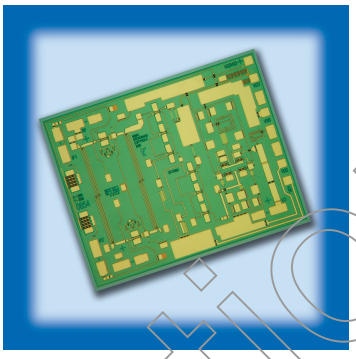
16.0-36.0 GHz GaAs MMIC Up-Converter

December 2007 - Rev 18-Dec-07

XU1010-BD
XRoHS

Features

- Integrated Balanced Mixer, LO Buffer and LO Doubler
- +23.0 dBm Input Third Order Intercept (IIP3)
- +2.0 dBm LO Drive Level
- 100% On-Wafer RF Testing



General Description

Mimix Broadband's 16.0-36.0 GHz GaAs up-converter has an input third order intercept point of +22.0 dBm and 10.0 dB of conversion loss. The device consists of a balanced resistive pHEMT mixer, LO buffer amplifier and LO doubler. The device includes on-chip ESD protection structures and DC by-pass capacitors to ease the implementation and volume assembly of the part. This device is well suited for Millimeter-wave Point-to-Point Radio, LMDS, SATCOM and VSAT applications.

Absolute Maximum Ratings

Parameter	Units	Min.	Max.
Drain Voltage Supply (Vdd)	V	-	6
Drain Current (Ids)	mA	-	350
Input Power (Pin) IF	dBm	-	5
Input Power (Pin) LO	dBm	-	10
Storage Temperature (Tstg)	°C	-55	+150
Operating Backside Temperature (Tb)	°C	-45	+85
ESD –Machine Model (ESD_MM)	V	50	-
ESD –Human Body Model (ESD_HBM)	V	200	-
MSL Level (MSL)		MSL2	

Electrical Characteristics (Ambient Temperature T = 25 °C)

Parameter	Units	Min.	Typ.	Max.
Frequency Range (RF/LO)	GHz	16		36
Frequency Range (IF)	GHz	DC		3.5
Conversion Loss (CL)	dB		10	
Input Third Order Intercept (IIP3)	dBm		23	
LO Input Drive	dBm		2	
RF Input Return Loss	dB		15	
LO Input Return Loss	dB		15	
IF Input Return Loss	dB		15	
2xLO Leakage at RF	dBm		-20	
1xLO Leakage at RF	dBm		-30	
Drain Bias Voltage (Vd1,2)	VDC		5	
Gate Bias Voltage (Vg1)	VDC		-0.2	
Gate Bias Voltage (Vg2,3)	VDC		-0.8	
Gate Bias Voltage (Vss)	VDC		-2	
Supply Current (Id1)	mA		140	
Supply Current (Id2)	mA		80	
Supply Current (Iss)	mA		50	

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