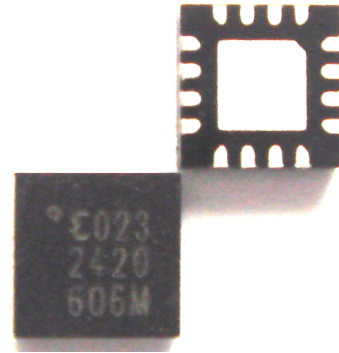


## 2.3~2.7GHz RF Power Amplifier (High-power)

### Introduction

The PA2420 is a high-efficiency three-stage linearized power amplifier optimized for WLAN and WiMax Band-1 applications in the 2.3 to 2.7 GHz band. The device is designed to use minimal external components and to operate from a single 3.3V supply. It features 32 dB of gain and delivers up to +29 dBm of output power.

The device is sold in a RoHS compliant miniature 3 x 3 x 0.8 mm 16-pin QFN package to make automated assembly simple. Its small size makes the device an ideal solution for radios built in small form factors.



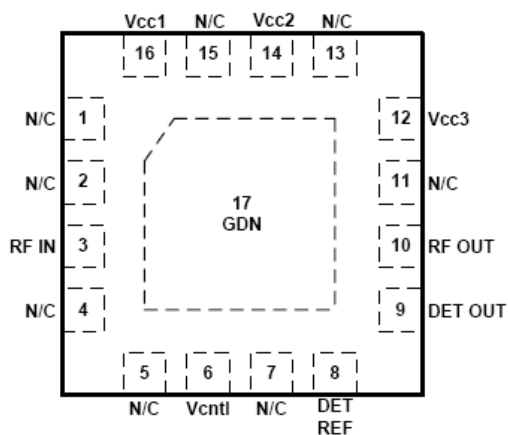
### Applications

- IEEE 802.11b/g WLAN
- WiMax 802.16, MMDS, and MDS Bands
- 2.4 GHz Cordless Phones
- 2.4 GHz ISM Radios

### Features

- 2.3 to 2.7 GHz Operating Range
- 33 dB Gain
- Better than 10 dB input and output return loss
- 4% EVM at Pout=+21 dBm with Icc = 150 mA @ 3.3V
- On-chip power detector
- +3.3V Single Supply
- 3 x 3 x 0.8 mm 16-pin QFN Package
- RoHS compliant product

### Pin Assignment



<Top View>



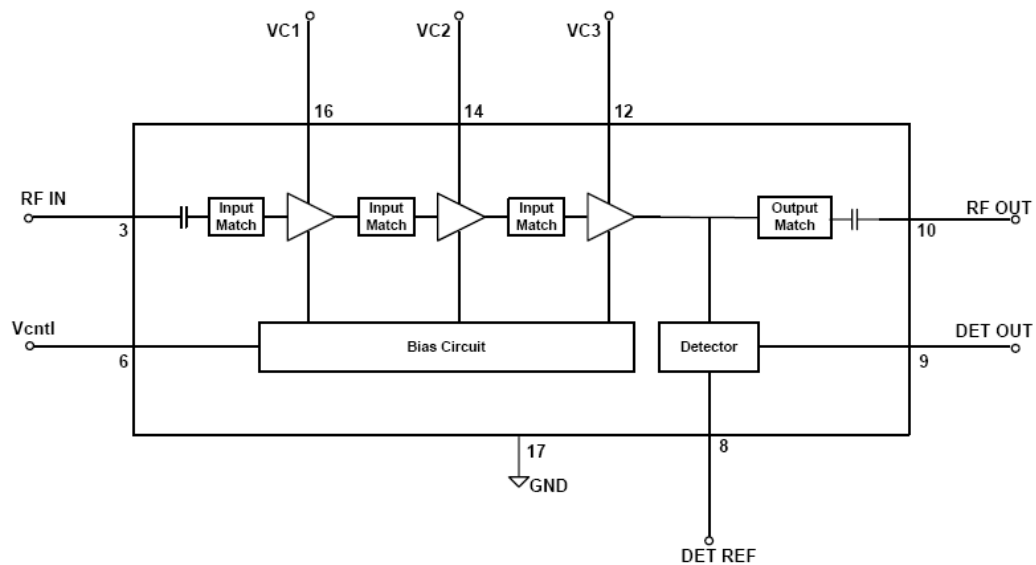
Caution!  
ESD sensitive device



## Pin Description

Pin	Pin Name	Pin Description
1	N/C	No internal connection to pad
2	N/C	No internal connection to pad
3	RF IN	2.4 GHz PA input
4	N/C	No internal connection to pad
5	N/C	No internal connection to pad
6	Vcntl	2.4 GHz PA control voltage
7	N/C	No internal connection to pad
8	DET REF	Detector reference bias voltage
9	DET OUT	Detector output voltage
10	RF OUT	2.4 GHz PA output
11	N/C	No internal connection to pad
12	VC3	2.4 GHz PA Vcc
13	N/C	No internal connection to pad
14	VC2	2.4 GHz PA Vcc
15	N/C	No internal connection to pad
16	VC1	2.4 GHz PA Vcc
17	GND	Package backside ground slug

## Functional Diagram



## Specifications

### Absolute Maximum Ratings

Vc1, Vc2, Vc3, 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
Vc3		3.0	3.3	3.6	Volts
Vcntl			2.95		Volts
<b>Supply Currents</b>					
Ic1 + Ic2 + Ic3	Quiescent (no RF)		60		mA
	Pout = +20 dBm		140		
	Pout = +22 dBm		170		
Icntl			4		mA

### AC Electrical Characteristics (Vcc=3.3V, Vcntl=2.95V, Temp.=25°C)

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
RF Frequency Range (Note 1)		2.3		2.7	GHz
Gain			33		dB
P1dB			27		dBm
Input Return Loss			-10		dB
Output Return Loss			-10		dB
Detector voltage range	Pout=10 dBm @ 2437MHz Pout=20 dBm @ 2437MHz Pout=22 dBm @ 2437MHz		100 400 510		mV
ACPR 1 <sup>st</sup> Side Lobe at Pout=22 dBm	802.11b, 11 Mbps CCK		-35		dBc
ACPR 2 <sup>nd</sup> Side Lobe at Pout=22 dBm	802.11b, 11 Mbps CCK		-55		dBc
Total Current at Pout=20 dBm	64 QAM / 54 Mbps, uncorrected		140		mA
EVM at Pout = 20 dBm	64 QAM / 54 Mbps, uncorrected		3		%
Second Harmonics	Pout=20dBm		-32		dBc

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

## Ordering Information

Ordering Number	Component Packing
PA2420	1000pcs / Tape & Reel
PA2420-EVB	PA2420 Evaluation Kit

**For additional product information, please contact  
[sales@epic.com.tw](mailto:sales@epic.com.tw)**

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