RMPA0910-53
824 to 849 MHz Dual Mode Power Amplifier

Description

Raytheon RMPA0910-53 is a high efficiency dual mode power amplifier module, in a surface mount package, designed for use in AMPS (Advanced Mobile Phone Service) and CDMA (Code Division Multiple Access) portable telephones. The module contains a two stage power amplifier GaAs MMIC which requires off-chip output matching and associated bias circuitry. The amplifier circuit design is a single ended configuration with shunt feedback and utilizes harmonic tuning for increased power added efficiency.

Features

- 60% Power Added Efficiency
- 31.7 dBm Minimum Output Power
- Requires off-chip output matching circuits
- Compatible with AMPS and CDMA systems
- Small Package Outline: 0.200 x 0.200 x 0.09 inches, body
  0.282 x 0.282 x 0.09 inches, with leads

Maximum Ratings

Parameter	Symbol	Value	Unit
Positive DC Voltage	Vd1,Vd2	+ 9	Volts
Negative DC Voltage	Vg1,Vg2	- 6	Volts
Simultaneous (Vd-Vg)	Vdg	+12	Volts
RF Input Power (from 50-Ω source)	P_{IN}	+10	dBm
Operating Case Temperature (Case)	T_C	-30 to 110	°C
Storage Temperature Range	T_{Stg}	-35 to 110	°C

Electrical Characteristics

(Tested in test fixture: RMPA-0910-53-TB, Vd1=Vd2=5.8V, Idq1=25 mA Idq2=146 mA T=25°C)

Parameter	Min	Typ	Max	Unit
Frequency Range	824		849	MHz
Analog Mode:				
Linear Gain (Pin=-10dBm)	28		32	dB
Return Loss (Pin=-10dBm)	9.6			dB
Output Power (Pin=+7dBm)	31.7			dBm
Associated Efficiency (at Pin=+7dBm)	50	60		%
CDMA Mode: (Total Pout=+28dBm)				
Total Input Power			0	dBm
ACPR (offset 900 KHz)	28	35		dBc
ACPR (offset 1.98 MHz)	44	49		dBc
Associated Efficiency	32	35		%
Drain Voltage: Vd1,Vd2		5.8		V
Gate Voltage: Vg1, Vg2	-1.4	-1.1	-0.6	V
Current, Gate (Ig1+Ig2)			4	mA

