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AP1092

2.4~2.5 GHz Power Amplifier

2003.05.29

DESCRIPTION

AP1092 is a linear, low current power amplifier in ISM band utilizing InGaP /GaAs HBT process. AP1092 has internal 50 Ω impedance matching for both input and output. It features a LOW current of 95 mA, small signal gain of 29.5 dB, P1 dB of 20 dBm, and PAE of 35%. AP1092 is housed in a 3 x 3 (mm), 16-pin, and QFN leadless package.

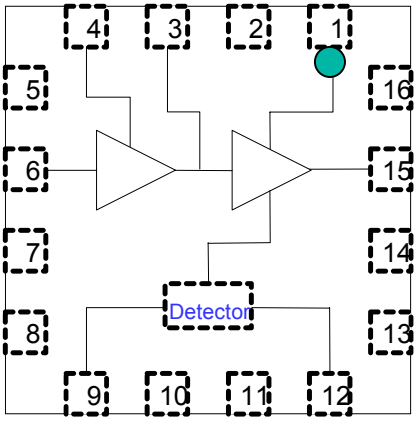
KEY FEATURES

- **95 mA LOW current consumption**
- **On-Chip Input/Output Match**
- **On-Chip Power Detector**
- **30 dB Small Signal Gain**
- **20 dBm P1dB at 3.3V**
- **Single 3.3/5V Power Supply**

Major Applications

- EEE 802.11b
- Wireless LAN Systems
- 2.4GHz ISM Band Application

Functional Block Diagram



Pin Details

Pin Number	Name	Description
1	VB2	Voltage Control Bias
2	NC	Not Connected
3	VC1	Power Supply
4	VB1	Voltage Control Bias
5	GND	RF Ground
6	RF_IN	RF Input
7	GND	RF Ground
8	NC	Not Connected
9	V_DET	Detector Supply Voltage
10	NC	Not Connected
11	GND	RF Ground
12	DET_OUT	Detector Output
13	NC	Not Connected
14	NC	Not Connected
15	RF_OUT	RF-OUT and Power Supply
16	NC	Not Connected

For more information,please contact us at:
Sales Dept.
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e-mail: sales@rfintc.com

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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Power Amplifier Overall Spec.					
Frequency Range	2.1	2.4~2.5	2.6	GHz	
P1dB		20		dBm	Vc =3.3V, Ic=95mA
Small Signal Gain	27.5	29.5	31.5	dB	
Power Added Efficiency		35		%	Vc =3.3V, Pout=21dBm
ACPR 1st side lobe		-32.5	-30	dBc	Vc =3.3V, Pout=18dBm
ACPR 2nd side lobe			-60	dBc	
Input and Output Impedance		50		ohm	On chip matching
Input VSWR		2 : 1			Vc =3.3V
Output VSWR		2 : 1			Vc =3.3V
Power Supply		3.3		Volt	
Total Current		95	120	mA	
package size		3x3		mm x mm	
Power Down Spec.					
Vb "ON"	2.5		2.8	V	When voltage is supplied to control input, device is "ON" or "OFF"
Vb "OFF"			1.2	V	
Power Detector Spec.					
Detector Voltage Range	0.3		1.3	V	

Absolute Maximum Ratings

Parameter	Rating	Unit
DC Power Supply	+6	V
DC Supply Current	200	mA
RF Input Power	-5	dBm
Operating Ambient Temperature	-40 to +85	° C
Storage Temperature	-40 to +125	° C

Caution

RF Integrated Corp. believes the information provided is reliable at present time. However, we assumes no responsibility for inaccuracies and omissions and use of the information shall be entirely at the user's own risk. RF Integrated Corp. reserves the right to make change to the specifications without notice.

