

REP010: Dual-Band IS-136 FE IC at 183MHz IF

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.

Additional Information: [Wireless Product Line Page](#)
[Quick View Data Sheet for the MAX2338](#)
[Applications Technical Support](#)



Objective: To apply and measure this dual-band triple-mode CDMA front-end IC in an IS-136 TDMA receiver with all 183MHz IFs.

The MAX2338 was made to readily facilitate a single IF for both PCS- and cellular-band receive paths. Its mixer's IP2 performance and other related parameters offer sufficient margin for meeting 1/2 IF and other interferers in a CDMA handset. In this application, the MAX2338 was tested for and successfully applied to a TDMA handset front-end design. The common 183.6MHz IFs allow for minimizing the RF VCO and therefore the lowest parts' count and the simplest frequency plan.

The MAX2338 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. The MAX2338 furnishes a divide-by-2 function in the PCS-band LO input path, providing for a single VCO at the PCS band. The buffered LO outputs permit direct driving of the transmit-path upconverter without an external LO buffer. The MAX2338 differs from its predecessors (the MAX2320 and the MAX2323) in its lower noise figure and its higher IIP3 for both LNAs and mixers. Also, it comes in a small package (28-QFN).

[Schematic of the MAX2338 Evaluation Kit](#) (PDF, 57K)

[Bill of Materials, Part 1](#)

[Bill of Materials, Part 2](#)

[Measured Performance of the MAX2338](#)

[PCS Mixer Gain and IIP3 Measurement Setup](#)

[Cellular Mixer Gain and IIP3 Measurement Setup](#)

[FM Mixer Gain and IIP3 Measurement Setup](#)

[PCS LNA IIP3 Measurement Setup](#)

[Cellular LNA IIP3 Measurement Setup](#)

[Cellular LNA Noise-Figure Measurement Setup](#)

[PCS LNA Noise-Figure Measurement Setup](#)

[Cellular Mixer Noise-Figure Measurement Setup](#)

[FM Mixer Noise-Figure Measurement Setup](#)

[PCS Mixer Noise-Figure Measurement Setup](#)

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MORE INFORMATION

MAX2338: [QuickView](#) -- [Full \(PDF\) Data Sheet \(224k\)](#)

-- [Free Sample](#)