Convert PWM Inputs to 12-Bit Accurate Voltage Outputs with No Software, No Ripple & No Delay

MILPITAS, CA – August 12, 2014 – Linear Technology Corporation introduces the LTC2645, a quad-channel 12-bit/10-bit/8-bit PWM-to-voltage output digital-to-analog converter (DAC) with 10ppm/°C reference. These parts convert PWM input signals to 12-bit accurate, stable, buffered voltage outputs in less than 8µs, eliminating the ripple and delay typically associated with analog filters. The LTC2645 provides a simple bolt-on solution to accurately set and adjust four voltages without a single line of code required. Offered in a small 16-lead MSOP package, the LTC2645 is ideal for biasing, calibration, level setting, power supply adjustment, and to enable opto-isolated communications in applications such as industrial automation, 4-20mA process control, instrumentation, test equipment and optical modules. A dual version, the LTC2644, is available in a 12-lead MSOP package.

The LTC2645 measures the period and pulse width of the PWM input signals and updates the DACs after each PWM input rising edge, accepting PWM input frequencies from 30Hz up to 100kHz. An IDLSEL pin provides flexibility to set the outputs to idle at zero- or full-scale, power-down with high-impedance output, or hold the previous state indefinitely in response to an idle PWM input. This convenient mode has the advantage over analog filter implementations, which require the PWM to run continuously. Each rail-to-rail DAC output is capable of sourcing or sinking 5mA (3V) or 10mA (5V), and offers a full-scale output of 2.5V using the internal 10ppm/°C reference or a full-scale output equal to the external reference.

The LTC2645 operates from a single 2.7V to 5.5V supply, and supports PWM input voltages from 1.71V to 5.5V. The device consumes just 4mA from a 3V supply, and offers a <1µA power-down mode with high impedance outputs.

The LTC2645 is offered in 12-bit/10-bit/8-bit versions and is available today in commercial, industrial and automotive (-40ºC to 125ºC) temperature grades. Pricing begins at $3.95 each for the LTC2645-12 in 1,000-piece quantities. The DC2197A evaluation board for the LTC2645 family is supported by the Linduino™ Firmware Development System, using DC2026 and is available at www.linear.com/demo or via a local Linear Technology sales office. For more information, visit www.linear.com/product/LTC2645 and www.linear.com/solutions/linduino

Photo Caption: Quad PWM to Voltage Output DAC

Summary of Features: LTC2645

- No Latency PWM-to-Voltage Conversion
- Voltage Output Updates & Settles within 8µs
- 100kHz to 30Hz PWM Input Frequency
- ±2.5LSB Max INL; ±1LSB Max DNL
- Guaranteed Monotonic
- Pin-Selectable Internal or External Reference
- 2.7V to 5.5V Supply Range
- 1.71V to 5.5V Input Voltage Range
- Low Power: 4mA at 3V, <1µA Power-Down
- –40°C to 125°C Operating Temperature Range
- Tiny 4.9mm × 4mm 16-Lead MSOP Package

The USA list pricing shown is for budgetary use only. International prices 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, µModule® subsystems, and wireless sensor network products. For more information, visit www.linear.com

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