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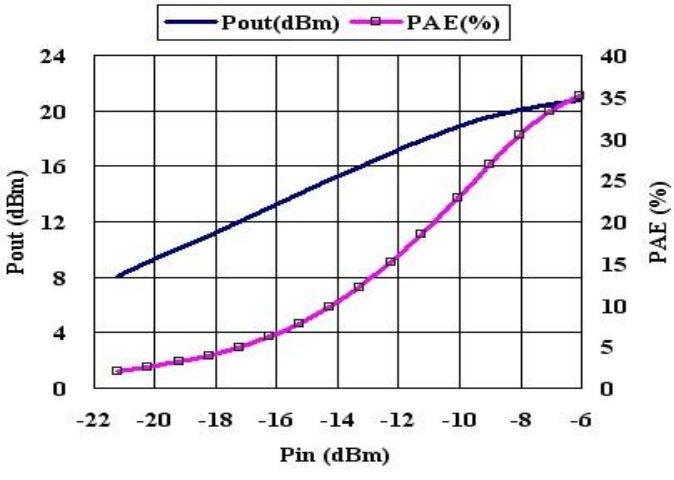
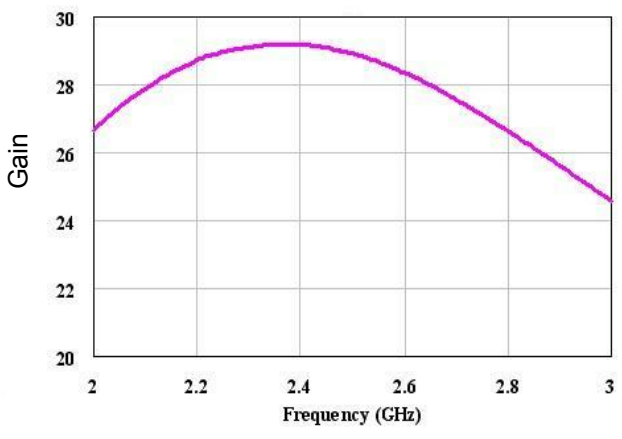
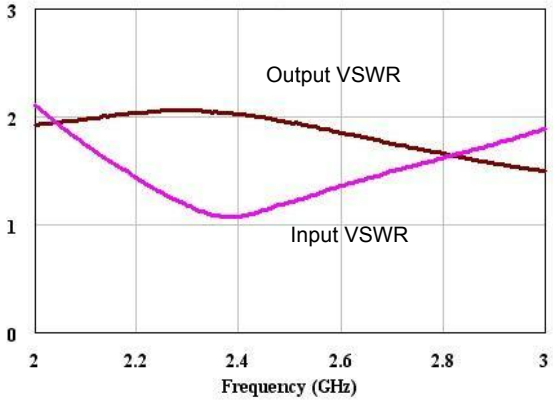
Typical Power and PAE



Typical Small Signal Gain

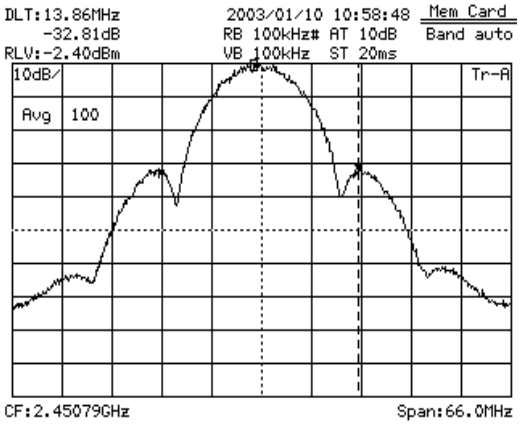


VSWR



ACPR 1

Output channel power = 18 dBm
1st side lobe = -32.8 dBc, 2nd side lobe= -60 dBc
Vc1=Vc2=3.3V, I total = 100 mA



1. Input Signal is from Agilent ESG, BT=0.45

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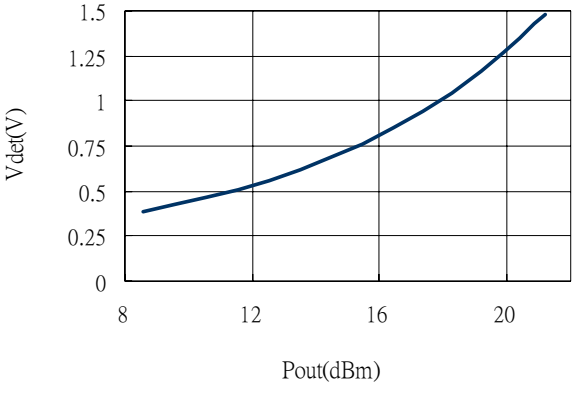
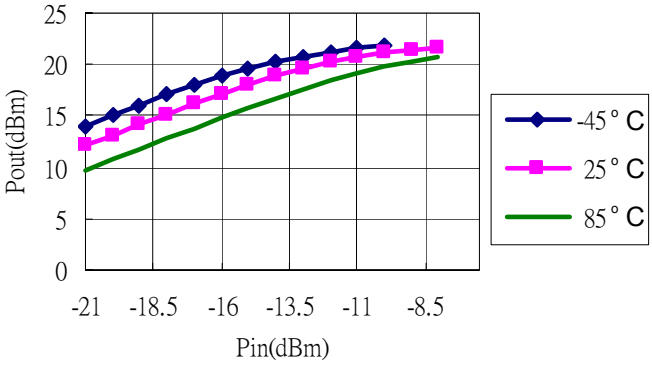
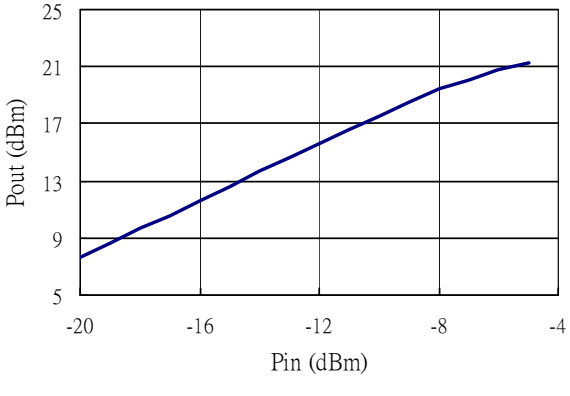
Detector Voltage v.s. Pout