Product Information

Tel: 978-470-9715
FAX: 978-470-9452
www.raytheon.com/micro

Revised January 28, 1998

Microelectronics
362 Lowell Street
Andover, MA 01810

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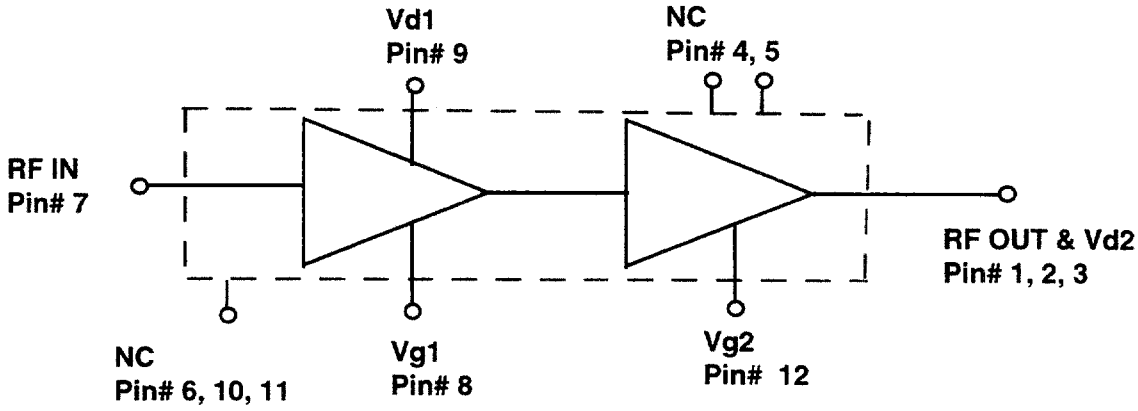
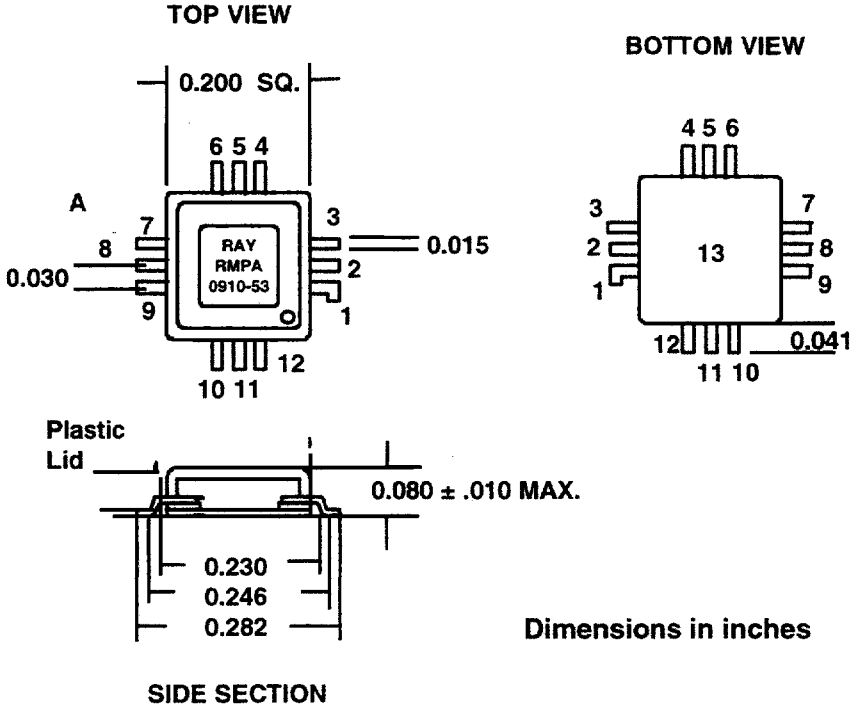
Product Information

Functional Block Diagram



Outline Dimensions



Dimensions in inches

Pin#	Description
1	Vd2 & RF Out
2	Vd2 & RF Out
3	Vd2 & RF Out
4	NC
5	NC
6	NC
7	RF IN
8	Vg1
9	Vd1
10	NC
11	NC
12	Vg2
13	Package Bottom DC & RF Ground

