

Block Diagram for 2.4GHz IEEE802.11b DSSS WLAN Transceiver Application

Short application article show a detailed block diagram for the 802.11b DSSS transceiver. The MAX2242 PA provides 33dBc ACPR at 2.45GHz with +22.5dBm output power. The MAX2752 VCO has on-chip varactors and a factory tuned tank circuit. The MAX2644 LNA gives 17dB gain with 2dB noise figure.

Overview

Existing 2.4GHz DSSS WLAN chipsets incorporate almost all the functions of a typical superheterodyne transceiver, including RF and IF PLLs and I/Q modulator/demodulators. Incorporating the power amplifier (PA) and voltage-controlled oscillators (VCOs) on-chip remains a design challenge for many IC manufacturers. To meet customers' demands for low-cost designs that consume minimal supply current and require little board space, Maxim has introduced the MAX2242 linear PA and the MAX2752 VCO. The following block diagram shows a typical application.

Linear Power Amplifier

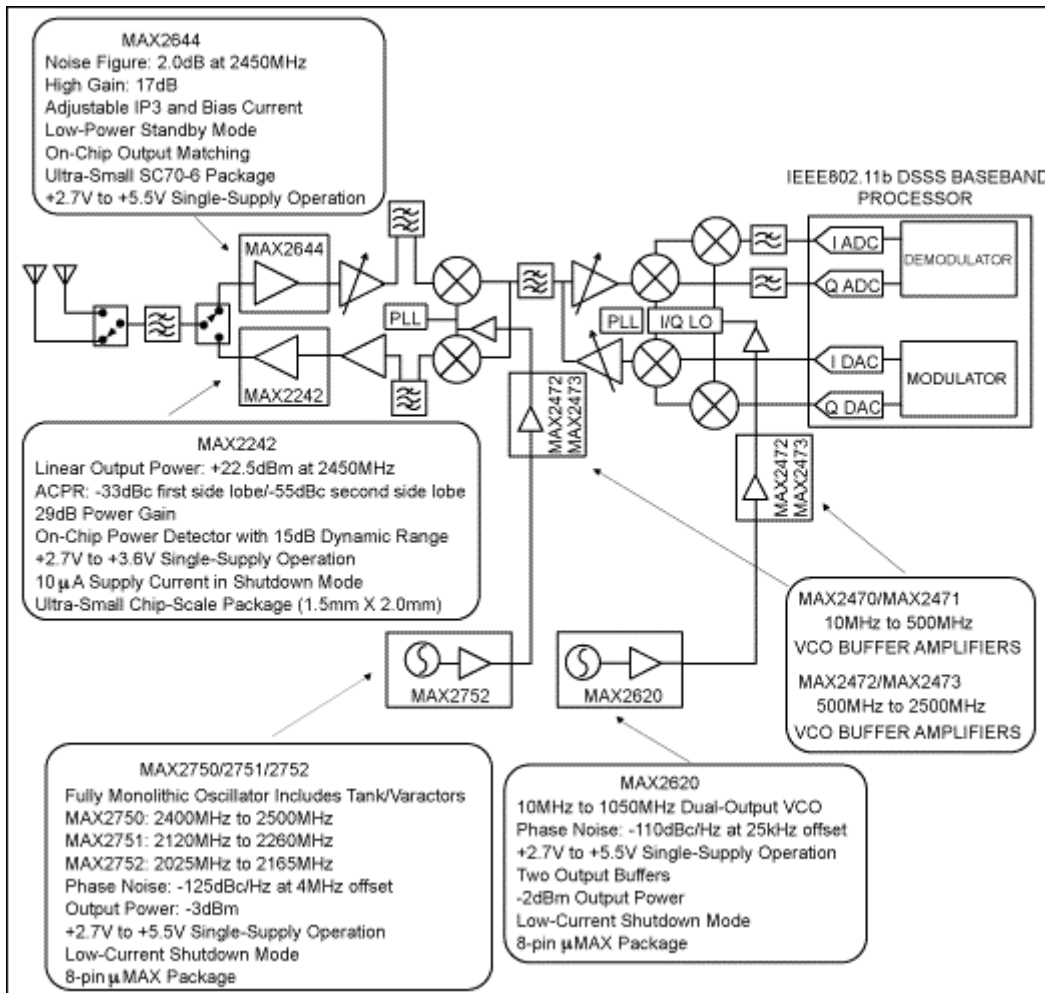
At 2.45GHz, the MAX2242 provides +22.5dBm of linear output power, 28.5dB of gain from a 3.3V supply, while offering 33dBc ACPR performance, exceeding the IEEE802.11b standard by 3dB. It incorporates an adjustable bias control to allow throttle back of supply current at lower power levels, an on-chip power detector, and a 0.5 μ A shutdown mode to extend battery life. The MAX2242 is offered in the ultra-chip-scale package (UCSP) configuration and measures 1.5mm x 2.0mm.

RF Voltage-Controlled Oscillator

The MAX2752 VCO incorporates factory-trimmed tank-circuit components and varactors into a single 8-pin μ MAX package, greatly reducing board space and design time. The MAX2752 tunes over the 2025MHz to 2165MHz frequency range, delivers -3dBm of output power, and offers phase-noise performance of -125dBc/Hz* at a 4MHz offset.

IF Voltage-Controlled Oscillator

A popular chipset requires an IF LO of 374MHz to downconvert the IF signal to baseband. This IF LO is achieved by dividing the external VCO frequency with an internal divide-by-two circuit. This IF LO can be realized using the MAX2620. The MAX2620 is a VCO that requires an external tank and varactor, allowing it to be tuned to the required 748MHz.



The 2.4GHz IEEE802.11b DSSS WLAN transceiver

*As stated in the [MAX2752 data sheet](#), revision 0, 10/00.

MORE INFORMATION

MAX2242: [QuickView](#) -- [Full \(PDF\) Data Sheet \(200k\)](#) -- [Free Sample](#)

MAX2620: [QuickView](#) -- [Full \(PDF\) Data Sheet \(248k\)](#) -- [Free Sample](#)

MAX2644: [QuickView](#) -- [Full \(PDF\) Data Sheet \(176k\)](#) -- [Free Sample](#)

MAX2752: [QuickView](#) -- [Full \(PDF\) Data Sheet \(160k\)](#) -- [Free Sample](#)