

**I/Q Modulator/Demodulator and Synthesizer**

The HFA3783 is a highly integrated and fully differential SiGe baseband converter for half duplex wireless applications. It features all the necessary blocks for quadrature modulation and demodulation of "I" and "Q" baseband signals.

It has an integrated AGC receive IF amplifier with frequency response to 600MHz. The AGC has 79dB of voltage gain and better than 70dB of gain control range. The transmit output also features gain control with 70dB of range.

The receive and transmit IF paths can share a common differential matching network to reduce the filter component count required for single IF half duplex transceivers. A pair of 2nd order antialiasing filters with an integrated DC offset cancellation architecture is included in the receive chain for baseband operation down to DC. In addition, an IF level detector is included in the AGC chain for threshold comparison. Up and down conversion are performed by doubly balanced mixers for "I" and "Q" IF processing. These converters are driven by a broadband quadrature LO generator with frequency of operation phase locked by an internal 3 wire interface synthesizer and PLL.

The device requires low LO levels from an external VCO and a PLL reference signal up to 44MHz. The HFA3783 is housed in a thin 48 lead TQFP package well suited for PCMCIA board applications.

**Features**

- Integrates All IF Transmit and Receive Functions
- Broad Quadrature Frequency Range . . . . .70 to 600MHz
- 600MHz AGC IF Strip with Level Detector . . . . .79dB
- DC Coupled Baseband Interfaces
- Integrates a Receiver DC Offset Calibration Loop
- Integrated 3 Wire Interface PLL For LO Applications
- Low LO Drive Level . . . . .-15dBm
- Fast Transmit-Receive Switching . . . . . 1μs
- Power Management/Standby Mode
- Single Supply 2.7 to 3.3V Operation

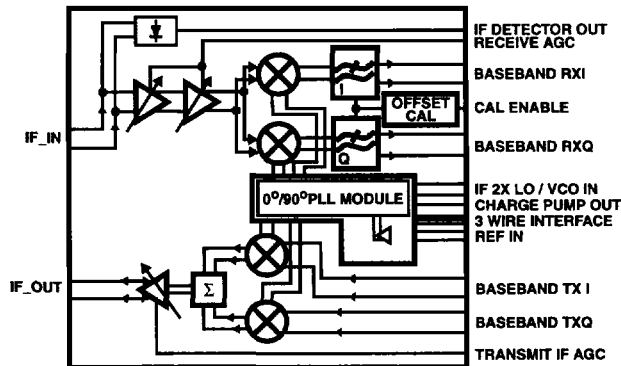
**Applications**

- IEEE802.11 1 and 2Mbps Standard
- Systems Targeting IEEE802.11 11Mbps Standard
- Wireless Local Area Networks
- PCMCIA Wireless Transceivers
- ISM Systems
- TDMA Packet Protocol Radios

**Ordering Information**

PART NUMBER	TEMP. RANGE (°C)	PACKAGE	PKG. NO.
HFA3783	-40 to 85	48 Ld TQFP	Q48.7X7A

**Simplified Block Diagram**



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