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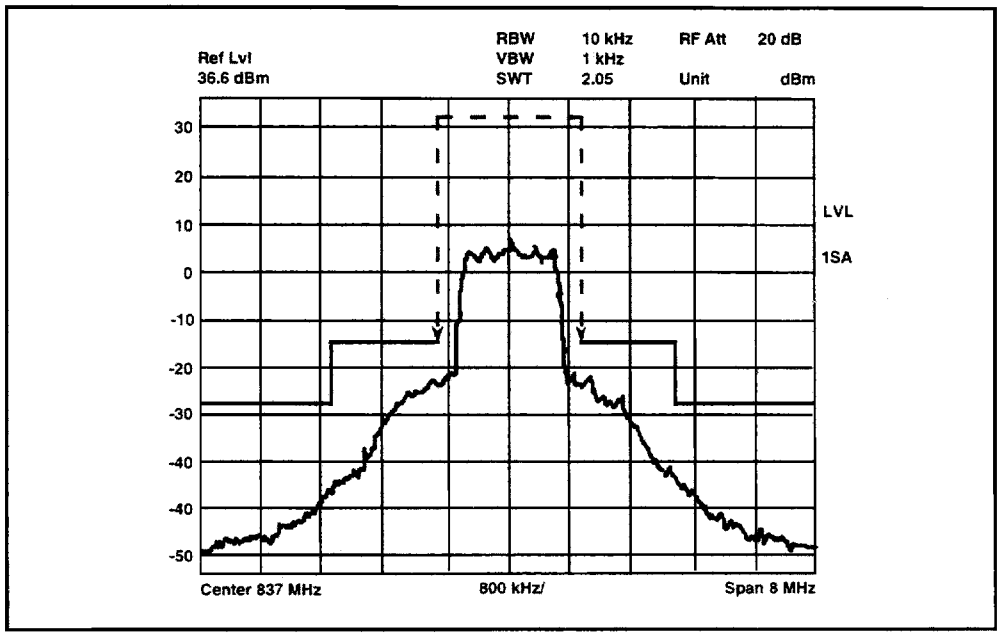
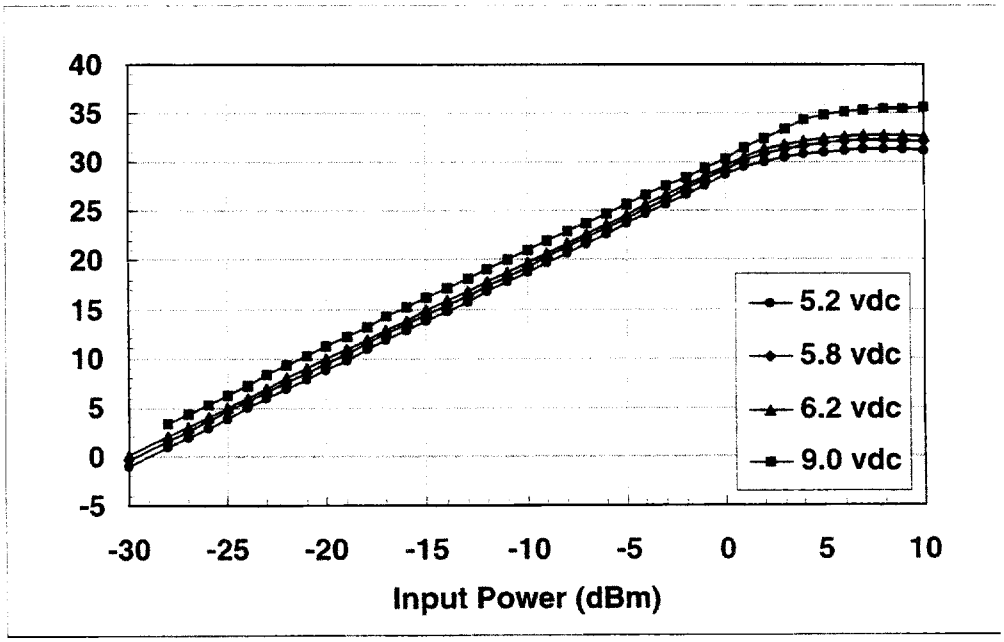
Measured Adjacent Channel and Alternate Channel Rejections for L-Band Dual Mode (Analog/Digital) Power Amplifier



