

E-Band, Upconverter SiP, 71GHz to 86GHz

FEATURES

- ▶ **Maximum conversion gain: 42dB**
- ▶ **Gain tuning range: 32dB minimum**
- ▶ **P_{SAT}: 30dBm**
- ▶ **OIP3: 36dBm at total P_{OUT} at 20dBm**
- ▶ **OP1dB: 28dBm**
- ▶ **Three-wire SPI control for power-up/power-down and bias adjust**
- ▶ **Multiple envelope/power detectors in signal chain**
- ▶ **Built-in temperature sensors**
- ▶ **Independent analog VGA and PA bias adjust**
- ▶ **Surface-mount, 20mm × 19mm, LGA_CAV package**

APPLICATIONS

- ▶ **E-band communication systems**
- ▶ **High-capacity wireless backhauls**
- ▶ **Satellite feeder link**

GENERAL DESCRIPTION

The ADMV7315 is a fully-integrated, system-in-package (SiP), in-phase/quadrature (I/Q) upconverter that operates over an intermediate frequency (IF) input range of DC to 5GHz and a radio frequency (RF) output range of 71GHz to 86GHz. The device uses an image rejection mixer driven by a 6× local oscillator (LO) multiplier chain. The mixer RF output is followed by a variable gain amplifier (VGA) and two power amplifiers PA_A (PA1) and PA_B (PA2), providing a conversion gain of 42dB typical. A single envelope detector and power detectors are integrated within each variable gain amplifier and PA_B power amplifier to detect power levels and enable a reference for LO nulling. Differential I and Q mixer inputs are provided, and can be driven with differential I and Q baseband waveforms for direct conversion applications. Alternatively, the inputs can be driven using an external 90° hybrid and two external 180° hybrids for single-ended applications.

The ADMV7315 comes in a fully-integrated, surface-mount, 75-terminal, 20mm × 19mm, land-grid array (LGA) package. The ADMV7315 operates over the -40°C to +85°C temperature range.

For more information on the ADMV7315, contact eband@analog.com.

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FUNCTIONAL BLOCK DIAGRAM

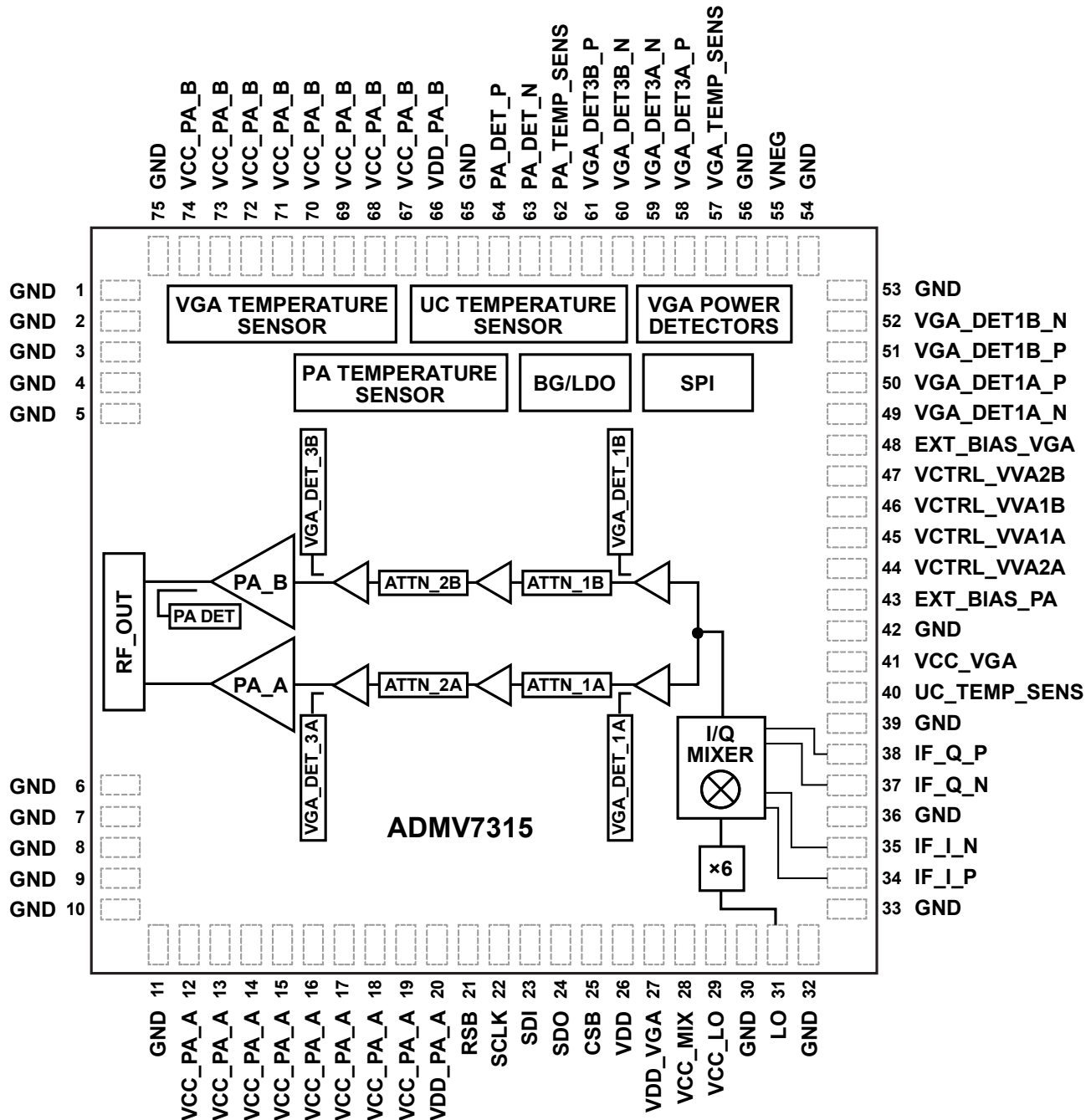


Figure 1. Functional Block Diagram

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