

# RMPA2000-58

## 1.8-2.0 GHz GaAs MMIC

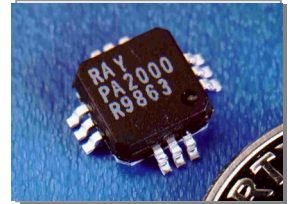
### Power Amplifier

**Description**

The Raytheon RMPA2000-58 is a fully monolithic power amplifier in a surface mount package for use in wireless applications in the 1.8 to 2.0 GHz ISM frequency band. The amplifier may be biased for linear, class AB or class F for high efficiency applications. On-chip matching components allow operation in a 50-ohm system with no external matching components. The MMIC utilizes Raytheon's 0.25µm power pHEMT process.

**Features**

- ◆ 40% Power Added Efficiency
- ◆ 31 dBm Output Power, typical, at  $V_d = +7V$
- ◆ 28 dBm Output Power, typical, at  $V_d = +5V$
- ◆ No external RF matching components
- ◆ Small Package Outline: 0.28" x 0.28" x 0.07"



**Absolute Maximum Ratings**

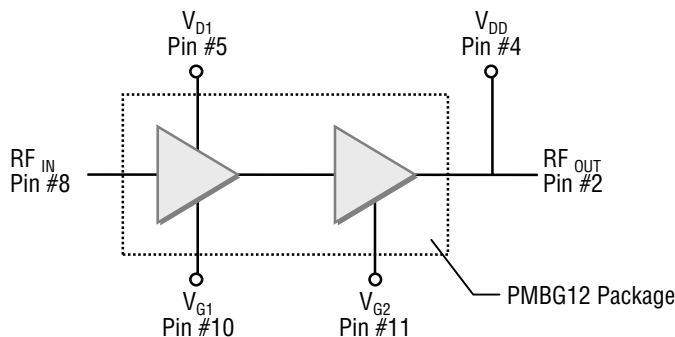
Rating	Symbol	Value	Unit
DC Supply Voltage	$V_{DD}$	+8	Volts
DC Negative Bias Voltage	$V_{GG}$	-5	Volts
RF Input Power (from 50Ω source)	$P_{IN}$	10	dBm
Drain to Source current	$I_{ds}$	700	mA
Gate current	$I_g$	5	mA
Channel temperature	$T_{ch}$	150	°C
Operating Case Temperature Range	$T_C$	-40 to 100	°C
Storage Temperature Range	$T_S$	-40 to 125	°C

**Electrical Characteristics**

At 25°C,  $Z_o = 50$  ohms, unless otherwise stated

Parameter	Min	Typ	Max	Unit
Frequency Range	1800	1900	2000	MHz
Gain <sup>1,2,3</sup>		30		dB
Output Power, P1dB <sup>1,3</sup>		28		dBm
Ass. Power Added Efficiency		35		%
Output Power, P1dB <sup>4</sup>		31		dBm
Ass. Power added efficiency		40		%
Input Return Loss (50Ω)	7.5			dB

**Functional Block Diagram**



**Notes:**

1.  $I_{dq}=300mA$ ,  $V_{d1}=V_{d2}=5.0V$
2.  $P_{in}=-3dBm$
3. Production testing includes Gain, Output power and input return loss at  $V_{d1}=V_{d2}=5.0V$ ,  $V_{g1}=V_{g2}=-0.5V$  (nominal), adjusted for  $I_{dq}=300mA$ ,  $P_{in}=-3dBm$  and at  $F=1.90$  GHz.
4.  $V_{d1}=V_{d2}=+7V$ ,  $I_{dq}=400mA$

Characteristic performance data and specifications are subject to change without notice.

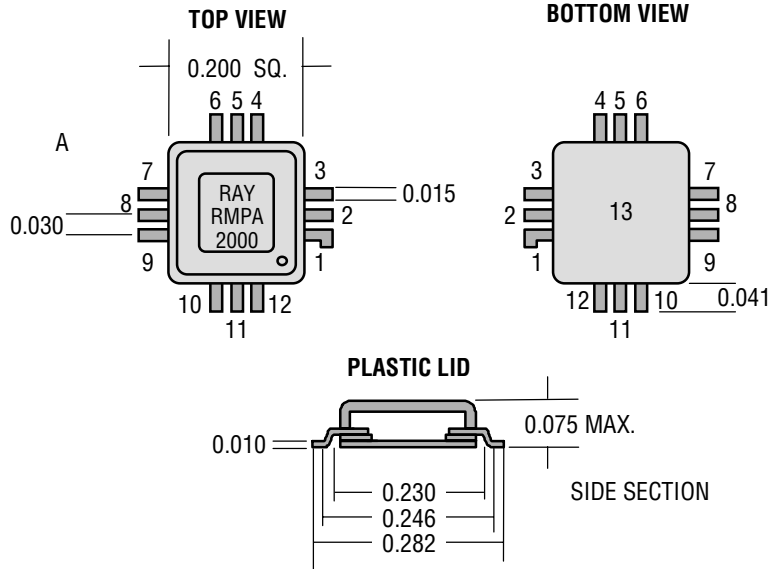
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**Figure 1**  
Package Outline and  
Pin Designations

*Dimensions in inches*



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

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