

## 2.4GHz Linearized Power Amplifier

### Introduction

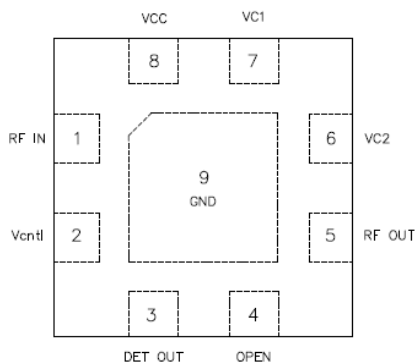
The PA2421 is a two-stage linearized power amplifier optimized for 802.11b/g wireless LAN (WLAN) applications in the 2.4 GHz band. The device includes input and output matching circuits and is designed to use minimal external components. It features 26 dB of gain and delivers up to +25 dBm of output power.

The device is sold in a RoHS compliant miniature 2 x 2 x 0.5 mm 8-pin QFN package to make automated assembly simple. Its small and thin package size makes the device an ideal solution for radios built in small form factors for mobile applications.

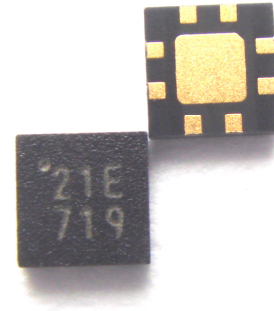
### Applications

- IEEE 802.11b/g WLAN
- 2.4 GHz Cordless Phones
- 2.4 GHz ISM Radios

### Pin Assignment



< Top View >



### Features

- 2.4 to 2.5 GHz Operating Range
- 26 dB Gain
- 2.8% EVM at Pout=+16 dBm (Icc=120mA @ Vcc=+3.3V) with 54 Mbps OFDM signal
- Input and Output Matched to 50ohm
- On-chip power detector
- +3.3V Supply
- 2 x 2 x 0.5 mm 8-pin QFN Package
- RoHS compliant product



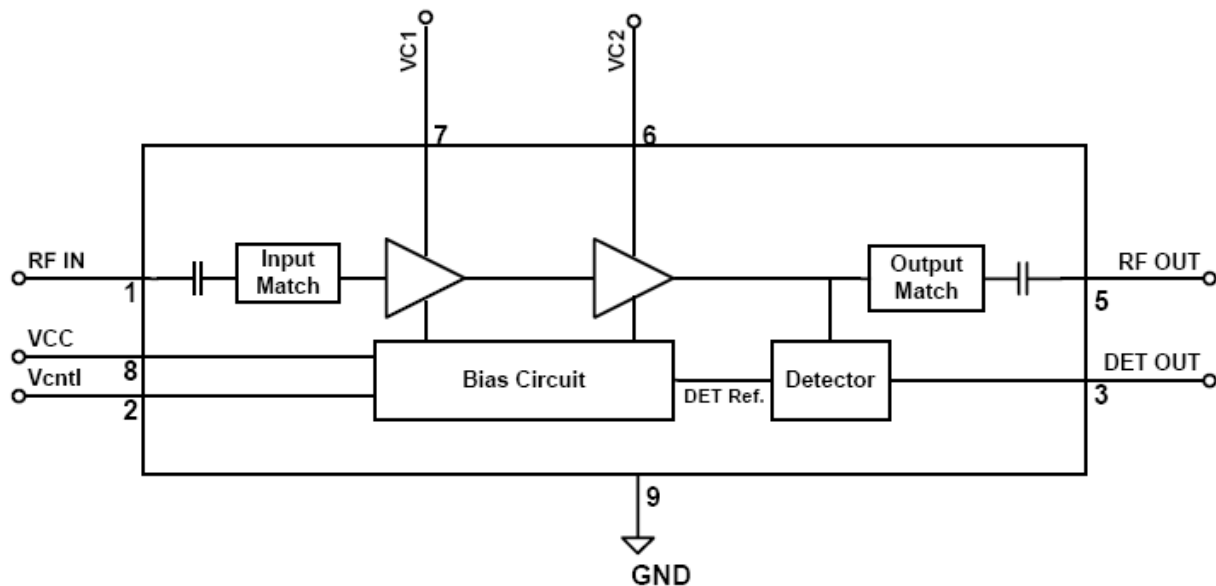
Caution!  
ESD sensitive device



## Pin Description

Pin	Pin Name	Pin Description
1	PA IN	2.4 GHz PA input
2	Vcntl	2.4 GHz PA control voltage
3	DET OUT	Detector output voltage
4	OPEN	Pin is used internally and must not be connected to anything external
5	RF OUT	2.4 GHz PA output
6	VC2	2.4 GHz PA Vcc
7	VC1	2.4 GHz PA Vcc
8	VCC	2.4 GHz PA bias circuit Vcc
9	GND	Package backside ground slug

## Functional Diagram



## Specifications

### Absolute Maximum Ratings

Vc1, Vc2, Vcc, Vcntl	-0.5V to +4.5V
Operating Temperature Range	-20°C to +85°C
Storage Temperature Range	-65°C to +125°C
Soldering Conditions	260°C peak for 20 seconds

### DC Electrical Characteristics (Temp.=25°C)

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Supply Voltages</b>					
Vc1		3.0	3.3	3.6	Volts
Vc2		3.0	3.3	3.6	Volts
Vcc		3.0	3.3	3.6	Volts
Vcntl			2.8		Volts
<b>Supply Currents</b>					
Ic1 + Ic2 + Ic3	Quiescent (no RF) Pout = +16 dBm		75 120		mA
Icntl			6		mA

### AC Electrical Characteristics (Vcc=3.3V, Vcntl=2.8V, Temp.=25°C)

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
RF Frequency Range (Note 1)		2.4		2.5	GHz
Gain			26		dB
Gain Variation over supply voltage	Vcc1&Vcc2=3.0V to 3.6V		±0.5		dB
Saturated Output Power			25		dBm
P1dB			23		dBm
Input Return Loss			10		dB
Output Return Loss			10		dB
ACPR 1 <sup>st</sup> Side Lobe at Pout=21 dBm	11b, 1Mbps Long CCK		-35		dBc
ACPR 2 <sup>nd</sup> Side Lobe at Pout=21 dBm	11b, 1Mbps Long CCK		-50		dBc
Total Current at Pout=16 dBm	64 QAM / 54 Mbps, uncorrected		120		mA
EVM at Pout = 16 dBm	64 QAM / 54 Mbps, uncorrected		2.8		%
Second Harmonics	Pout=18dBm		-28		dBc
Third Harmonics	Pout=18dBm		-56		dBc

**Note 1:** Operation outside this range is possible, but not guaranteed

## Ordering Information

Ordering Number	Component Packing
PA2421	1000pcs / Tape & Reel
PA2421-EVB	PA2421 Evaluation Kit

**For additional product information, please contact  
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