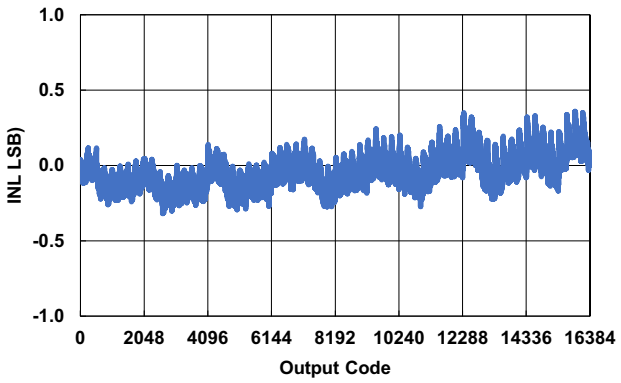

Figure 1. INL vs Output Code

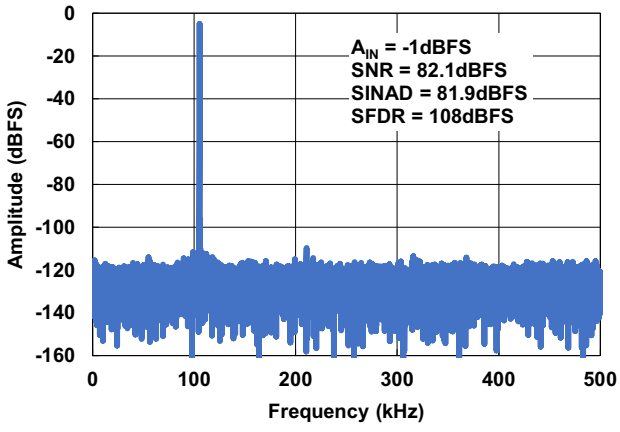

Figure 2. 32k FFT - 105.3kHz

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