

Broadband Standard Product

PA002005-21 High Power Amplifier 200 to 500MHz

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Advanced



DESCRIPTION

The PA002005-21 is a high power, high linearity amplifier with excellent efficiency and reliability in a compact hermetic package. The PA002005-21 is ideal for use as stable gain block, IF driver Amplifier and high Power Amplifier for military or space applications.

Our team of engineers can custom design power amplifiers using the latest simulation software and proprietary technology to meet even the most demanding specifications.

FEATURES

- 200 to 500MHz Frequency range
- Very high linearity
- $P_{0.1dB} > 18dBm$
- 20dB typical gain
- 1.1 dB typical noise figure
- Operates from a single +5V supply
- Unconditionally stable
- Compact size
- Space and military applications

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS ^{1/}

PARAMETER	SYMBOL	MIN	MAX	UNITS
Operating Temperature – Case	T_{MO}	-55	+95	°C
Storage Temperature – Case	T_{MS}	-65	+150	°C
Positive Supply Voltage	V_{PS}	-	+8.0	V
RF Input Power	$P_{IN}(CW)$	-	+24	dBm
	$P_{IN}(Pulsed)$	-	+30	dBm
RF Output Power (At $P_{IN} = +24dBm$)	P_{OUT}	-	+25	dBm
Total Die Power Dissipation	P_{DISS}	-	340	mW
TRISE above Case	TRISE	-	21.4	°C
Die T_J	T_J	-	+150	°C
ESD	<400 ^{2/}			V

1. Stresses above those listed under "Absolute Maximums Rating" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

2. Meets ESD testing per MIL-STD-883, method 3015, Class 1A.

NOMINAL OPERATING CONDITIONS

PARAMETER	CONDITIONS	MIN	MAX	UNITS
Temperature, T_C – Case	Full Range	-55	+65	°C
Positive Supply Voltage, V_{PS}		+4.75	+5.25	V

SPECIFICATIONS

ELECTRICAL CHARACTERISTICS 1/ (Performance from -55° to +65°C)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Frequency Range		200	-	500	MHz
Power Output	P_{0.1dB} Compression Point	-	+19	-	dBm
Gain		-	+20	-	dB
Noise Figure		-	1.1	-	dB
RF Input Impedance	Reference to 50 ohms	-	1.5:1	-	-
RF Output Impedance	Reference to 50 ohms	-	1.4:1	-	-
Input IP3		-	+15	-	dBm
Positive Supply Voltage		-	+5	-	V
Positive Supply Current		-	90	-	mA

Note: 1/ Typical (TYP) parameters specifications are not tested.

ELECTRICAL CHARACTERISTICS 1/ 2/ 3/ (Performance from 0° to +65°C)

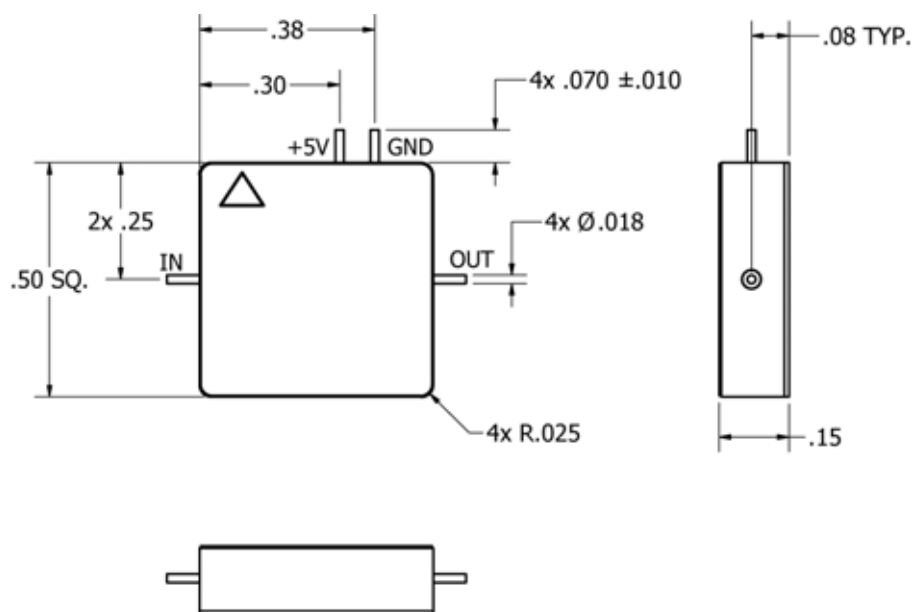
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Frequency Range		240	-	470	MHz
Power Output	P_{0.1dB} Compression Point, measured @ 10 frequencies	+18	+19	-	dBm
Gain		+19.25	+20	20.75	dB
Gain Flatness	Relative to Average gain	-0.25	-	+0.25	dB
Noise Figure		-	1.1	1.5	dB
RF Input Impedance	Reference to 50 ohms	-	1.5:1	1.80:1	-
RF Output Impedance	Reference to 50 ohms	-	1.4:1	1.5:1	-
Input IP2	IP2 relative to input, measured @ 250MHz	28	-	-	dBm
Input IP3	IP3 relative to input, measured @ 250MHz	11.25	15	-	dBm
Positive Supply Voltage		-	+5	-	V
Positive Supply Current		-	90	107	mA

Notes: 1/ Unconditional Stability from -34°C to +95°C ($K > 1$) and ($B1 > 0$) (Cold start tested at -34°C).

2/ Typical (TYP) Parameters specifications are not tested.

3/ Thermal Resistance = 63°C/W.

OUTLINE DRAWING



PIN	FUNCTION	PIN	FUNCTION
1	RFIN	3	GND
2	+5V	4	RFOUT
CASE = GND			

ORDERING INFORMATION

MODEL NUMBER	HERMETICITY	PACKAGE
PA002005-21-H	Hermetic, Class H	0.500 SQ x .150Ht
PA002005-21-K	Hermetic, Class K	

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