RMPA1902-53
PCS GaAs MMIC Power Amplifier

Description

The RMPA1902-53 is a monolithic high efficiency power amplifier for PCS CDMA personal communication system applications. The MMIC requires off-chip matching. The amplifier circuit design is a single ended configuration that utilizes harmonic tuning for increased power added efficiency and linearity. The device uses Raytheon's Pseudomorphic High Electron Mobility Transistor (pHEMT) process.

Features

- Positive supply voltage of 3.5 V, nominal
- Efficiency of 32%, typical, for CDMA average power out of 28.5 dBm
- Small outline quad package

Electrical Characteristics [1]

Parameter	Min	Typ	Max	Unit
Frequency Range	1850		1910	MHz
	1710		1785	MHz
Gain (Small Signal)		32		dB
Gain Variation vs Temp		-0.025		dB/°C
Gain Linearity				
(0 dBm ≤ Pout ≤ 28.5 dBm)	-1.0		+1.0	dB
Noise Power (1930-1990 MHz)				
(All Power Levels)			-135	dBm/Hz
Input VSWR (50Ω)			2.0:1	---
Stability (All spurious)[2]			-70	dBc
Harmonics (Po ≤ 28.5 dBm)				
2fo, 3fo, 4fo			-30	dBc
Power Out	28.5			dBm
Efficiency at Pout = 28.5 dBm		32		%
ACPR (Offset ≤ ± 1.25 MHz)[3]		47		dBc
Noise Figure (over temp.)			6.0	dB
Quiescent Current		130		mA
Vdd		3.5		Volts
Vg1, Vg2, Vg3 (<5 mA)[4]	-1.5		-0.3	Volts
Case Operating Temp	-30		+90	°C

Advanced Information

Notes: 1. Specifications are valid for Vdd = 3.5V, load = 50 Ω, and Tc = 25°C as measured in Raytheon's test fixture unless otherwise stated.
2. Source/Load VSWR ≤ 3:1 (All Angles, -50 dBm<Po<29 dBm) or Load VSWR ≥ 20:1 (Out of Band, All Angles, Tc=-40 to +90°C).
3. Po ≤ 28.5 dBm at Vdd=3.5V; CDMA Waveform measured using the ratio of the average power within the 1.23 MHz channel and within a 30 kHz bandwidth at a 1.25 MHz offset.
4. Vg1, Vg2, Vg3 adjusted for quiescent current.

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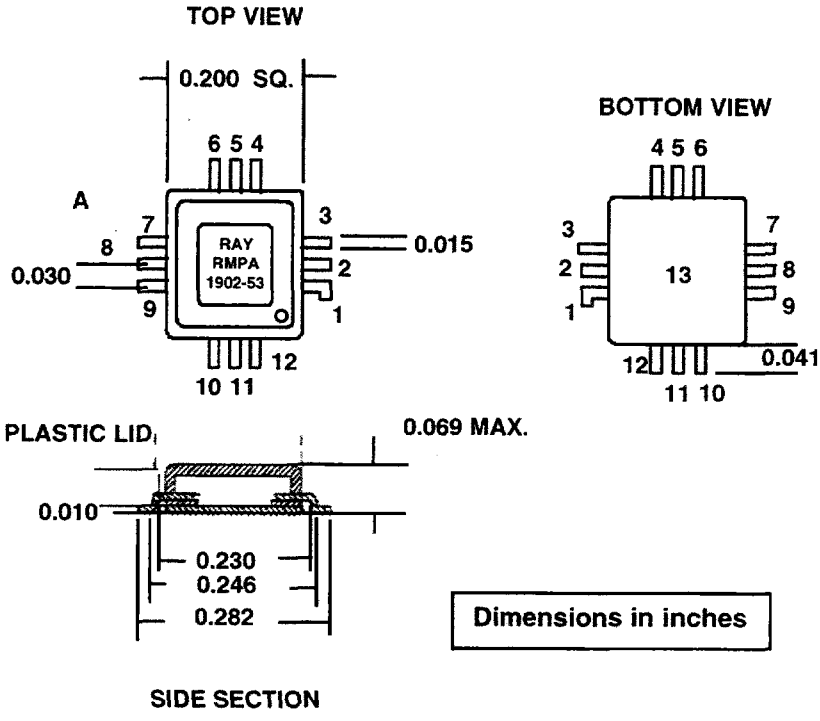
Advanced Information

Package Data



Dimensions in inches

Pin#	Description
1	NC
2	RF Out / VD3
3	RF Out / VD3
4	VD1
5	GND
6	VG1
7	RF In
8	GND
9	VG2
10	VD2
11	GND
12	VG3
13	GND