



## PRODUCT SUMMARY

# SKY74076: Receiver for Dual-Band CDMA and GPS Mobile Handset Applications

## Applications

- CDMA and GPS phones

## Features

- Three-step gain control cellular LNA
- GPS LNA
- External resistor to adjust LNA bias current
- Independent CDMA and GPS mixers
- Buffer LO signal for transmit upconverter
- Dynamic range VGA, 90 dB
- VHF oscillator, 200 MHz to 600 MHz
- Battery cell operation (2.7 V < Vcc < 3.3 V)
- RFLGA™ (40-pin, 6 x 6 x 1 mm) Pb-free (MSL3, 260 °C per JEDEC J-STD-020) package with downset paddle

**NEW**



Skyworks offers lead (Pb)-free “environmentally friendly” packaging that is RoHS compliant (European Parliament for the Restriction of Hazardous Substances).

## Description

The SKY74076 is a single Intermediate Frequency (IF), dual-band, receiver for Code Division Multiple Access (CDMA) and Global Positioning System (GPS) applications.

The device is a highly integrated super-heterodyne receiver. Except for the Surface Acoustic Wave (SAW) filters and matching components, the SKY74076 incorporates all the components required to implement the receiver chain, from the Low-Noise Amplifier (LNA) to the In-Phase and Quadrature (I/Q) demodulator stages. Two LNAs are in the front-end receiver: a three-step gain

stage cellular LNA (high, mid, and bypass) and a high gain GPS LNA.

After RF LNA signal amplification and filtering from the antenna, the received signal is mixed down from RF to IF. There are separate mixers for CDMA cellular and GPS modes. The CDMA mixer has balanced outputs for the IF SAW filters and can be combined externally to mate to a single-ended SAW filter. The GPS mixers have a differential output for an external LC bandpass filter. After IF filtering, the IF signal is amplified by a Variable Gain Amplifier (VGA) and sent to an I/Q demodulator, resulting in baseband I/Q signals at the output.

The SKY74076 is also designed with two Local Oscillator (LO) input ports, one for the CDMA mixer and one for the GPS mixer. These mixers operate at different RF frequency inputs, but have the same IF frequency output. This usually refers to a single IF (SIF) plan at 183.6 MHz.

The CELL\_LO signal (pin 30) provides an LO port for the CDMA cellular mixer. In the cellular band, an internal divider divides the frequency by two, which provides the LO input to the cellular mixer. Only one external VCO is required for the UHF PLL. Additionally, the mixer LO signal is coupled and amplified internally, which provides another RF signal to drive the transmitter upconverter LO port.

The VGA has a minimum dynamic range of 90 dB with a control voltage range of 0.5 to 2.5 V, which is common to all modes. A VHF oscillator operates with external tank circuits to provide LO frequencies for the I/Q demodulator in the cellular, PCS, and GPS modes.

The noise figure, gain, and 3<sup>rd</sup> order Input Intercept Point (IIP3) of each stage in the receiver chip are optimized to meet the system requirements for CDMA modes according to TIA/EIA-98-C. The SKY74076 design employs BiCMOS technology for low cost, high performance, and a high level of integration.

A block diagram of the SKY74076 is shown in Figure 1.

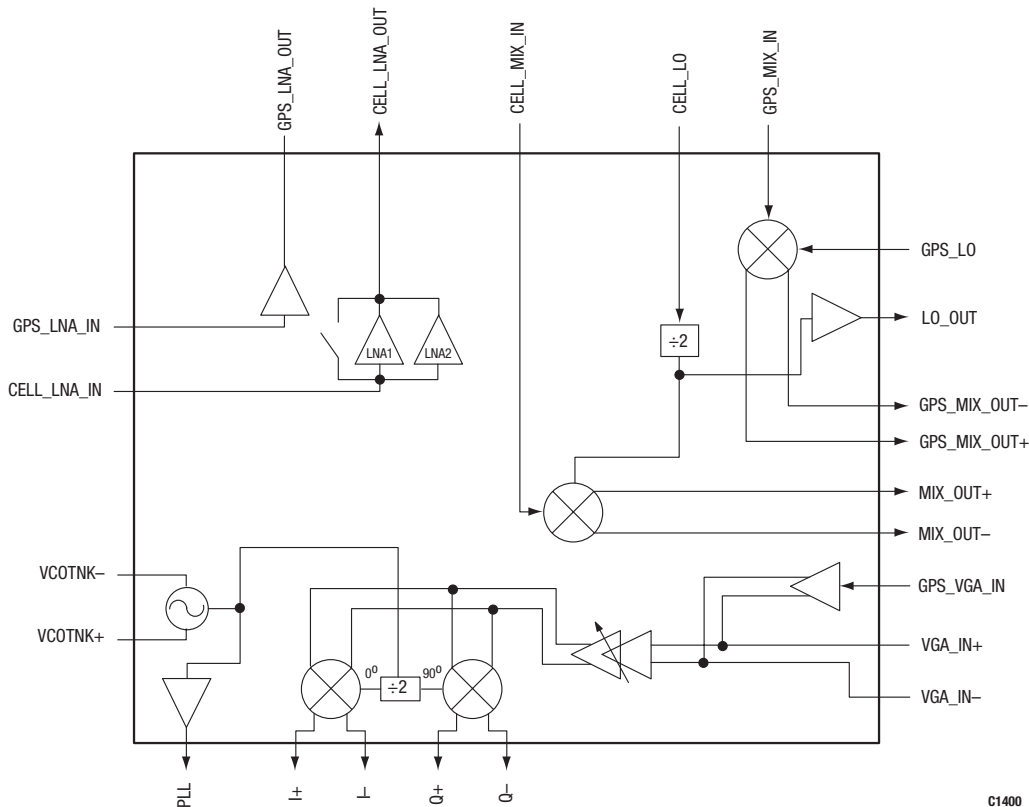


Figure 2. SKY74076 Receiver Block Diagram

### Ordering Information

Model Name	Manufacturing Part Number	Product Revision
SKY74076 CDMA/GPS Receiver	SKY74076-11	

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