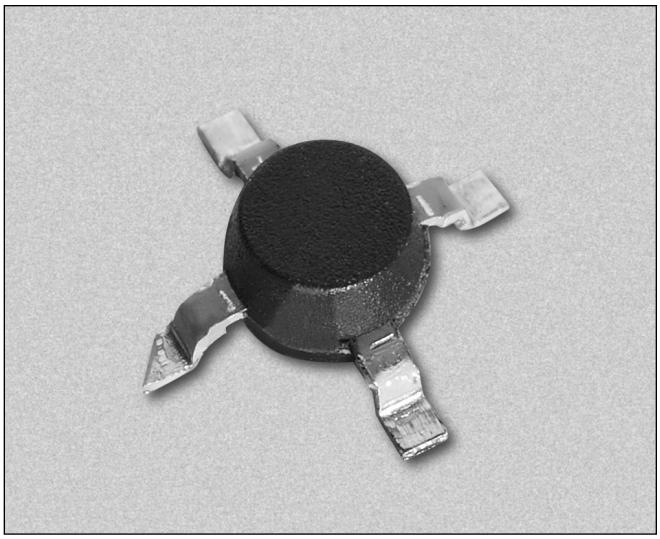
General Purpose Amplifier

GBH121-214

Features

- DC–3 GHz Operation
- 22 dB Small Signal Gain
- +25 dBm Output IP3
- +12 $P_{1\ dB}$ @ 2 GHz
- 50 Ω Input and Output Match
- Uses Single DC Bias Supply
- Low Cost Plastic Package
- Available on Tape & Reel



Description

The GBH-121 is a general purpose broadband amplifier housed in a low cost industry standard Micro-X package. This amplifier has been designed as a cascadable 50 Ω gain block. It is also available in the ceramic Micro-X package. Applications include IF & RF amplification in broadband, wireless, WLAN, HLAN, DBS, TV tuner applications.

Absolute Maximum Ratings

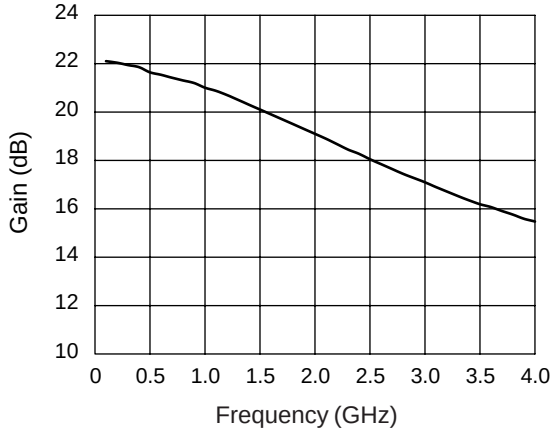
Characteristic	Value
RF Input Power	15 dBm
Supply Current	75 mA
Supply Voltage	5 V
Power Dissipation @ 25°C T	375 mW
Operating Temperature	-45°C to +85°C
Storage Temperature	-65°C to +125°C

Electrical Characteristics at 25°C

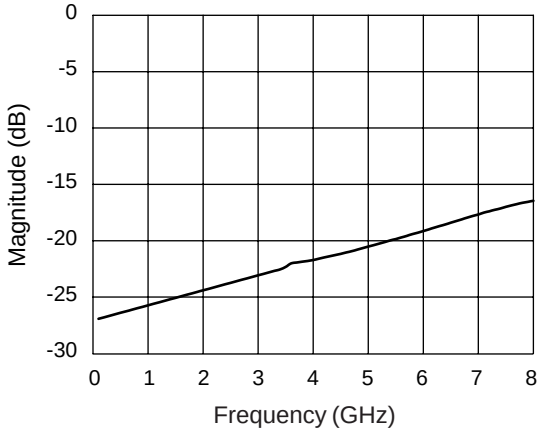
Test Parameters V_{CC} = 3.5 V, I_C = 35 mA

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Small Signal Gain	G_P	I_C = 35 mA	20	22	23	dB
3 dB Gain Band	B W 3 dB			2.0		GHz
Noise Figure	NF	V_{CC} = 3.5, I_C = 35 mA F = 2.0 GHz		3.5	4.5	dB
Output Power at 1 dB Compression	$P_{1\ dB}$	F = 2.0 GHz	10.5	12		dBm
Input and Output VSWR	VSWR	F = 0.1–6.0 GHz		1.7	1.8	
Output Third Order Intercept Point	IP3	V_{CC} = 3.5 V, I_C = 35 mA F = 0.1–2.0 GHz		25		dBm
Operating Voltage	VD	Amplifier DC Voltage	3.2	3.4	4.0	V
Reverse Isolation	Isol.	F = 0.1–4.0 GHz		22		dB
Gain Flatness	GHz	0.1–2.0 GHz		±1.5		dB

