

# Broadband Standard Product PA001002-22 High Power Amplifier 100 to 200MHz

January 18, 2010

[www.aeroflex.com/bband](http://www.aeroflex.com/bband)

*Advanced*



## DESCRIPTION

The PA001002-22 is a high power, high linearity amplifier with excellent efficiency and reliability in a compact hermetic package. The PA001002-22 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

- 100 to 200MHz Frequency range
- Very high linearity
- $P_{0.1dB} > 19dBm$
- 19dB typical gain
- 1.5 dB typical noise figure
- Operates from a single +5V supply
- Unconditionally stable
- Compact size
- Space and military applications

## SPECIFICATIONS

### ABSOLUTE MAXIMUM RATINGS <sup>1/</sup>

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	$P_{DISS}$	-	360	mW
TRISE above Case	TRISE	-	22.7	°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		100	-	200	MHz
Power Output	<b>P<sub>0.1dB</sub></b> Compression Point	-	+20	-	dBm
Gain		-	+19	-	dB
Noise Figure		-	1.5	-	dB
RF Input Impedance	Reference to 50 ohms	-	1.5:1	-	-
RF Output Impedance	Reference to 50 ohms	-	1.4:1	-	-
Input IP3		-	+17	-	dBm
Positive Supply Voltage		-	+5	-	V
Positive Supply Current		-	100	-	mA

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

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

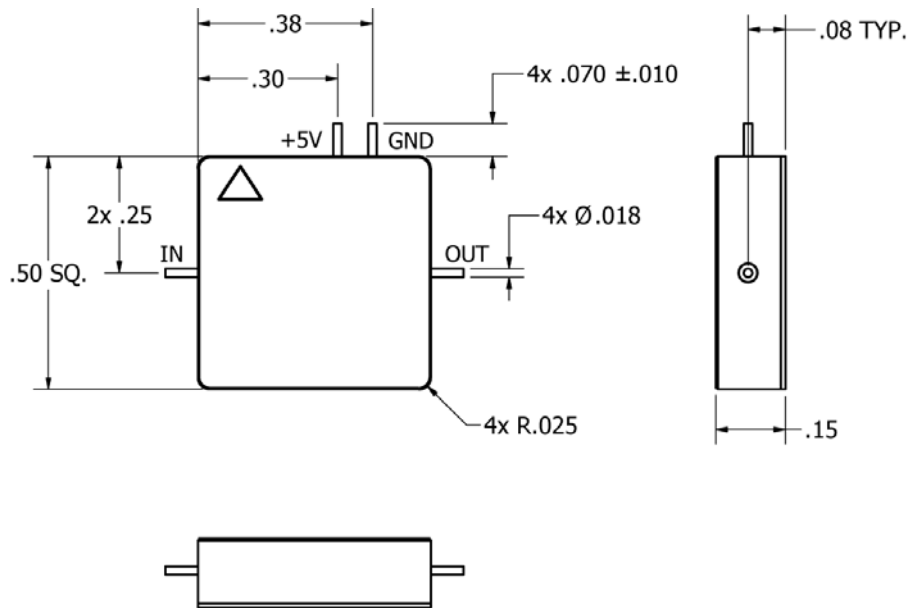
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Frequency Range		100	-	160	MHz
Power Output	<b>P<sub>0.1dB</sub></b> Compression Point, measured @ 10 frequencies	+19	+20	-	dBm
Gain		+18.25	+19	19.75	dB
Gain Flatness	Relative to Average gain	-0.25	-	+0.25	dB
Noise Figure		-	1.5	2.3	dB
RF Input Impedance	Reference to 50 ohms	-	1.5:1	1.75:1	-
RF Output Impedance	Reference to 50 ohms	-	1.4:1	1.5:1	-
Input IP3	IP3 relative to input, measured @ 130MHz	14.75	17	-	dBm
Positive Supply Voltage		-	+5	-	V
Positive Supply Current		-	100	120	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
PA001002-22-H	Hermetic, Class H	0.500 SQ x .150Ht
PA001002-22-K	Hermetic, Class K	

**PLAINVIEW, NEW YORK**  
Toll Free: 800-THE-1553  
Fax: 516-694-6715

**INTERNATIONAL**  
Tel: 805-778-9229  
Fax: 805-778-1980

**NORTHEAST**  
Tel: 603-888-3975  
Fax: 603-888-4585

**SE AND MID-ATLANTIC**  
Tel: 321-951-4164  
Fax: 321-951-4254

**WEST COAST**  
Tel: 949-362-2260  
Fax: 949-362-2266

**CENTRAL**  
Tel: 719-594-8017  
Fax: 719-594-8468

[www.aeroflex.com](http://www.aeroflex.com)    [info-ams@aeroflex.com](mailto:info-ams@aeroflex.com)

Aeroflex Microelectronic Solutions reserves the right to change at any time without notice the specifications, design, function, or form of its products described herein. All parameters must be validated for each customer's application by engineering. No liability is assumed as a result of use of this product. No patent licenses are implied.



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused