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High Performance Broadband Active Filters & ADC Drivers Family Offers Unprecedented Accuracy to Ease Design Tasks

MILPITAS, CA – November 13, 2008 – Linear Technology introduces a family of five (5) single and dual high performance, wide bandwidth lowpass active filter / ADC driver amplifier products providing cost-effective solutions in the smallest form-factor for challenging filtering applications in broadband wireless communications and signal processing equipment. With this family, Linear Technology offers the broadest selection of broadband active filters:

- LTC6603 Dual Programmable 2.5MHz Filter / ADC Driver
- LTC6601-1 5 to 28MHz Bandwidth Low Noise Configurable 0.5% Tolerance Filter / ADC Driver
- LTC6605-7 Dual Matched 7MHz Filter / ADC Driver
- LTC6605-10 Dual Matched 10MHz Filter / ADC Driver
- LTC6605-14 Dual Matched 14MHz Filter / ADC Driver

The LTC6603 features a dual matched programmable 9th order switched capacitor linear-phase filter and ADC driver. The filter's lowpass cutoff frequency up to 2.5MHz and its gain are adjustable via a serial SPI port, or can be fixed by pin-strapping. Fine frequency control over 100:1 frequency range can be implemented using an external DAC to vary the device's master reference clock. The LTC6603's programmability, sharp filter rolloff frequency response, along with guaranteed phase and gain performance make it ideal as a baseband filter for I/Q demodulators in CDMA-2000, W-CDMA and LTE (Long-Term Evolution) Femto-cell basestations, repeaters, RFID readers, imaging, sonar scan receivers and a wide range of industrial signal processing instruments. The LTC6603 comes in a small 4mm x 4mm 24-lead QFN package offering significant cost and space savings compared to alternative discrete solutions. Price starts at \$7.50 each in 1,000 piece quantities.

The second filter in the family, the LTC6601-1, is a low noise 0.5% tolerance lowpass active filter and ADC driver with configurable bandwidth from 5MHz to 28MHz. The filter has a 2nd order linear phase Butterworth response. It has differential inputs and outputs. The filter's on-chip resistors and capacitors that form its cutoff frequency, Q (quality factor of a filter) and gain are laser trimmed at the factory to an absolute tolerance of 0.5% typical. These resistors and capacitors are pinned out, allowing users to pin strap wide combinations of filter response and gain. Additionally, the amplifier's frequency response is also laser trimmed, resulting in a highly accurate and repeatable filter response from device to device. Higher order filters can be attained by cascading multiple stages of the LTC6601-1. Moreover, the amplifier has a robust output stage to directly drive many high sampling speed A/D converters. Each filter comes in a 4mm x 4mm 20-lead QFN package. Thus the LTC6601-1 offers form factor, reduced external component count and performance advantages over discrete filter solutions. Price starts at \$3.95 each in 1,000 piece quantities.

Rounding out the family are the LTC6605-7, -10 and -14, which are fixed frequency, 2nd order linear phase dual matched lowpass active filters having bandwidths of 7MHz, 10MHz and 14MHz, respectively. Each filter pairs are tested and guaranteed to offer tight matching of phase and gain characteristics. These filters are ideal for I/Q demodulator channel filtering in WiMAX and broadband wireless access equipment including point-to-point microwave links. The matched filter performance is also suitable for driving multi-channel signal processing and pre-filtering for high speed ADCs. The LTC6605 family comes in a 6mm x 3mm, 22 leads DFN package. Price starts at \$6.95 each in 1,000 piece quantities.

All filters in the family are available in C grade specified for 0°C to 70°C, and I-grade specified for -40°C to 85°C operation. All products are available immediately from stock.


Photo Caption: High Performance Broadband Adjustable Filters / ADC Drivers Family

Summary of Features:

	LTC6603	LTC6601-1	LTC6605-7	LTC6605-10	LTC6605-14
Max Bandwidth	2.5 MHz	5MHz to 28MHz	7 MHz	10 MHz	14 MHz
# of channels	Dual	Single	Dual	Dual	Dual
Type	Programmable	Configurable	Fixed Frequency	Fixed Frequency	Fixed Frequency
Max Amplitude Mismatch	+/- 0.4 dB	-	+/- 0.35 dB	+/- 0.35 dB	+/- 0.25 dB
Max Phase Mismatch	+/- 4°	-	+/- 1.2°	+/- 1.2°	+/- 1.1°
Distortion (Total Harmonic)	-75 dB	-70 dB	-96 dB	-90 dB	-81 dB
Input-Referred Noise Spectral Density	25nV/√Hz	15nV/√Hz	21nV/√Hz	20nV/√Hz	13.2nV/√Hz
Package	4mm x 4mm QFN	4mm x 4mm QFN	6mm x 3mm DFN	6mm x 3mm DFN	6mm x 3mm DFN

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, uModule™ products, 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.

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