

# 37.0-42.0 GHz GaAs MMIC Power Amplifier

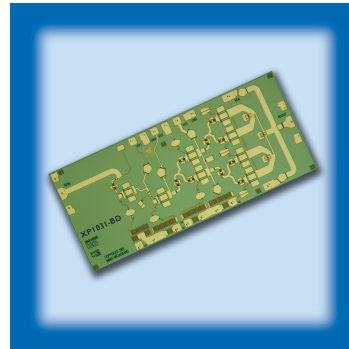
December 2007 - Rev 12-Dec-07

## Features

- X Linear Power Amplifier
- X Output Power Adjust
- X 23.0 dB Small Signal Gain
- X +25.0 dBm P1dB Compression Point
- X +35.0 dBm OIP3
- X 100% On-Wafer RF Testing

## General Description

Mimix Broadband's four stage 37.0-42.0 GHz GaAs MMIC power amplifier has a small signal gain of 23.0 dB with a +35.0 dBm Output Third Order Intercept. This MMIC uses Mimix Broadband's 0.15  $\mu\text{m}$  GaAs PHEMT device model technology, and is based upon electron beam lithography to ensure high repeatability and uniformity. This device is well suited for Millimeter-wave Point-to-Point Radio, LMDS, SATCOM and VSAT applications.



## Absolute Maximum Ratings

Supply Voltage (Vd)	+6.0 VDC
Supply Current (Id)	800 mA
Gate Bias Voltage (Vg)	+0.3 VDC
Input Power (Pin)	+5.0 dBm
Storage Temperature (Tstg)	-65 to +165 deg C
Operating Temperature (Ta)	-55 to MTTF Table <sup>1</sup>
Channel Temperature (Tch)	MTTF Table <sup>1</sup>
ESD - Human Body Model	Class 1A
ESD - Machine Body Model	Class M1

(1) Channel temperature affects a device's MTTF. It is recommended to keep channel temperature as low as possible for maximum life

## Electrical Characteristics for 37 - 40 GHz (Ambient Temperature T = 25 °C)

Parameter	Units	Min.	Typ.	Max.
Frequency Range (f)	GHz	37.0	-	42.0
Input Return Loss (S11)	dB	4.0	5.0	-
Input Return Loss (S11) with External Match	dB	8.0	10.0	-
Output Return Loss (S22)	dB	8.0	12.0	-
Small Signal Gain (S21)	dB	21.0	23.0	-
Gain Flatness ( $\Delta S21$ )	dB	-	+/-1.0	-
Reverse Isolation (S12)	dB	-	45.0	-
Output Power for 1dB Compression (P1dB)	dBm	-	+25.0	-
Output IM3 with Pout (scl) = 18 dBm	dBc	28.0	+35.0	-
Output IM3 with Pout (scl) = 15 dBm	dBc	38.0	40.0	-
Drain Bias Voltage (Vd)	VDC	-	+5.0	+5.5
Gate Bias Voltage (Vg)	VDC	-1.0	-0.3	0.0
Supply Current (Id1) (Vd=5.0V, Vg=-0.7V Typical)	mA	-	600	675