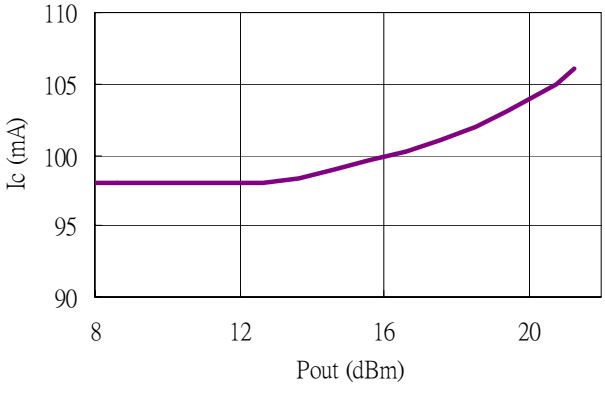
Pout v.s. Pin at various Temperature



Pout v.s. Pin Biased at 5V



Current v.s. Pout Biased at 5V



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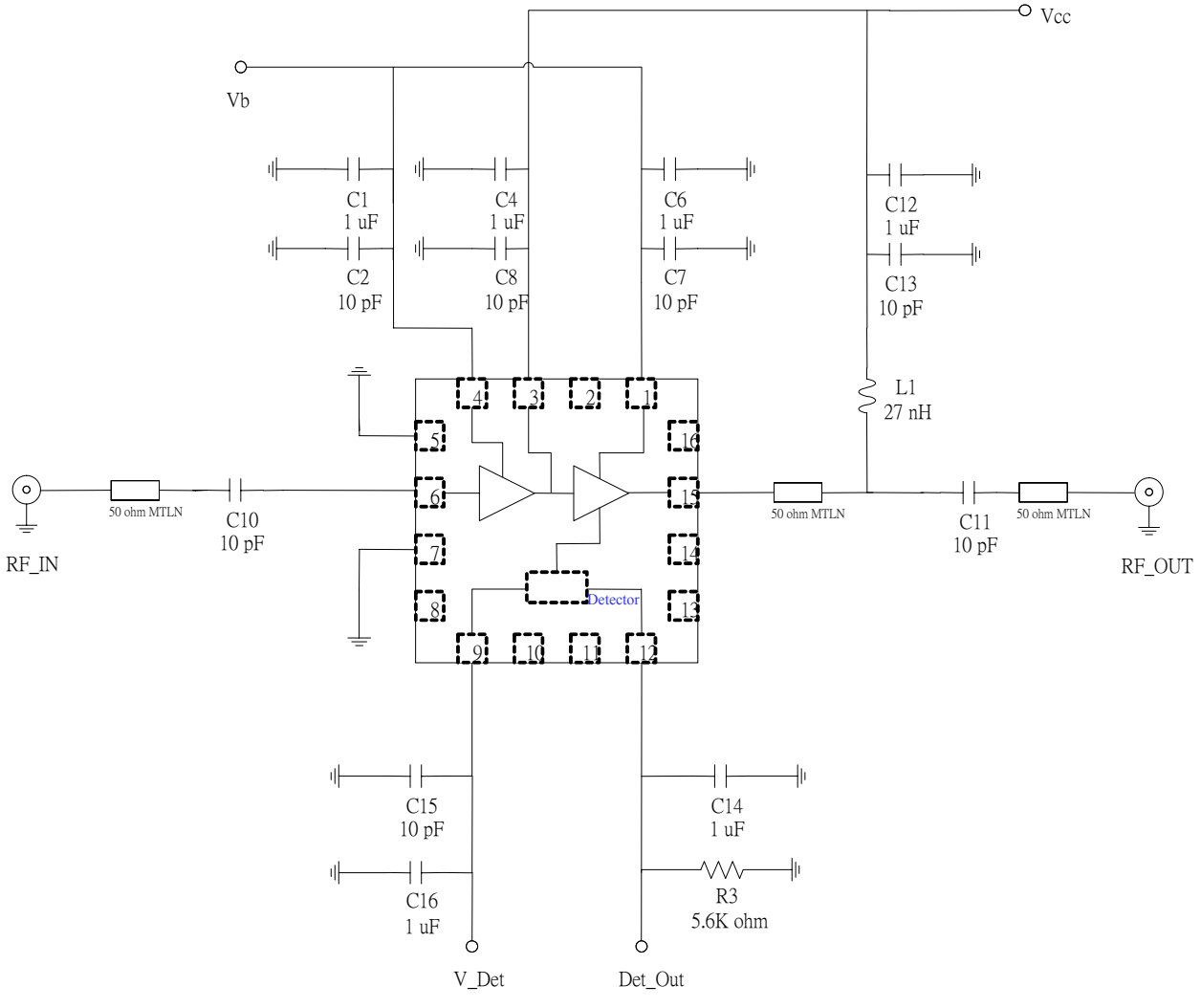
Evaluation Board Schematic



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