Output Power vs Input Power for Various Vd



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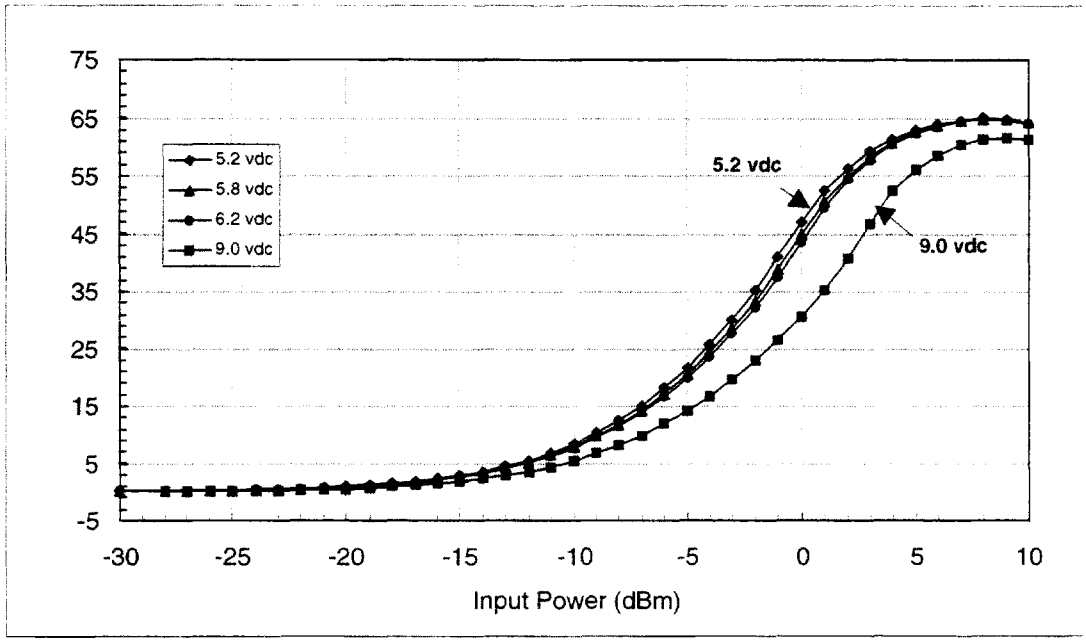
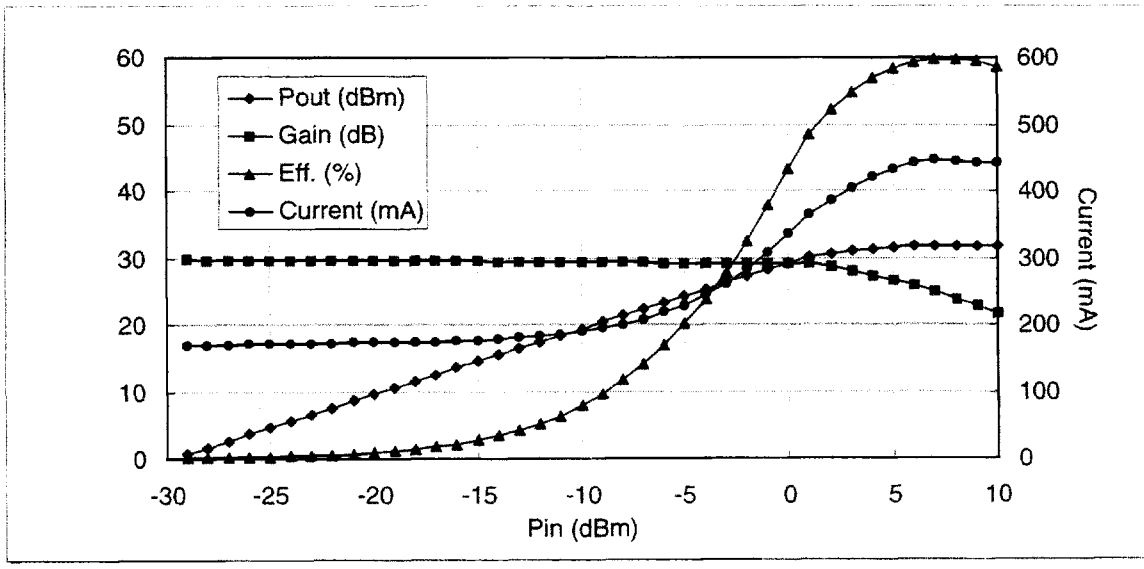
Efficiency vs Input Power for Various Vd



