GaAs MMIC Receiver - NEW

June 2005 - Rev 01-Jun-05

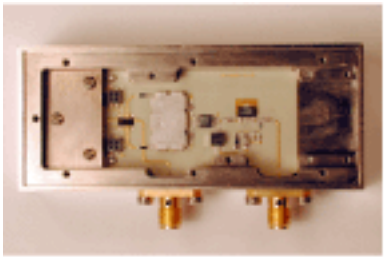
MSRX-1823

General Description

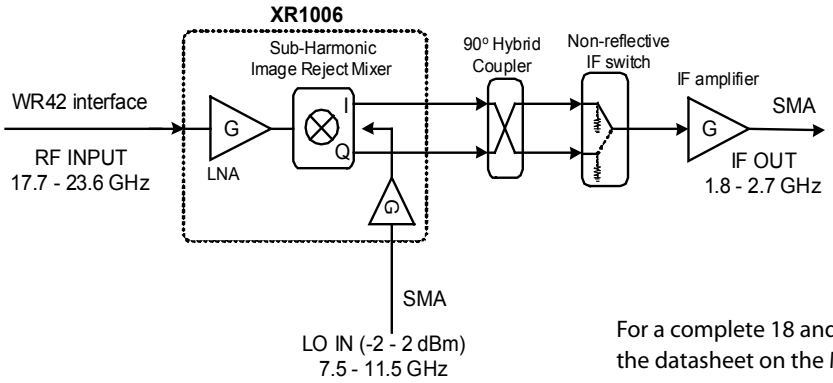
The MSRX-1823 is a low cost, highly integrated MMIC-based receiver, suitable for use in the 18 GHz and 23 GHz microwave radio bands. The receiver design is based on one MMIC chip from Mimix Broadband, the XR1006 receiver. Features in the MMIC are low noise, sub-harmonic mixing, image rejection, and LO buffering. Typical performance of the module includes < 3.5 dB noise figure, >15 dB image rejection, 26 dB conversion gain, and 15 dB RF return loss. The module's RF interface is a standard WR-42 flange, with LO input and IF output connections made using SMA connectors. A 90º hybrid coupler combines the quadrature IF outputs from the MMIC to achieve image rejection, followed by a non-reflective RF switch. The upper and lower sideband can be selected easily using a RF switch and a single control voltage, followed by an IF amplifier. The module accepts a single +8V supply with 0 / 5 V band selection control voltage.

Specifications

Parameter	Unit	18 GHz	23 GHz
RF Frequency	GHz	17.7 - 19.7	21.2 - 23.6
LO Frequency (x2)	GHz	7.5-8.95 (USB) 9.75-11.2 (LSB)	9.25 - 10.9 (USB)
IF Frequency	GHz	1.8 - 2.7	
RF Input Return Loss	dB	< -15	< -15
Input P1dB	dBm	> -17	> -17
Conversion Gain	dB	26 (LSB) 26 (USB)	26 (USB)
Image Reject	dB	< -15 (LSB) < -27 (USB)	< -18 (USB)
Noise Figure	dB	3.5 (LSB) 3.5 (USB)	3.2 (USB)
LO power level	dBm	-2 - +2	
(x2) LO Isolation @RF port	dBc	< -50	< -50
V_{Supply}	V	+8	
I_{Supply}	mA	350	
RF Interface	WR42		
LO Interface	SMA (f)		
IF Interface	SMA (f)		



Block Diagram



For a complete 18 and 23 GHz transceiver solution, please see the datasheet on the MSTX-1823.

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