

RMPA1600-53

1.5 to 1.7 GHz GaAs MMIC Power Amplifier

Description The Raytheon RMPA1600-53 is a fully monolithic power amplifier in a surface mount package for use in wireless applications in the 1.5 to 1.7 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 chip design utilizes Raytheon's 0.25 μ m power PHEMT process.

- Features**
- 40% Power Added Efficiency
 - 31 dBm Output Power (P1 dB) at Vd=+7V
 - 28 dBm Output Power (P1 dB) at Vd=+5V
 - No external RF matching components
 - Small Package Outline: 0.28" x 0.28" x 0.07"
 - Thermal Resistance (channel to case): 30°C/Watt

Maximum Ratings	Parameter	Symbol	Value	Unit
	Positive Drain DC Voltage	Vd1, Vd2	+8	Volts
	Negative Gate DC Voltage	Vg1, Vg2	-5	Volts
	Simultaneous Drain to Gate Voltage	Vd-Vg	+10	Volts
	RF Input Power (from 50 Ω 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	T _{Case}	-40 to 100	°C
	Storage Temperature Range	T _{Stg}	-40 to 125	°C

Electrical Characteristics	Parameter	Min	Typ	Max	Unit
(Note 4, At 25°C, Z _o =50 Ohms, Unless Otherwise Noted)	Frequency Range	1500	1600	1700	MHz
	Gain (Note 1, 2, 4)		33		dB
	Output Power, P1 dB (Note 1, 4)		29		dBm
	Assoc. Power Added Efficiency		39		%
	Output Power, P1dB (Note 3)		30		dBm
	Assoc. Power Added Efficiency		33		%
	Drain Current (I _{dd1} +I _{dd2})			600	mA
	Gate Current (I _{gg1} +I _{gg2})			5	mA
	Input Return Loss (50 Ω)	7.5			dB

Notes:

- (1) I_{dq}=300 mA, V_{d1}=V_{d2}=5.0 V (2) P_{in}= -3 dBm, (3) V_{d1}=V_{d2}= +7V
- (4) Production Testing includes Gain, Output Power (P1dB) and Input Return Loss at V_{d1}=V_{d2}=5.0 V, V_{g1}=V_{g2}= -0.5V (nominal) , adjusted for I_{dq}=300 mA, P_{in}= -3 dBm and at F=1.6 GHz. Other Parameters are guaranteed by Design Validation Testing.

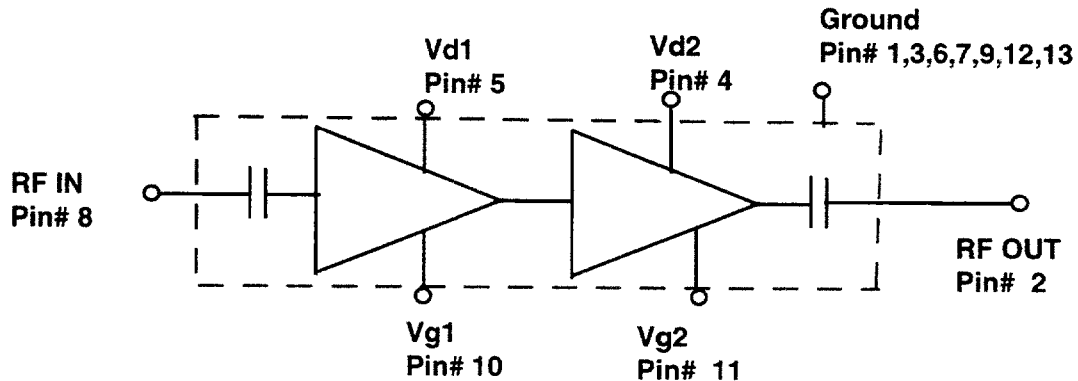
Raytheon reserves the right to update or change specifications without notice.

Product Information

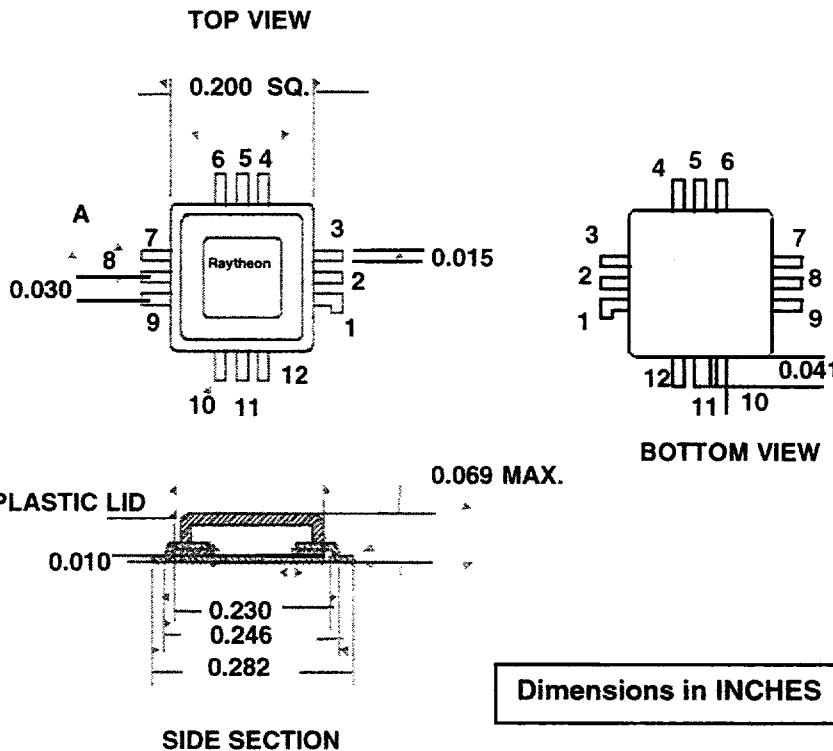
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Functional Block Diagram (RMPA1600)



Outline Dimensions (RMPA1600-53)



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

Dimensions in INCHES

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