

3.3 V, 802.11b/g Linear Power Amplifier



AP172-317

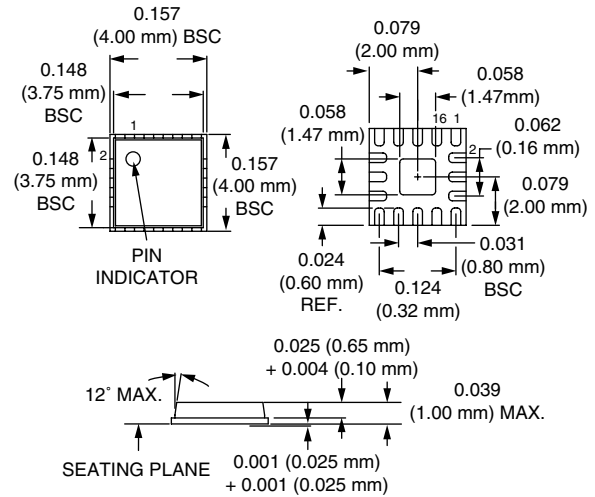
Features

- High Linearity @ 24 dBm
- High Gain 35 dB
- 802.11b/g Compliant
- 1800–2500 MHz Operation
- Built-in Level Detector
- 27 dBm $P_{1\text{ dB}}$ @ 2.4 GHz
- Uses Single DC Bias Supply
- Low Cost Plastic Package
- Available on Tape & Reel

Description

The AP172-317 is a linear high gain, medium power amplifier designed for low voltage operation in 2.4–2.5 GHz band having linear and high-efficiency performance with 802.11b/g signals and built-in level detection circuit. The device is manufactured on advanced InGaP HBT process and housed in a 16 Pin 4 x 4 mm micro lead package.

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Absolute Maximum Ratings

Characteristic	Value
RF Input Power	20 dBm
Supply Current	600 mA
Supply Voltage	5 V
Operating Temperature	-65°C to +125°C
Storage Temperature	-65°C to +125°C

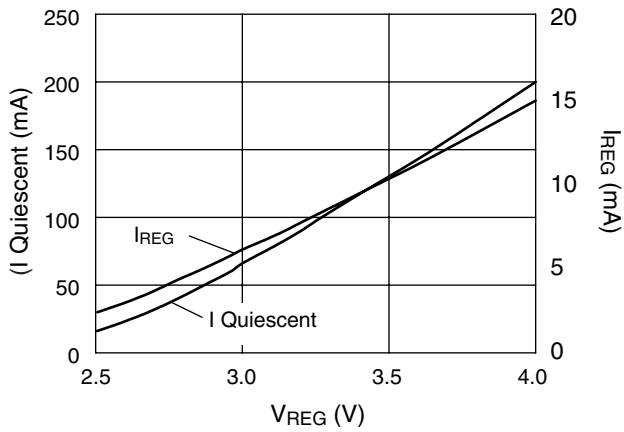
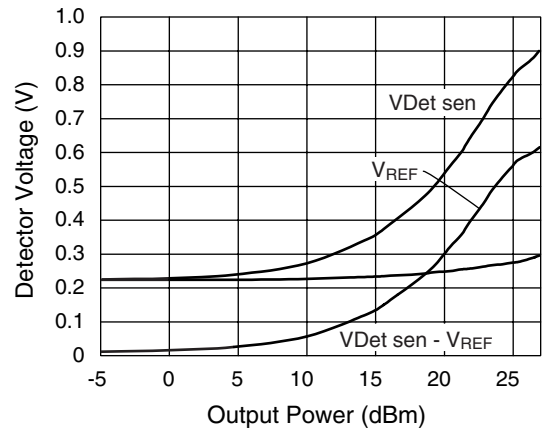
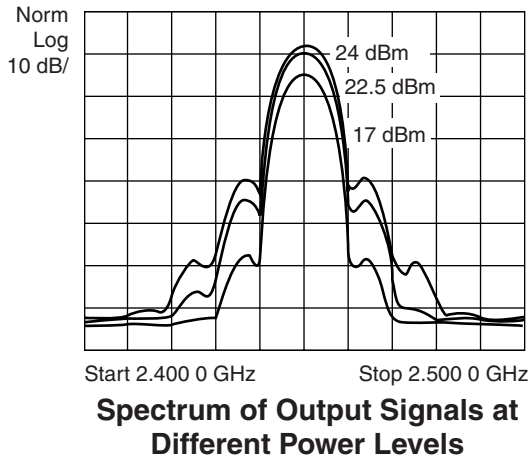
Electrical Specifications at 25°C

