

# Tiny LNAs offer low noise for GPS applications

ECN Europe

[NXP](#) [1] has unveiled the BGU8006 low-noise amplifier, which it says is the tiniest GPS LNA on the market, designed for very small portable devices. Available in a tiny wafer level chip scale package (WLCSP), the latest GPS LNAs have a footprint of just 0.65 x 0.44 x 0.2 mm and require only two external components. NXP says a 38% saving PCB space can be made, compared to the smallest solution on the market today. Also featuring a low noise figure of 0.60 dB, the LNAs offer good reception for weak GPS signals by dynamically suppressing strong cellular and WLAN transmit signals.

The new BGU8006 LNA uses adaptive biasing techniques to detect any output power from jammers, and compensate by temporarily increasing the current. Adaptive biasing dynamically suppresses strong cellular, WLAN and Bluetooth signals, which can drive typical GPS LNAs into compression, lowering gain, generating intermodulation and harmonics that can overpower weak signals, and causing poor GPS reception. With the BGU8006, adaptive biasing improves linearity with a 10 dB better IP3 under -40 to -20 dBm jamming conditions and provides effective GPS output with jammer power up to -15 dBm.

The BGU8006 LNA uses WLCSP technology, which is ideal for space-constrained applications. WLCSP minimises parasitic inductance because there are no leads, bond wires or interposer connections, and optimises package size, cost and thermal characteristics. In addition to the BGU8006, NXP also offers the BGU8007 LNA in a 1.45 x 1.0 x 0.5-mm 6-pin leadless SOT886 package. Both LNAs require only one external matching inductor and one external decoupling capacitor for easy design-in and savings in component costs and PCB area.

NXP's BGU800x series LNAs are suited to a wide range of GPS applications, including smartphones, feature phones, tablets, personal navigation devices (PNDs), digital still cameras (DSCs), digital video cameras (DVCs), RF front-end modules for phones, and complete GPS chipset modules. For automotive telematics applications such as emergency call (eCall) and toll collection systems, NXP also offers the BGU7004 and BGU7008, which are AEC-Q100 qualified.

**Source URL (retrieved on 05/05/2015 - 4:20am):**

<http://www.ecnmag.com/news/2012/06/tiny-lnas-offer-low-noise-gps-applications>

### Links:

[1] <http://www.nxp.com>