

## 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 <math><50\mu\text{W}</math>. The analog input signal range is determined by an external reference.

The ISL73141SEH operates across the military temperature range from

### 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

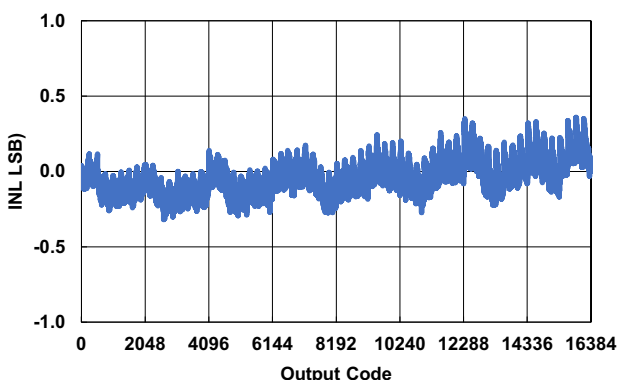


Figure 1. INL vs Output Code

### Features

- 1MSPS throughput rate with no data latency
- Excellent linearity:  $\pm 0.2$  LSB DNL,  $\pm 0.5$  LSB INL
- No missing codes
- Low noise: 82.1dB SNR
- 3.3V or 5V  $\text{AV}_{\text{CC}}$  supply options
- Separate 2.2V to 3.6V digital I/O supply
- Low power: 60mW at 1MSPS
  - $\text{AV}_{\text{CC}} = 5\text{V}$ ,  $\text{DV}_{\text{CC}} = 2.5\text{V}$
- Power-down mode with  $<50\mu\text{W}</math> power consumption$
- High speed SPI-compatible serial I/O
- Full military temperature range operation
  - $T_{\text{A}} = -55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Radiation acceptance testing
  - LDR (0.01rad(Si)/s): 75krad(Si)
- SEE hardness (see SEE report for details)
  - No SEB/SEL  $\text{LET}_{\text{TH}}$  ( $\text{AV}_{\text{CC}} = 6.3\text{V}$ ):  $86\text{MeV}\cdot\text{cm}^2/\text{mg}$
  - No SEFIs at  $\text{LET } 86\text{MeV}\cdot\text{cm}^2/\text{mg}$

### Related Literature

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

- [ISL73141SEH](#) and device page

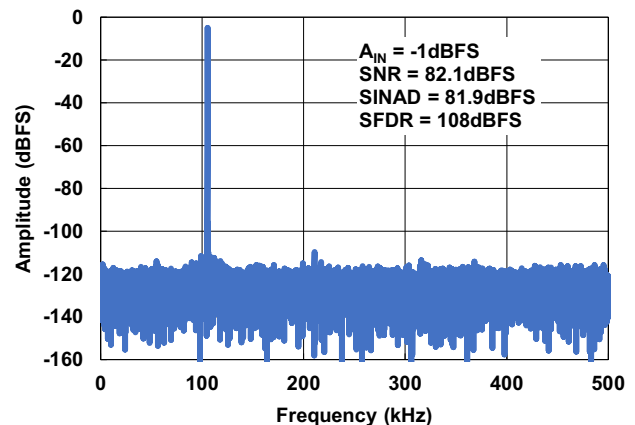


Figure 2. 32k FFT - 105.3kHz

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