Gain, Pout, Efficiency, and Total Current vs Pin



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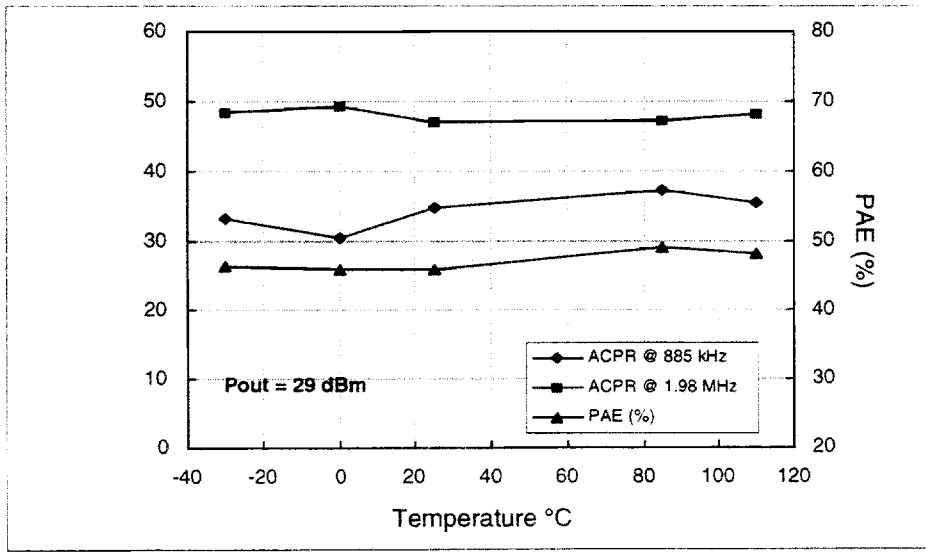
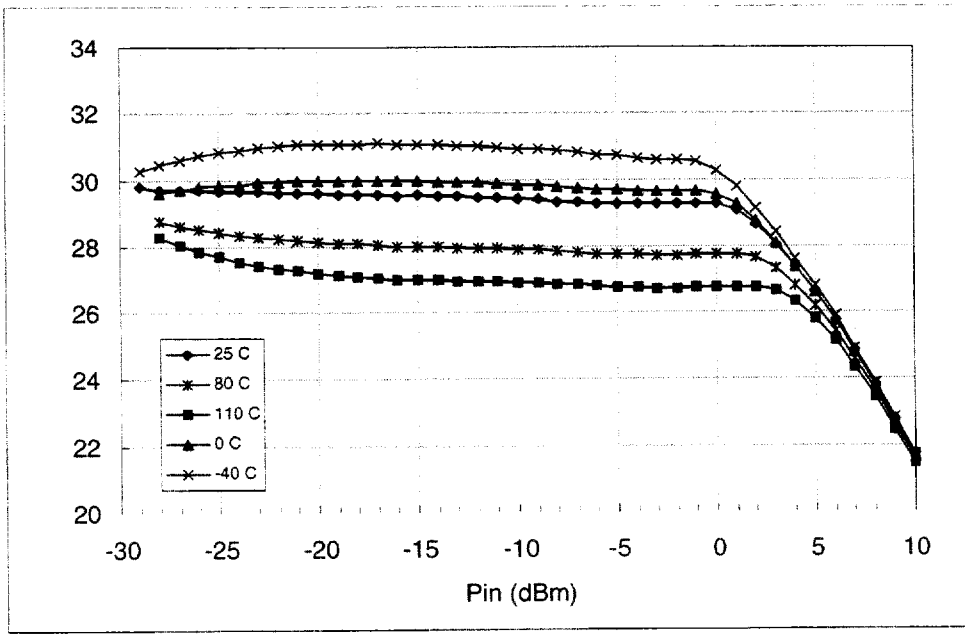
ACPR at 885 kHz, 1.98 MHz and Pout vs Voltage



Gain vs Pin over Temperature
Vd1=Vd2=4.8 Vdc



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