



15dB Gain Block Delivers 47dBm OIP3 Linearity with Low Noise from 100kHz to 1.4GHz

MILPITAS, CA – July 21, 2016 – 2016 – Linear Technology announces the [LTC6433-15](#), a wideband 15dB gain block amplifier offering outstanding linearity of 47dBm OIP3 (output third order intercept) and 3.22dB noise figure at 150MHz. The amplifier has excellent OP1dB (output 1dB compression point) of 19.2dBm. The LTC6433-15 is uniquely different from other gain block amplifiers that are typically built using GaAs or pHEMT processes. These FET technologies have high 1/f noise corners on the order of 20MHz to 30MHz, so are prone to high noise floor rise, which renders them unusable at low frequencies. In contrast, the LTC6433-15 amplifier core is built using high frequency SiGe bipolar technology. As a result, the amplifier exhibits much lower 1/f noise corner, typically below 10kHz, making it usable at low frequencies to 100kHz without significant noise rise. Moreover, the performance of GaAs and pHEMT type devices is highly dependent on their internal FET bias voltage, which can vary widely from part to part. Not so with the LTC6433-15, whose performance is stable over temperature and from device to device, and is insensitive to power supply voltage variations.

The LTC6433-15's low frequency capability broadens its use and improves performance in a wide range of amplifier applications, including cable networks, broadband signal sources, radar receiver IF amplifiers, VHF/UHF broadcast radios and RF test instrumentation. The LTC6433-15 offers a superior alternative to many op amp solutions in amplifier applications that do not require DC coupling.

The LTC6433-15 input and output are 50Ω wideband matched from 100kHz to 1GHz with 1dB flatness over that frequency range. It has a –3dB bandwidth of 1.4GHz. The amplifier needs only an input and output DC blocking capacitor, plus a choke to bias its open collector output, and one feedback capacitor to set the matching and gain flatness at low frequencies. Hence, the LTC6433-15 simplifies wideband design and allows easy cascading with minimal external components. The DC2168A evaluation circuit demonstrates this performance, covering the 100kHz to 1GHz band with flat gain, low noise and industry leading distortion performance.

The LTC6433-15 operates from a single 5V supply. It draws a nominal 95mA supply current. The device is specified for operation over a case temperature range of -40°C to 85°C . The amplifier is available in a 4mm x 4mm plastic QFN package. The guaranteed performance A-grade version is priced starting at \$4.89 each, and the B-grade version starting at \$1.89 each in 1,000-pieces quantities. Both are available from stock. For more information, visit www.linear.com/product/LTC6433-15.

Photo Caption: Wideband Ultralow Distortion 15dB Gain Block


Summary of Features: LTC6433-15

	LTC6433A-15	LTC6433B-15
Operating Frequency	100kHz to 1.4GHz	100kHz to 1.4GHz
Output IP3 (150MHz)	47.2dBm	45dBm
Output P1dB	19.2dBm	19.2dBm
Power Gain	15.9dB	15.9dB
Noise Figure (NF)	3.22dB	3.22dB
Low Power	5V/95mA	5V/95mA

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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, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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