The LTC®2338 fully differential and pseudo-differential 1Msps SAR ADC family offers a wide ±10.24V true bipolar input range for high voltage, industrial applications. The proprietary internal reference buffer maintains less than 1LSB error during sudden bursts of conversions, enabling true one-shot operation after lengthy idle periods. The internal reference can be overdriven to interface to a range of signal levels that swing above and below ground. The LTC2338 family eliminates complicated circuitry required to interface true bipolar signals to ADCs, and provides a compact solution for easy interfacing to 1.8V to 5V serial logic.

Features
- Up to 1Msps Throughput Rate
- ±4LSB INL Max
- True Bipolar Input Ranges ±6.25V, ±10.24V, ±12.5V
- Up to 100dB SNR, –110dB THD at f_{IN} = 2kHz
- Single 5V Supply Operation
- Low Drift (20ppm/°C Max) 2.048V Internal Reference
- Onboard Single-Shot Capable Reference Buffer
- No Pipeline Delay, No Cycle Latency
- 1.8V to 5V SPI Interface with Daisy-Chain Mode
- Power Dissipation 50mW (Typ) at 1Msps
- Internal Conversion Clock
- Guaranteed Operation to 125°C
- Small 16-Lead MSOP Packages

18-Bit Precision with 100dB SNR in Small MSOP Packages

The LTC®2338 fully differential and pseudo-differential 1Msps SAR ADC family offers a wide ±10.24V true bipolar input range for high voltage, industrial applications. The proprietary internal reference buffer maintains less than 1LSB error during sudden bursts of conversions, enabling true one-shot operation after lengthy idle periods. The internal reference can be overdriven to interface to a range of signal levels that swing above and below ground. The LTC2338 family eliminates complicated circuitry required to interface true bipolar signals to ADCs, and provides a compact solution for easy interfacing to 1.8V to 5V serial logic.

Features
- Up to 1Msps Throughput Rate
- ±4LSB INL Max
- True Bipolar Input Ranges ±6.25V, ±10.24V, ±12.5V
- Up to 100dB SNR, –110dB THD at f_{IN} = 2kHz
- Single 5V Supply Operation
- Low Drift (20ppm/°C Max) 2.048V Internal Reference
- Onboard Single-Shot Capable Reference Buffer
- No Pipeline Delay, No Cycle Latency
- 1.8V to 5V SPI Interface with Daisy-Chain Mode
- Power Dissipation 50mW (Typ) at 1Msps
- Internal Conversion Clock
- Guaranteed Operation to 125°C
- Small 16-Lead MSOP Packages

Pin-Compatible ±10V SAR ADC Family

<table>
<thead>
<tr>
<th>Throughput Rate</th>
<th>250ksps</th>
<th>500ksps</th>
<th>1Msps</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-Bit Fully Differential 100dB SNR</td>
<td>2336-18</td>
<td>2337-18</td>
<td>2338-18</td>
</tr>
<tr>
<td>18-Bit Pseudo-Differential 95dB SNR</td>
<td>2326-18</td>
<td>2327-18</td>
<td>2328-18</td>
</tr>
<tr>
<td>16-Bit Pseudo-Differential 94dB SNR</td>
<td>2326-16</td>
<td>2327-16</td>
<td>2328-16</td>
</tr>
</tbody>
</table>
## High Precision SAR ADCs
16-Bit to 20-Bit Resolution, 100kSps Up to 5MSps

<table>
<thead>
<tr>
<th>ADCs Type</th>
<th>Channels</th>
<th>Input Range</th>
<th>Resolution</th>
<th>Sample Rate</th>
<th>Power</th>
<th>Bus Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-Bit</td>
<td>8-Ch</td>
<td>±10V True Bipolar Inputs</td>
<td>16-Bit</td>
<td>250kSps to 333kSps</td>
<td>500kSps</td>
<td>1MSPs</td>
</tr>
<tr>
<td></td>
<td>2-Ch</td>
<td>±2.5V True Bipolar Inputs</td>
<td>18-Bit</td>
<td>1MSPs</td>
<td>1.6MSPs</td>
<td>2MSPs to 5MSPs</td>
</tr>
<tr>
<td></td>
<td>1-Ch</td>
<td>±2.5V True Bipolar Inputs</td>
<td>20-Bit</td>
<td>100kSps</td>
<td>200kSps</td>
<td></td>
</tr>
</tbody>
</table>

### ADCs Examples
- **Serial**: LTC2338, LTC2378, LTC2389
- **Parallel**: LTC2329, LTC2330

### Input Options
- **3.3V/5V Supply**: Unipolar/True Bipolar Inputs
- **1.8V Supply**: ±2.5V True Bipolar Inputs

### Contact Info
- [www.linear.com/LTC2338](http://www.linear.com/LTC2338)
- 1-800-4-LINEAR