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Frequency Range		MHz	1800		2500	dB
Small Signal Gain	F = 2.45 GHz	S_{21}	31	33		dB
Output Power at 1 dB compression	F = 2.45 GHz	$P_{1\text{ dB}}$	26	27		dBm
Linear Output Power ¹	F = 2.45 GHz, $I_C = 240\text{ mA}$	P_{Out}	23	24.5		dBm
First Sidelobe ¹	F = 2.45 GHz, $I_C = 220\text{ mA}$, $P_{\text{Out}} = 23\text{ dBm}$			-35		dBc
Second Sidelobe ¹	F = 2.45 GHz, $I_C = 220\text{ mA}$, $P_{\text{Out}} = 23\text{ dBm}$			-54		dBc
Operating Voltage	Amplifier DC Voltage	V_D	2.5	3.3	4.5	V
Reverse isolation		Isol.		30		dB
Current Consumption	$P_{\text{Out}} = 24.0\text{ dBm}$ $P_{\text{Out}} = 22.5\text{ dBm}$ $P_{\text{Out}} = 17\text{ dBm}$ Quiescent	I_{QO}		240 220 140 70		mA mA mA mA
Detector Supply Voltage		V_{CCDet}	2.0	2.50	4.0	V
Detector Supply Current	$V_{\text{CCDet}} = 2.5\text{ V}$	I_{CCDet}		2.00		mA
Detector Output Voltage	$V_{\text{CCDet}} = 2.5\text{ V}$ $P_{\text{Out}} = 22.5\text{ dBm}$	$V_{\text{Det sen}} - V_{\text{REF}}$		0.43		V

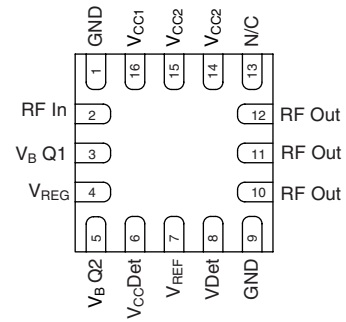
$V_{\text{CC}} = 3.3\text{ V}$, $I_C = 70\text{ mA}$ (unless otherwise specified)

1. Specifications are defined for the evaluation board with the 802.11b signal at 11 Mbit/s and having Cosine (0.95) filtering.

