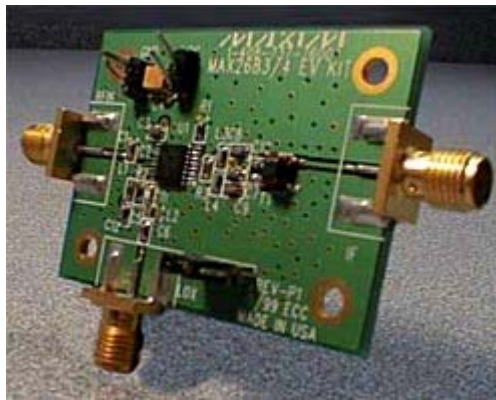


REP022: 3.5GHz RF Upconverter from 900MHz Achieves 5dB Gain and 5dBm IIP3

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 MAX2683/MAX2684](#)
[Applications Technical Support](#)



Objective: To develop a circuit that applies this downconverter IC as an upconverter.

Characterized as an upconverter, the MAX2684 was tested for performance converting from a 800MHz to a 900MHz IF input band (via the RF input pin), using a 1.7GHz LO and observing the 3.5GHz output (from the differential IF out pins). A balun was used to transform the output to a 50-ohm line. An upconversion gain of 5dB was achieved, with linearity of +5dBm IIP3. A set of S-parameters was also taken to support the design of matching networks. The application is considered highly successful.

The MAX2684 is a high-performance low-powered downconverter intended for the receive path of 3.5GHz wireless data transceivers. It offers 1dB conversion gain with variable IIP3 up to 12dBm, from 800MHz to 3.5GHz, using a low-side LO (approximately 2.7GHz LO). The MAX2684 features an LO doubler for 1/2 frequency local oscillator input, which can be toggled between fundamental mode and doubler mode. It operates from as low as 2.7VDC and is available in a 16-pin TSSOP package

[Bill of Materials](#)

[PCB Layout Plots](#)

[General Description and Features](#)

[When Used as an Upconverter, Preliminary RF Specifications](#)

[DC Electrical Characteristics](#)

[Application Circuit Description](#)

[Schematic of an Upconverter](#) (PDF, 33K)

REPPC17Q300, November 2000

MORE INFORMATION

MAX2684: [QuickView](#) -- [Full \(PDF\) Data Sheet \(384k\)](#)

-- [Free Sample](#)