



## ADL5801

High-IP3 10 MHz to 6 GHz Active Mixer

The ADL5801 utilizes a high linearity doubly balanced active mixer core with integrated LO buffer amplifier to provide high dynamic range frequency conversion from 10 MHz to 6 GHz.

The mixer benefits from a proprietary linearization architecture, which provides enhanced IP3 performance when subject to high input levels. A bias adjust feature allows the input linearity, SSB Noise Figure, and DC current to be optimized using a single control pin. An optional input power detector is provided for adaptive bias control. The high input linearity allows the device to be used in demanding cellular applications where in-band blocking signals may otherwise result in degradation in dynamic performance. Employing the adaptive bias feature allows the part to provide high IP3 performance when presented with large blocking signals. When blockers are removed the ADL5801 can automatically bias down to provide low noise figure and low-power consumption.

The balanced active mixer arrangement provides superb LO to RF and LO to IF leakage, typically better than -40 dBm. The IF outputs are internally terminated to a 200Ω source impedance and provide a typical voltage conversion gain of 7.5 dB when loaded into a 200Ω load. The broad frequency range of the open-collector IF outputs allows the ADL5801 to be applied as an up-converter for various transmit applications.

The ADL5801 is fabricated using a SiGe high performance IC process. The device is available in a compact 4 mm x 4 mm 24-lead LFCSP package and operates over a -40°C to +85°C temperature range. An evaluation board is also available.

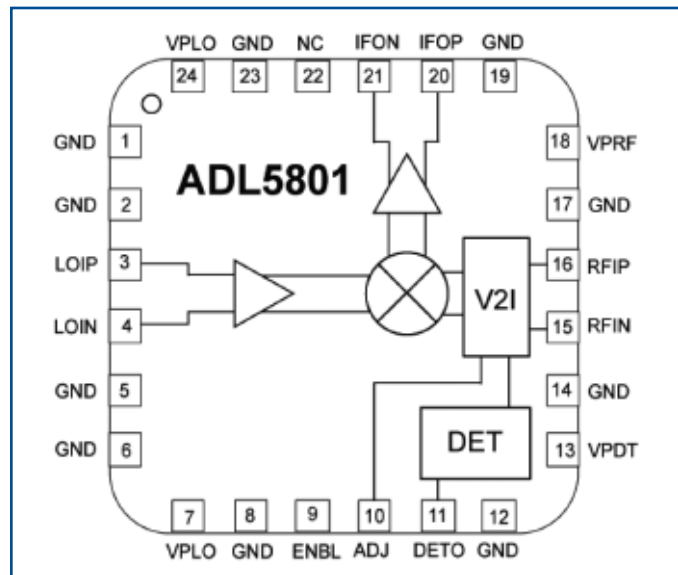
### Applications

- Cellular base station receivers
- Radio link downconverters
- Broadband block conversion
- Instrumentation

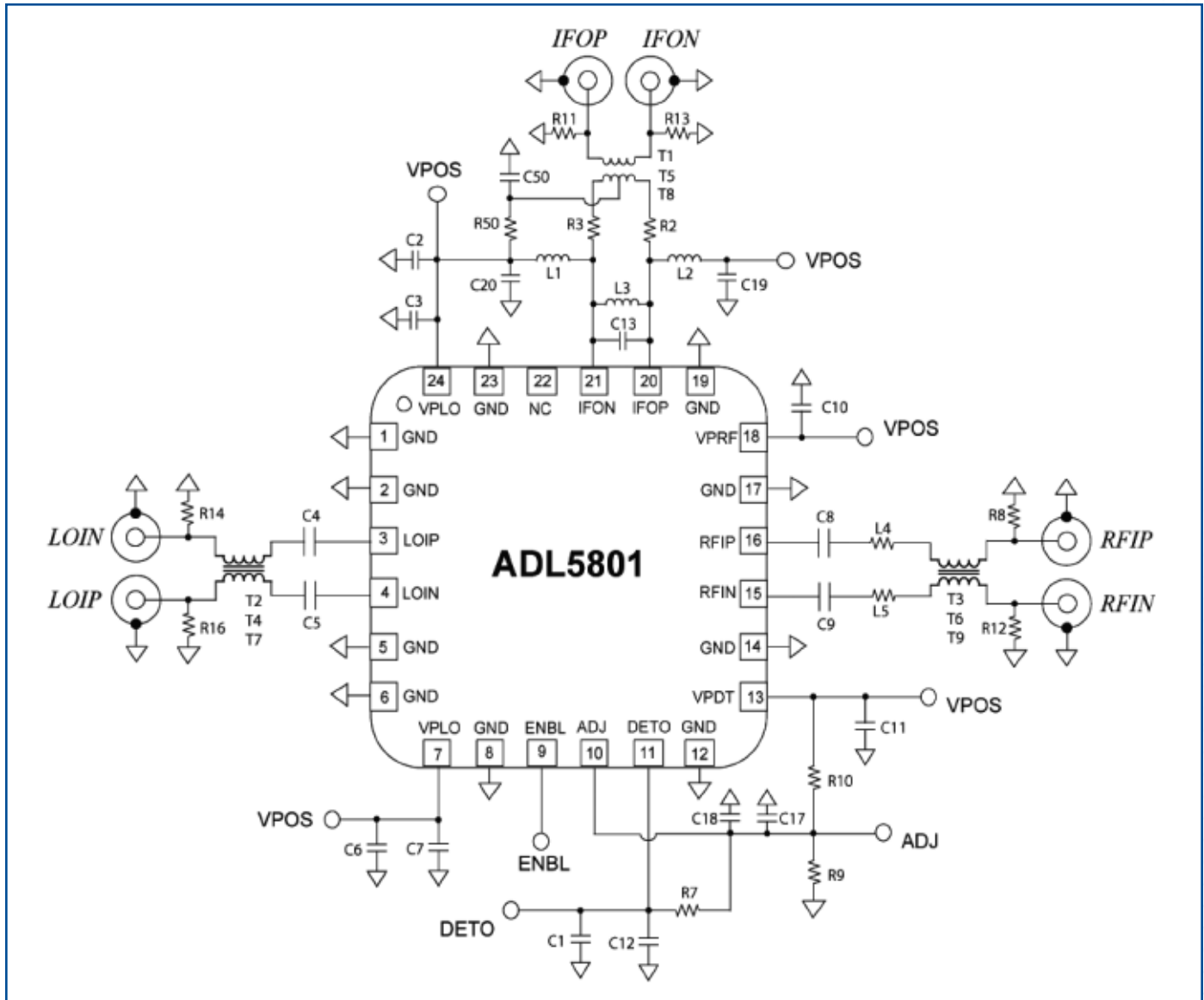
### Features

- Wideband channel up/down converter
- Power conversion gain of 1.5 dB
- Wideband RF, LO, and IF ports
- SSB noise figure of 10 dB
- Exceptional blocking SSB NF
- Input IP3 of 27 dBm
- Input P1 dB of 12 dBm
- Typical LO drive of 0 dBm
- -40 dBm LO Leakage at RF
- Single supply operation: 5V at 80 mA
- Adjustable bias for low-power operation
- Exposed paddle 4 mm x 4 mm, 24-lead LFCSP package

### Functional Block Diagram



## Evaluation Board Schematic



For more information, such as datasheets and app notes, visit [www.arrow.com/arrowedge](http://www.arrow.com/arrowedge).