18-Bit 1.6Msps SAR ADC
101dB SNR

Unrivaled Performance at Only 18mW

The LTC®2379-18 leads a pin-compatible family of no-latency SAR ADCs featuring unrivaled 101dB SNR at 18-bits and 96dB SNR at 16-bits from 250ksps to 2Msps. Explicit Busy and Chain pins, along with a user-friendly SPI interface, simplify digital timing. A unique digital gain compression feature eliminates the need for a negative ADC driver supply while preserving the full resolution of the ADC, dramatically lowering the total power consumption of the signal chain.

Features
- 1.6Msps Throughput Rate
- 101.2dB SNR (Typ) at f
  IN
  = 2kHz
- ±2LSB INL (Max), ±0.9LSB DNL (Max)
- 120dB THD (Typ) at f
  IN
  = 2kHz
- Low Power: 18mW at 1.6Msps, 18μW at 1.6kps
- Power Down Mode: 2.25μW
- Fully Differential Input Range ±V
  REF

Complete 18-Bit/16-Bit Pin-Compatible SAR ADC Family

<table>
<thead>
<tr>
<th>Throughput Rate</th>
<th>250ksps</th>
<th>500ksps</th>
<th>1Mps</th>
<th>1.6Msps</th>
<th>2Msps</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-Bit 101dB SNR</td>
<td>2376-18</td>
<td>2377-18</td>
<td>2378-18</td>
<td>2378-18</td>
<td></td>
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<tr>
<td>16-Bit 96dB SNR</td>
<td>2376-16</td>
<td>2377-16</td>
<td>2378-16</td>
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<td>2380-16</td>
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<tr>
<td>Power Consumption</td>
<td>3.4mW</td>
<td>6.75mW</td>
<td>13.5mW</td>
<td>18mW</td>
<td>19mW</td>
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</tbody>
</table>

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The LTC2379-18 family offers an innovative Digital Gain Compression (DGC) feature which eliminates the driver amplifier’s negative supply while preserving the full resolution of the ADC. When enabled, the ADC performs a digital scaling function that maps zero-scale code from 0V to \(0.1 \times V_{\text{REF}}\) and full-scale code from \(V_{\text{REF}}\) to \(0.9 \times V_{\text{REF}}\), allowing the amplifier to operate from a single positive supply. The elimination of the negative supply dramatically reduces the total power consumption of the signal chain and reduces component count while simplifying the design.

The LTC6655-5 is an ultra-stable very low noise voltage reference, with only \(1.25\mu V_{\text{P-P}}\) noise (0.1Hz to 10Hz), temperature drift less than 2ppm/°C, and initial voltage accuracy within ±0.025%. It can be powered from as little as 500mV above the output voltage, up to a maximum supply voltage of 13.2V. A shutdown mode allows the power consumption to be reduced to less than 20µA. The combination of extreme precision and high temperature operating range make the LTC6655 an ideal voltage reference for the most demanding automotive, industrial and instrumentation applications.

Features
- Low Noise: 0.25ppm_{P-P} (0.1Hz to 10Hz)
- \(1.25\mu V_{\text{P-P}}\) for the LTC6655-5
- Low Drift: 2ppm/°C Max
- High Accuracy: ±0.025% Max
- Sinks and Sources Current: ±5mA
- Fully Specified from –40°C to 125°C
- Available Output Voltages: 1.25V, 2.048V, 2.5V, 3V, 3.3V, 4.096V, 5V
- Available in an 8-Lead MSOP Package

The LTC®6655 is an ultra-stable very low noise voltage reference, with only \(1.25\mu V_{\text{P-P}}\) noise (0.1Hz to 10Hz), temperature drift less than 2ppm/°C, and initial voltage accuracy within ±0.025%. It can be powered from as little as 500mV above the output voltage, up to a maximum supply voltage of 13.2V. A shutdown mode allows the power consumption to be reduced to less than 20µA. The combination of extreme precision and high temperature operating range make the LTC6655 an ideal voltage reference for the most demanding automotive, industrial and instrumentation applications.

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