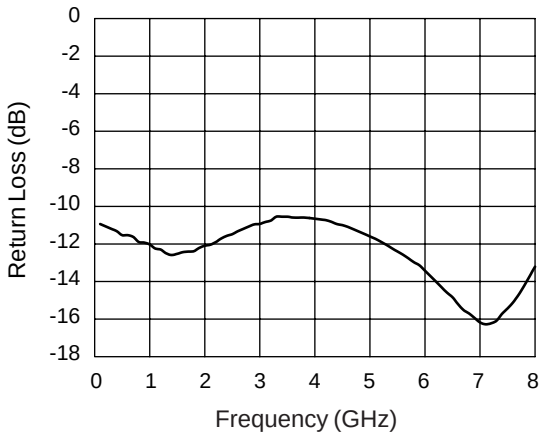
Typical Performance Data at 25°C



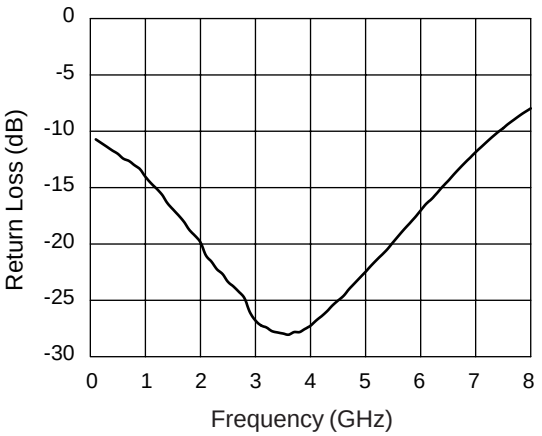
S_{21} Gain vs. Frequency



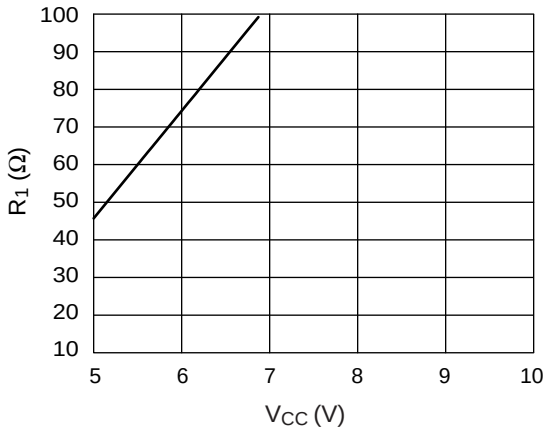
S_{12} Reverse Isolation vs. Frequency



S_{11} Input Return Loss vs. Frequency

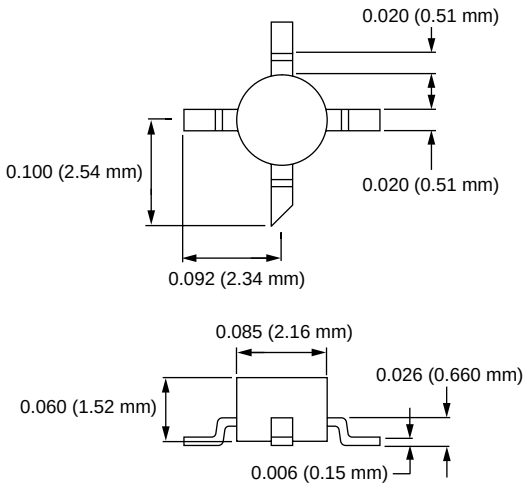


S_{22} Output Return Loss vs. Frequency

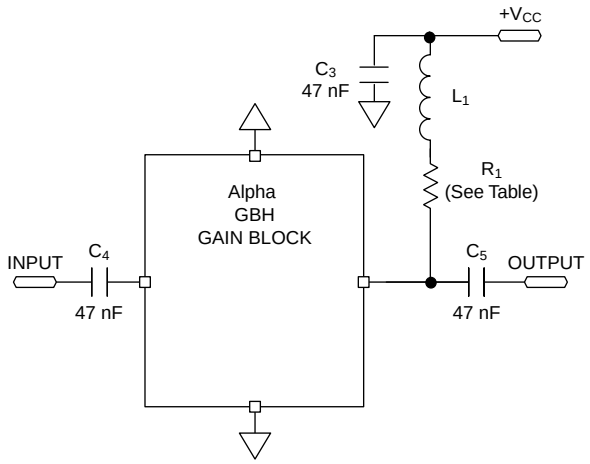


Bias Resistor Value vs. Supply Voltage

-214 Plastic Micro-X



GBH Test Circuit



6 V Resistor Table

GBH112	R_1 = 60 Ω
GBH114	R_1 = 18 Ω
GBH120	R_1 = 20 Ω
GBH121	R_1 = 74 Ω