

## 3.5-GHz Integrated IF Up-Converter

### FEATURES

- **Low Phase Noise**
- **High Dynamic Range Image-Reject Downconverter**
- **Selectable IF Filters**
- **Internal or External AGC Control With Peak Detector and Voltage Reference**
- **Analog Gain Control Range**
- **Direct Interface to A/D**
- **Dual VCO/PLL With On-Chip Resonator For Double Down-Conversion Architecture**
- **S-Band LO Frequency Range:**
  - TRF1112: 1818 to 2268 MHz
  - TRF1212: 2818-MHz to 3382-MHz
- **UHF LO Frequency Range: 360 to 456 MHz**
- **Phase Noise is 0.5 RMS Typ 100 Hz to 1 MHz**
- **Rx Noise Figure of 5 dB, Typ**
- **UHF LO Tuning Step Size of 125 kHz**
- **Typical Gain of 90 dB, Including 15-dB Loss IF2 SAW Filter**
- **Input Third Order Intercept Point > 0 dBm**
- **Input 1-dB Compression Point > -10 dBm**
- **Gain Control Range of 90 dB Typ**

### DESCRIPTION

The TRF1112 / TRF1212 are UHF-VHF down converters with integrated UHF and S-band frequency synthesizers for radio applications in the 2 GHz to 4 GHz range. The device integrates an image reject mixer, IF gain blocks, automatic gain control (AGC), and two complete phase locked loop (PLL) circuits including: VCOs, resonator circuit, varactors, dividers, and phase detectors.

The TRF1112 / TRF1212 are designed to function as part of Texas Instruments 2.5-GHz and 3.5-GHz complete radio chipsets, respectively. In the chipset, two chips function together to double-down-convert RF frequencies to an IF frequency that is suitable for most baseband modem ADCs. The TRF1112 / TRF1212 performs the second down conversion from the first IF frequency (480 MHz typical) to a final IF frequency (20-50 MHz). The radio chipset features sufficient linearity, phase noise and dynamic range to work in single carrier or multi-carrier, line-of-sight or non-line-of-sight, IEEE standard 802.16, BWIF, or proprietary systems. Due to the modular nature of the chipset, it is ideal for use in systems that employ transmit or receive diversity.

### DEVICE INFORMATION

LPCC-48 PACKAGE  
(TOP VIEW)

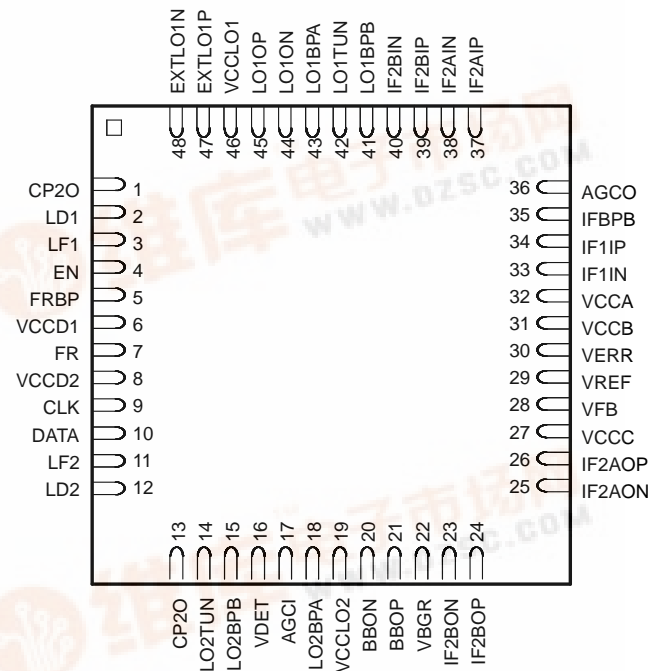


Figure 1. TRF1112 / TRF1212 Pin Out

PRODUCT PREVIEW



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Mailing Address: Texas Instruments  
Post Office Box 655303 Dallas, Texas 75265