

37.0-42.0 GHz GaAs MMIC Power Amplifier

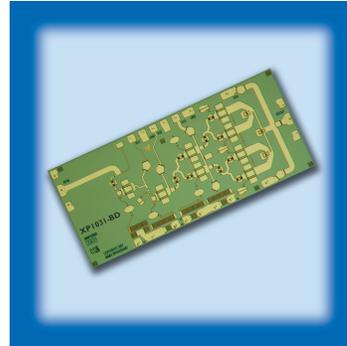
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Features

- 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 μm 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 ¹
Channel Temperature (Tch)	MTTF Table ¹
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