

# RMPA0914-53

## 3.5V TACS/CDMA Power Amplifier

**Description** The RMPA0914-53 is a monolithic high efficiency power amplifier for TACS/CDMA dual mode applications in the 887 to 925 MHz frequency band. Performance parameters may be slightly adjusted by "tweaking" off-chip matching components. 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 3.5V, nominal
  - Power Added Efficiency of 53%, typical, at power out of 31.5 dBm
  - Power Added Efficiency of 37.5%, typical, for CDMA power out of 28.5 dBm
  - Small outline metal based quad plastic package

Electrical Characteristics	Parameter	Min	Typ	Max	Unit
(Specifications at 25°C unless otherwise stated)	Frequency Range	887		925	MHz
	Gain (Small Signal)		28.5		dB
	Gain Variation vs Temp		-0.02		dB/°C
	Gain Linearity (0 dBm ≤ Pout ≤ 28.5 dBm)	-1.0		+1.0	dB
	Noise Power (832-870 MHz)			-138	dBm/Hz
	Input VSWR (50Ω)			2.0:1	---
	Stability (All spurious) <sup>1</sup>			-70	dBc
	Harmonics (Po ≤ 31.5 dBm)			-30	dBc
	Power Out Vdd=3.5V, Pin=7 dBm		32.5		dBm
	Efficiency				%
	Pin = 7 dBm, Vdd=3.5V		60		%
	Po = 28.5 dBm, Vdd=3.5V		37.5		%
	Po = 10 dBm, Vdd=3.5V		1.5		%
	ACPR <sup>2</sup> (Offset ≤ ± 900 kHz)		49		dBc
	(Offset ≤ ± 1.98 MHz)		61		dBc
	Noise Figure (over temp.)			5.0	dB
	Vdd		3.5		Volts
	Vg1, Vg2 (<4 mA Total) <sup>3</sup>	-2		-0.5	Volts
Case Operating Temp	-30		+90	°C	

Preliminary Information

**Notes:**

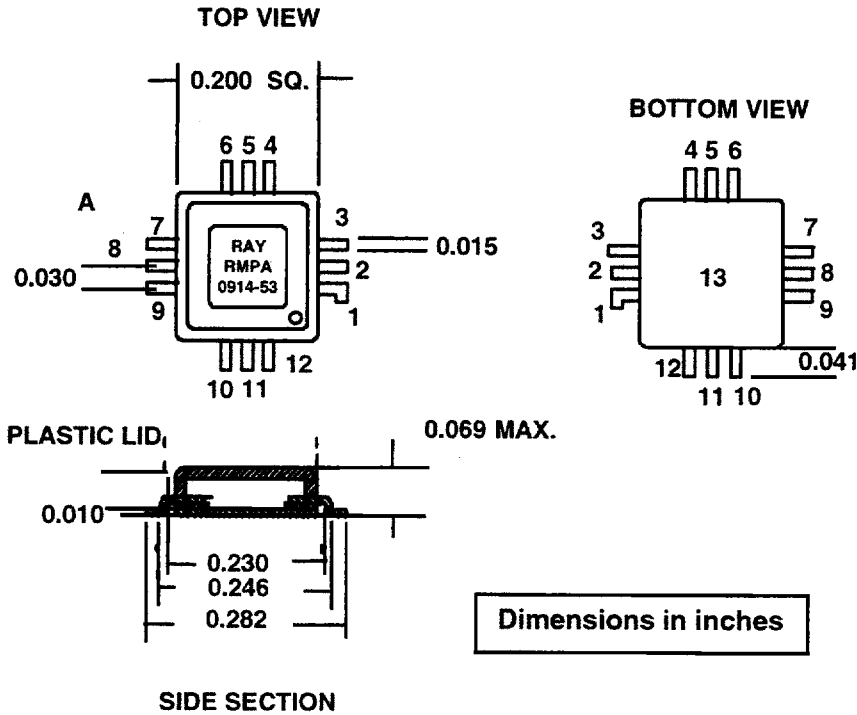
1. Source/Load VSWR (All Angles) ≤ 3:1 In-Band, Load VSWR (All Angles) ≥ 20:1 Out of Band, Valid over Case Operating Temperature Range.
2. Po ≤ 28.5 dBm at Vdd=3.5V; CDMA Waveform measured using the ratio of the average power within a 1.23 MHz channel and within a 30 kHz bandwidth at the specified offset.
3. Vg1 adjusted for Idq (stage 1) = 35 mA, Vg2 adjusted for Idq (stage 2) = 155 mA.

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Package Data



Dimensions in inches

Pin#	Description
1	RF Out & Vd2
2	RF Out & Vd2
3	RF Out & Vd2
4	AC Ground (g2)
5	GND
6	AC Ground (g1)
7	GND
8	RF Input
9	GND
10	Vd1
11	Vg2
12	Vg1
13	GND (METAL BASE)

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