REFERENCE DESIGN 459 INCLUDES: ✓ Tested Circuit ✓ Schematic ✓ BOM ✓ Board Available

REP020: Dual-Band Dual-Mode FE IC with Common 210MHz IF

Nov 01, 2000

Abstract: This reference design (RD) is for a dual-band, dual-mode CDMA front-end that uses a CDMA LNA/mixer, the MAX2323. The RD retunes the FM analog and the cellular/PCS digital mixers to 210MHz IF. This CDMA low-noise amplifier is also useful for TDMA, GSM, EDGE, and WCDMA applications. Schematics and bill of materials are shown.

Rapid Engineering Prototypes are real circuits that Maxim application engineers have built and measured in our labs. They can provide a starting point for new RF designs. They are not available as evaluation kits.

Objective: To apply and measure this dual-band triple-mode CDMA front-end IC in a receiver with all 210MHz IFs.

The MAX2323 was developed with a single, digital, IF output port. Having a common 210MHz IF, both digital mixers’ gain is still adequate for good receiver sensitivity, and their IP2 performance and other related parameters offer sufficient margin for meeting 1/2 IF and additional interferers in a CDMA handset. In this application, the MAX2323 was tested for and successfully applied to a CDMA dual-band dual-mode handset front-end design. The circuit modification requirement for this project was to retune the FM analog and the cellular/PCS digital mixers to 210MHz IF.

The MAX2323 low-noise amplifier (LNA) plus mixer is designed for dual-band CDMA cellular-phone handsets, but it can also be used in dual-band TDMA, GSM, EDGE, or WCDMA applications. It differs from its predecessor (the MAX2320) by adding a third "mid-gain" state for the cellular-band LNA that improves switchover hysteresis margin. It also comes in a smaller package (28-QFN) and offers...
increased third-order input intercept.

**Block diagram of the receive-path application**

**Schematic of the MAX2323 evaluation kit (PDF, 58kB)**

Bill of materials, part 1

Bill of materials, part 2

**Related Parts**

<table>
<thead>
<tr>
<th>MAX2323</th>
<th>Triple/Dual-Mode CDMA LNA/Mixers</th>
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REFERENCE DESIGN 459, AN459, AN 459, APP459, Appnote459, Appnote 459

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