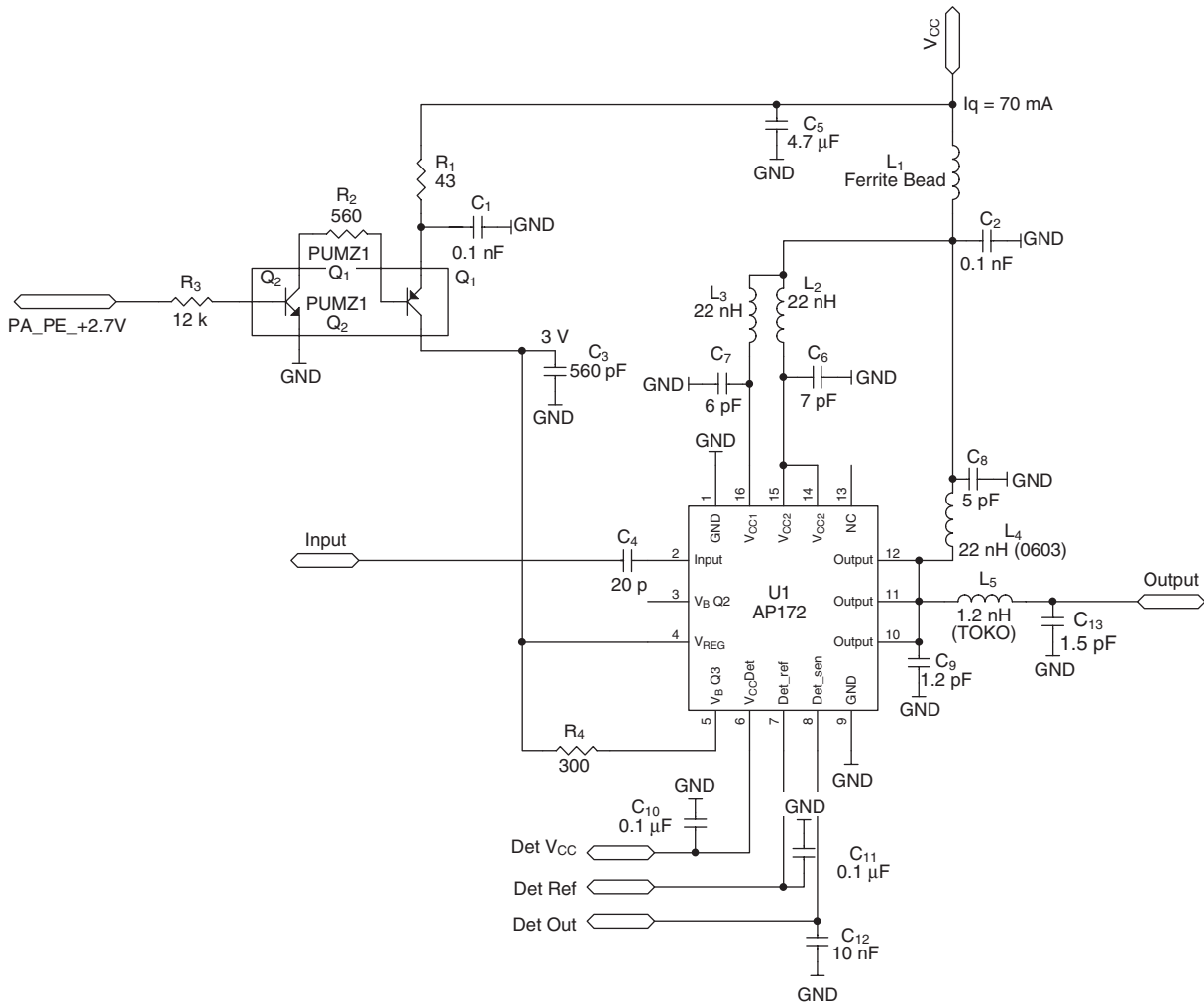
Typical Performance Data



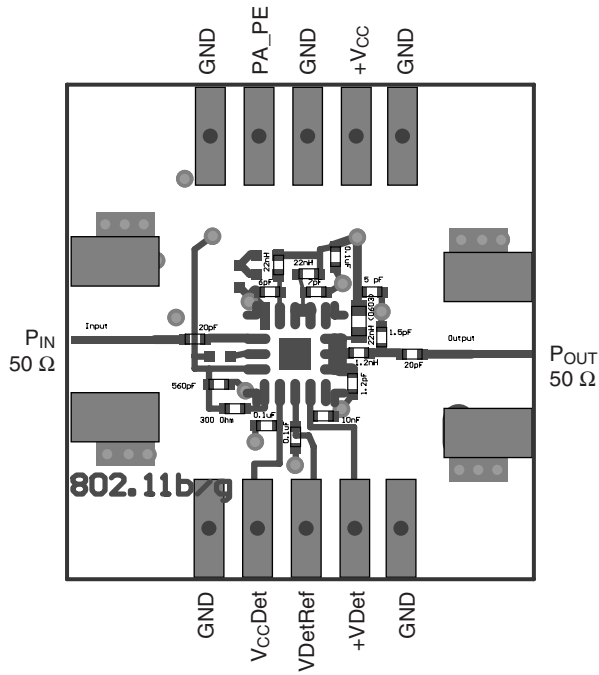
Pin Out



Evaluation Board Schematic



Evaluation Board Layout (Top View)



Evaluation Board Layout (Bottom View)

