



## **32-Bit SAR ADC with Digitally Filtered & 1Msps No Latency Outputs**

MILPITAS, CA – August 1, 2016 – Linear Technology Corporation introduces the [LTC2508-32](#), an ultrahigh precision 32-bit successive approximation register (SAR) analog-to-digital converter (ADC). Many high performance applications, including data acquisition, industrial control and medical instrumentation, require both accuracy and speed. This is often achieved by using a high resolution delta-sigma ADC and a high speed SAR ADC in the same system. The LTC2508-32 simplifies such hybrid ADC system design by simultaneously providing both a 32-bit low noise digitally filtered output and a 14-bit 1Msps no latency output. Since these outputs are generated from a single 32-bit SAR ADC core, the high accuracy and high speed outputs are perfectly matched, even as the operating temperature, supply and stress vary. In contrast to traditional solutions employing two distinct unmatched ADCs, the unique combination of both accuracy and speed in the LTC2508-32 enables much higher system performance while reducing solution size and lowering component count.

The LTC2508-32 is ideal for applications that simultaneously require precision measurement and fast tracking of signals. The exceptional 3.5ppm guaranteed maximum linearity, together with up to 145dB of dynamic range, enables the LTC2508-32 to make precision measurements in the presence of noise. Simultaneously, the high speed 1Msps output provides a 14-bit differential and 8-bit common mode representation of the input signal, enabling sophisticated control loop designs with early detection mechanisms. The LTC2508-32 further improves system accuracy while simplifying signal conditioning design by directly digitizing the input signal over the full input range with over 120dB of common mode rejection.

The LTC2508-32 features an integrated digital filter that can be configured to optimize the 32-bit high accuracy output's noise performance and bandwidth, up to a maximum 145dB of dynamic range at an output data rate of 61sps. The integrated digital filter offers a minimum 80dB attenuation of out-of-band noise, relaxing analog anti-aliasing filter requirements and

significantly reducing system complexity. The reduced data rate of the digitally filtered output also eases communication with slow processors.

The LTC2508-32 dissipates 24mW of power from a single 2.5V supply. The LTC2508-32 is available today in a space saving 7mm × 4mm 24-lead DFN package. Pricing for the LTC2508-32 starts at \$8.95 each in 1,000-piece quantities. Samples and demo boards may be requested at [www.linear.com/product/LTC2508-32](http://www.linear.com/product/LTC2508-32), or by contacting your local Linear Technology sales office.

### **Photo Caption:** 32-Bit Oversampling ADC with Configurable Digital Filter


### **Summary of Features: LTC2508-32**

- ±0.5ppm INL (Typ),
- 145dB Dynamic Range (Typ) at 61sps
- 131dB Dynamic Range (Typ) at 4ksps
- Guaranteed 32-Bit No Missing Codes
- Configurable Digital Filter with Synchronization
  - Relaxed Anti-Aliasing Filter Requirements
- Dual Output 32-Bit SAR ADC
  - 32-Bit Digitally Filtered Low Noise Output
  - 14-Bit Differential + 8-Bit Common Mode 1Msps No Latency Output
- Wide Input Common Mode Range
- 1.8V to 5V SPI-Compatible Serial I/O
- Low Power: 24mW at 1Msps
- 24-Lead (7mm × 4mm) DFN Package

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

### **About Linear Technology**

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs,  $\mu$ Module<sup>®</sup> subsystems, and wireless sensor network products. For more information, visit [www.linear.com](http://www.linear.com)

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**Press Contacts:**

**North America / Worldwide**

John Hamburger, Director Marketing  
Communications

[jhamburger@linear.com](mailto:jhamburger@linear.com)

Tel: 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager

[ddickinson@linear.com](mailto:ddickinson@linear.com)

Tel: 408-432-1900 ext 2233

**UK & Nordic**

Alan Timmins

[a.timmins@ntlworld.com](mailto:a.timmins@ntlworld.com)

Tel: +44-1-252-629937