



## **Low-Power 16-/14-/12-Bit Unbuffered Voltage Output DAC Family Features Precision DC & 1 $\mu$ s Settling Time**

MILPITAS, CA – August 6, 2007 – Linear Technology Corporation introduces a complete family of low-power, precision 16-/14-/12-bit unbuffered voltage output digital-to-analog converters (DACs). Both the unipolar LTC2641 and bipolar LTC2642 draw only 120 $\mu$ A of supply current while settling to within 0.5LSB for a full-scale step in only 1 $\mu$ s. These voltage output DACs feature a 0.5nV $\cdot$ s glitch impulse, which is key for AC applications such as waveform generation. Low glitch reduces the transient voltages between code changes in the DAC. Fast settling and low glitch reduce harmonic distortion, making it possible to produce higher frequency, lower noise output waveforms.

The LTC2641-16 and LTC2642-16 also offer accurate DC specifications, including 16-bit monotonic resolution,  $\pm 2$ LSB(max) INL,  $\pm 2$ LSB(max) unipolar offset error, and  $\pm 5$ LSB(max) gain error. Additionally, these DACs have extremely low drift of 0.1ppm/ $^{\circ}$ C over the  $-40^{\circ}$ C to  $+85^{\circ}$ C industrial temperature range. With their low offset and drift specifications, the LTC2641/LTC2642 can be used in precision DC positioning systems, gain and offset adjustment applications, automatic test equipment and data acquisition systems.

For bipolar operation, the LTC2642 includes matched scaling resistors for use with a precision external amplifier such as the LT1678, generating a  $\pm 5$ V output swing. Operating from a 2.7V to 5.5V supply voltage, these DACs each feature power-on reset circuitry that resets the LTC2642 to mid-scale and the LTC2641 to zero-scale at power-up. Communicating via a 3-wire SPI/QSPI/Microwire-compatible serial interface at clock rates up to 50MHz, these DACs can interface directly with optocouplers for applications requiring isolation.

The LTC2641 and LTC2642 are both available in pin-compatible 16-bit, 14-bit, and 12-bit versions. The LTC2641 is available in tiny 3mm x 3mm DFN-8 and MSOP-8 packages and the LTC2642 is available in 3mm x 3mm DFN-10 and MSOP-10 packages. All of the LTC2642 and LTC2641 DACs are software-compatible, making it easy to transition between

bipolar or unipolar outputs at different resolutions for performance/cost optimization. Pricing begins at \$2.95 for the LTC2642-12 and LTC2641-12 in 1,000-piece quantities.

**Photo Caption:** 16/14/12-Bit Unbuffered  $V_{OUT}$  DAC Family Features Unipolar and Bipolar Outputs

### Summary of Features: LTC2641/LTC2642

- Maximum 16-Bit INL Error:  $\pm 2$ LSB over Temperature
- Low 0.5nV•s Glitch Impulse
- Fast 1 $\mu$ s Settling Time
- Low 120 $\mu$ A Supply Current
- Guaranteed Monotonic over Temperature
- 2.7V to 5.5V Single Supply Operation
- Unbuffered Voltage Output Directly Drives 60k $\Omega$  Loads
- 50MHz SPI/QSPI/MICROWIRE-Compatible Serial Interface
- Power-On Reset Clears DAC Output to Zero Scale (LTC2641) or Midscale (LTC2642)
- Schmitt-Trigger Inputs for Direct Optocoupler Interface
- Asynchronous #CLR Pin
- 8-Lead MSOP and 3mm x 3mm DFN Packages (LTC2641)
- 10-Lead MSOP and 3mm x 3mm DFN Packages (LTC2642)

### About Linear Technology

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems. For more information, visit [www.linear.com](http://www.linear.com)

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