

APPLICATION NOTE 454

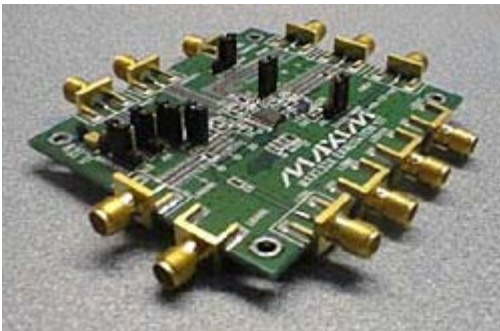
REP003: Cellular Front-End IC in Automobile Application

Abstract: This reference design (RD) is for a dual-band CDMA front-end IC for use in automotive applications. The application circuit uses the MAX2323 low-noise amplifier (LNA) with mixer at temperatures up to 110°C. The device is also useful for TDMA, GSM, EDGE, and WCDMA applications. Schematics, bill of materials (BOM), and performance measurements are shown.

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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 determine the nondestructive operating temperature range of this dual-band triple-mode front-end IC.

This project entailed custom-testing the [MAX2323](#) at an extended temperature range up to +110°C for an automotive guidance system application. The main test objective was to determine that the circuit performance routinely recovered with no noticeable performance degradation at room temperature, especially from high heat. Note that initially it was found that some soft plastic components (jumpers) on the board melted, but this was remedied by applying a local controlled-heat source.

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, which improves switchover hysteresis margin. It also comes in a smaller package (28-QFN) and offers increased third-order input intercept.

Performance measurements at 25°C and 100°C

[PCS mixer measurement test setup](#)

[Schematic of MAX2323 evaluation kit \(PDF, 60kB\)](#)

[Bill of materials, part 1](#)

[Bill of materials, part 2](#)

[Bill of materials, part 3](#)

Related Parts

[MAX2323 Triple/Dual-Mode CDMA LNA/Mixers](#)

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