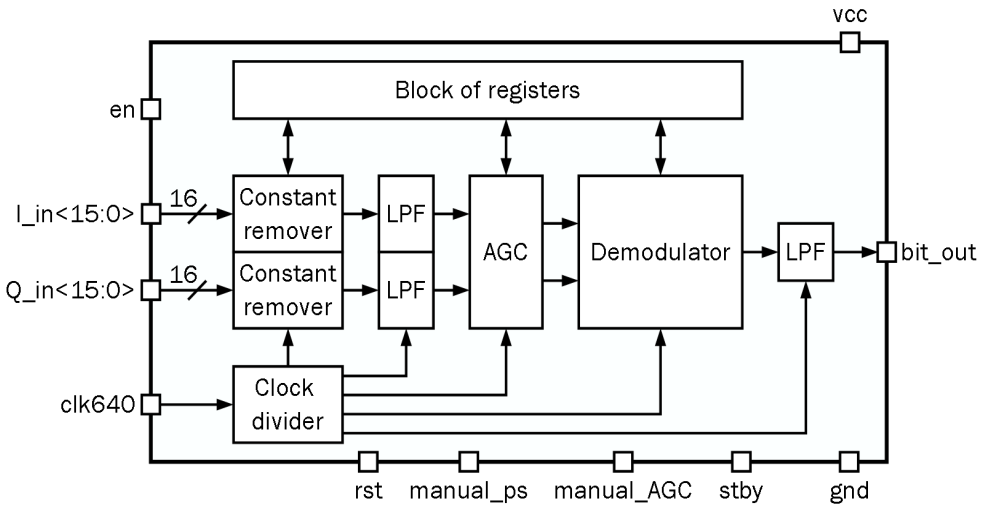
Digital IQ demodulator

OVERVIEW



250iHP_DEMOD_01 is a digital IQ demodulator is used to demodulate frequency-modulated signal. The device operates with 2nd order delta-sigma ADC, with following decimation and filtering the digitized signal. The input signal is a dual (I and Q) with zero IF, 16-bit. It is allowed DC component, which is automatically rebuilt by input stages. The output demodulated signal is given to the out from quadrature demodulator. Using the receiver in a pulse mode is possible when the last values of gain and DC component are stored in registers. Necessary clock frequencies are generated from input clock signal. The output signal is an asynchronous bit stream. Typical transmission speed is 2400 baud.

IP technology: iHP SiGe BiCMOS 0.25 um.

IP status: silicon proven.

Area: 0.9mm^2.

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units
			min	typ.	max	
Supply voltage	V_{cc}	-	1.5	1.8	2.7	V
Operating temperature range	T_j	-	-45	+27	+85	°C
External synchronizing frequency	F_{CLK}	-	-	640	-	kHz
Input sampling frequency	F_S	-	-	40	-	kHz
Input resolution	N	-	-	16	-	bit/channel
Useful signal to signal interference ratio*	-	BER<7%	-	-25	-	dB
Build-in AGC maximum gain	-	-	-	80	-	dB
Current consumption	I_{cc}	-	-	80	-	uA
Input logic-high level	V_{IH}	-	$0.7V_{cc}$	-	V_{cc}+0.25	V
Input logic-low level	V_{IL}		-0.25	-	0.3	V

*The frequency modulated signal: modulating signal – a sine, frequency 400 Hz, deviation 2400Hz, central frequency 20 kHz.