

Typical Applications

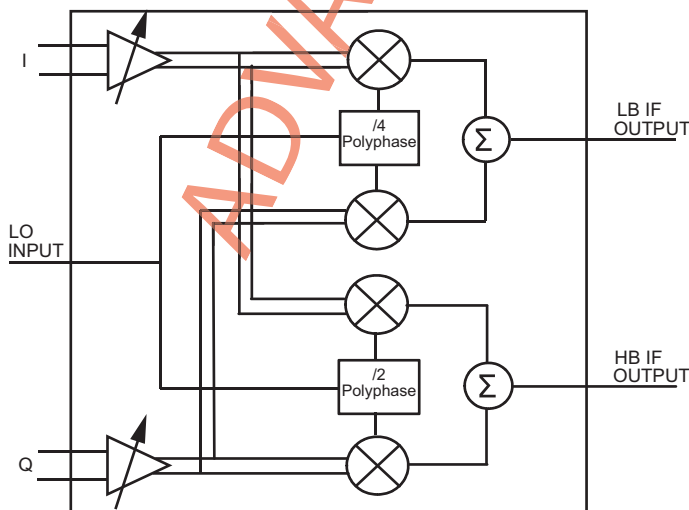
The TRFS-302 is an IQ modulator amplifier core circuit, designed for use in such applications as:

- CDMA2000, AMPS, US PCS High Band, US PCS Low Band, Korean PCS, JTACS, TACS systems
- Dual-mode and multi-band applications
- Voice and data applications

Product Overview

The TRFS-302 IQ_Modulator Amp is a multi-band IQ mixer and baseband amplifier for wireless communication applications. The circuit amplifies baseband I and Q signals and converts them to IF frequencies 175MHz and 375MHz. The image-reject IQ mixers reduce third and fifth order harmonics. Two variable-gain baseband transconductance amplifiers provide good linearity and low current consumption. This core circuitry can be easily integrated with other circuits as well as packaged individually in a leadless chip carrier.

Block Diagram



Key Features

- Multi-band baseband amplification and up-conversion to IF bands 160-190MHz and 350-400MHz
- Improved linearity using image-reject IQ mixers and poly-phase filters
- Third harmonic level of -60dB and nominal OIP3 of 9dBV for both bands
- Low output noise of $6nV/\sqrt{Hz}$ at 40MHz offset
- Programmable baseband gain

Performance Summary

Item	Unit	Min	Typical	Max	Notes
Low Band					
Operating Frequency	MHz	160		190	
IQ Gain	dB		-5		@Minimum Gain
	dB		1.5		@Nominal Gain
	dB		10.5		@Maximum Gain
In Band Output Referred Noise	nV/√Hz			11	@Nominal gain
	nV/√Hz			18	@Max gain
Output Noise Floor	nV/√Hz		6	8	@40MHz offset
LO-RF Isolation	dB	> 40			
RF-BB Isolation	dB	> 40			
3 rd Harmonic Output Level	dBc		-60		
OIP3	dBV		10		
Current Consumption	mA		15		
High Band					
Operating Frequency	MHz	350		400	
IQ Gain	dB		-6.5		@Minimum Gain
	dB		0		@Nominal Gain
	dB		9		@Maximum Gain
In Band Output Referred Noise	nV/√Hz			9	@Nominal gain
	nV/√Hz			15.5	@Max gain
Output Noise Floor	nV/√Hz		5.8	8	@40MHz offset
LO-RF Isolation	dB	> 40			
RF-BB Isolation	dB	> 40			
3 rd Harmonic Output Level	dBc		-58		
OIP3	dBV		9		
Current Consumption	mA		15		

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