

# Broadband Standard Product PA001005-28 GaN Medium Power Amplifier 100MHz to 500MHz

February 9, 2009

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



## DESCRIPTION

The PA001005-28 is a power amplifier in a compact package and is ideal for use as a stable gain block, IF Amplifier or medium Power Amplifier for commercial, 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

- 100MHz to 500MHz Frequency Range
- $P_{1dB} > 28\text{dBm}$
- 25dB typical Gain
- Operates from a Single +12V Supply
- Unconditionally Stable
- Compact Size

## 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	+125	°C
Positive Supply Voltage	$V_{PS}$	-	+15	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.

### NOMINAL OPERATING CONDITIONS

PARAMETER	CONDITIONS	MIN	MAX	UNITS
Temperature, $T_C$ – Case	Full Range	-55	+85	°C
Positive Supply Voltage, $V_{PS}$		+11.75	+12.5	V

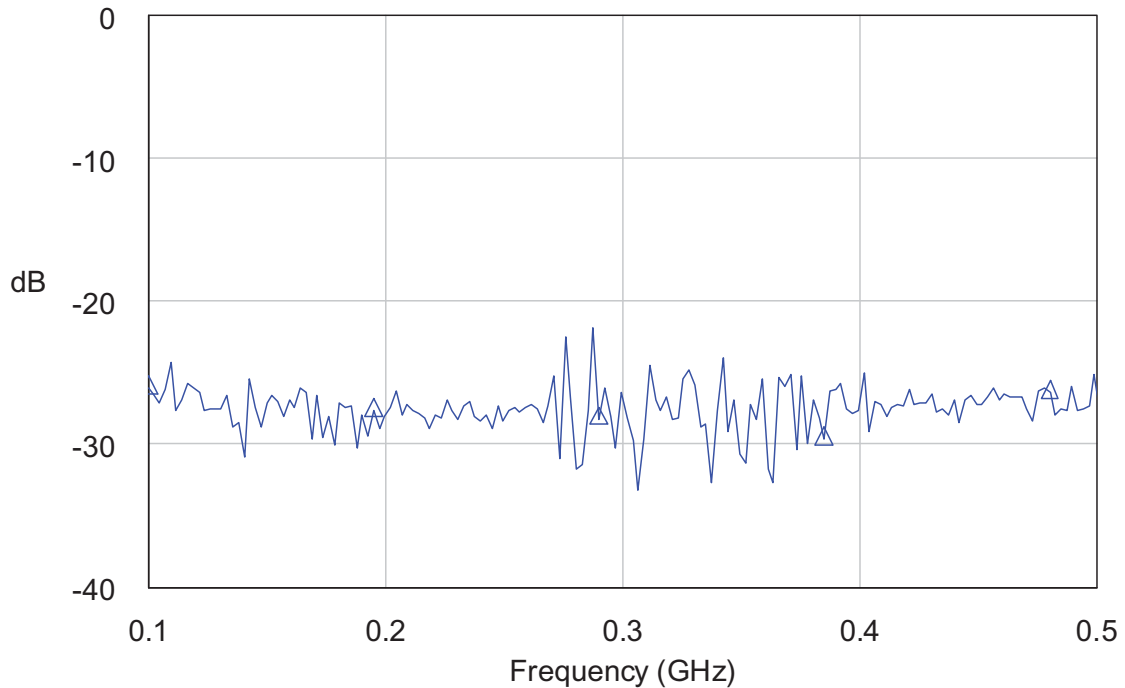
*Aeroflex Plainview*

## SPECIFICATIONS

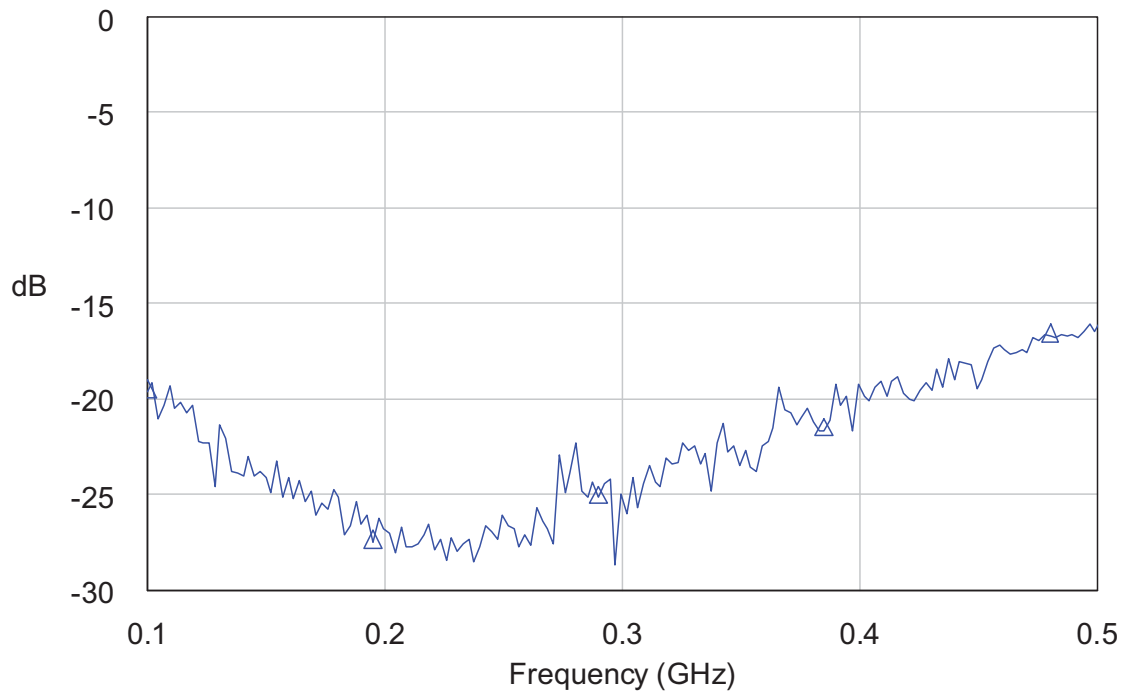
### ELECTRICAL CHARACTERISTICS @ +25°C

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Frequency Range		100	-	500	MHz
Power Output	1dB Compression Point	-	+28	-	dBm
Power Output Variation	Over Frequency	-1	-	+1	dBm
Gain		-	25	-	dB
Gain Flatness		-1.5	-	+1.5	dB
RF Input Impedance	Reference to 50 ohms	-	1.6:1	-	-
RF Output Impedance	Reference to 50 ohms	-	1.7:1	-	-
OIP3		-	+38	-	dBm
Positive Supply Voltage		-	+12	-	V
Positive Supply Current		-	275	-	mA

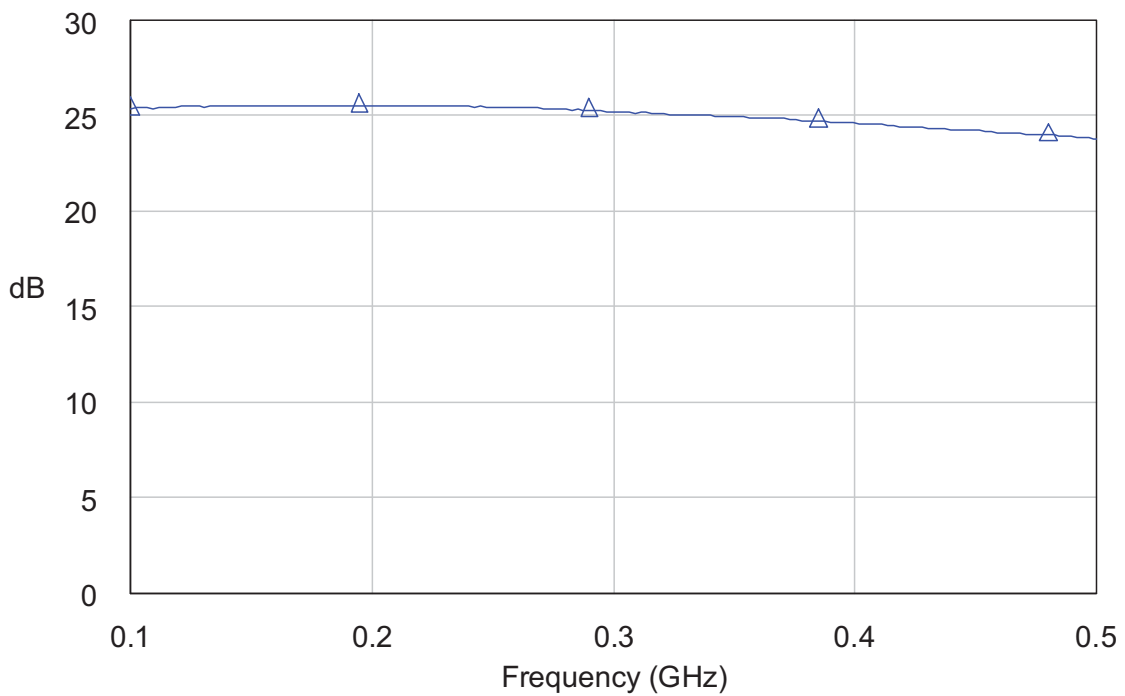
### TYPICAL INPUT RETURN LOSS



## TYPICAL OUTPUT RETURN LOSS



## TYPICAL GAIN



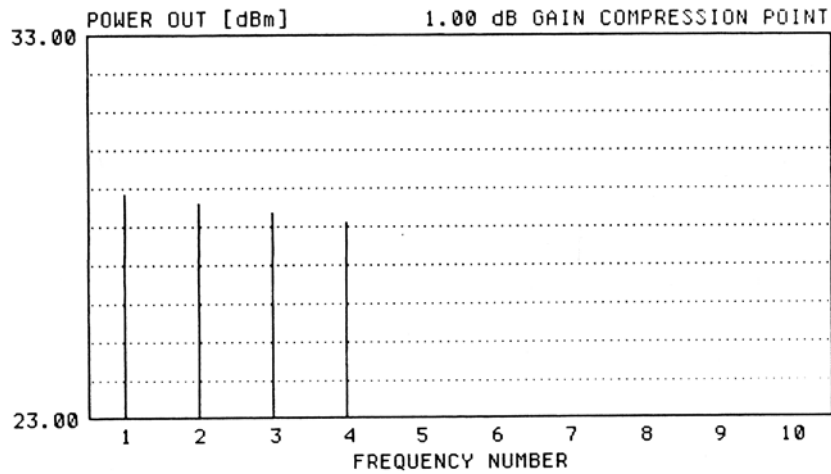
# TYPICAL POWER P1dB

START: 0.00 dBm ERROR CORR: NONE  
 STOP: 7.00 dBm AVERAGING: 1 PT  
 STEP: 1.00 dBm IF BNDWDTH: 1 KHz  
 FREQUENCY POINT: 0.550000 GHz

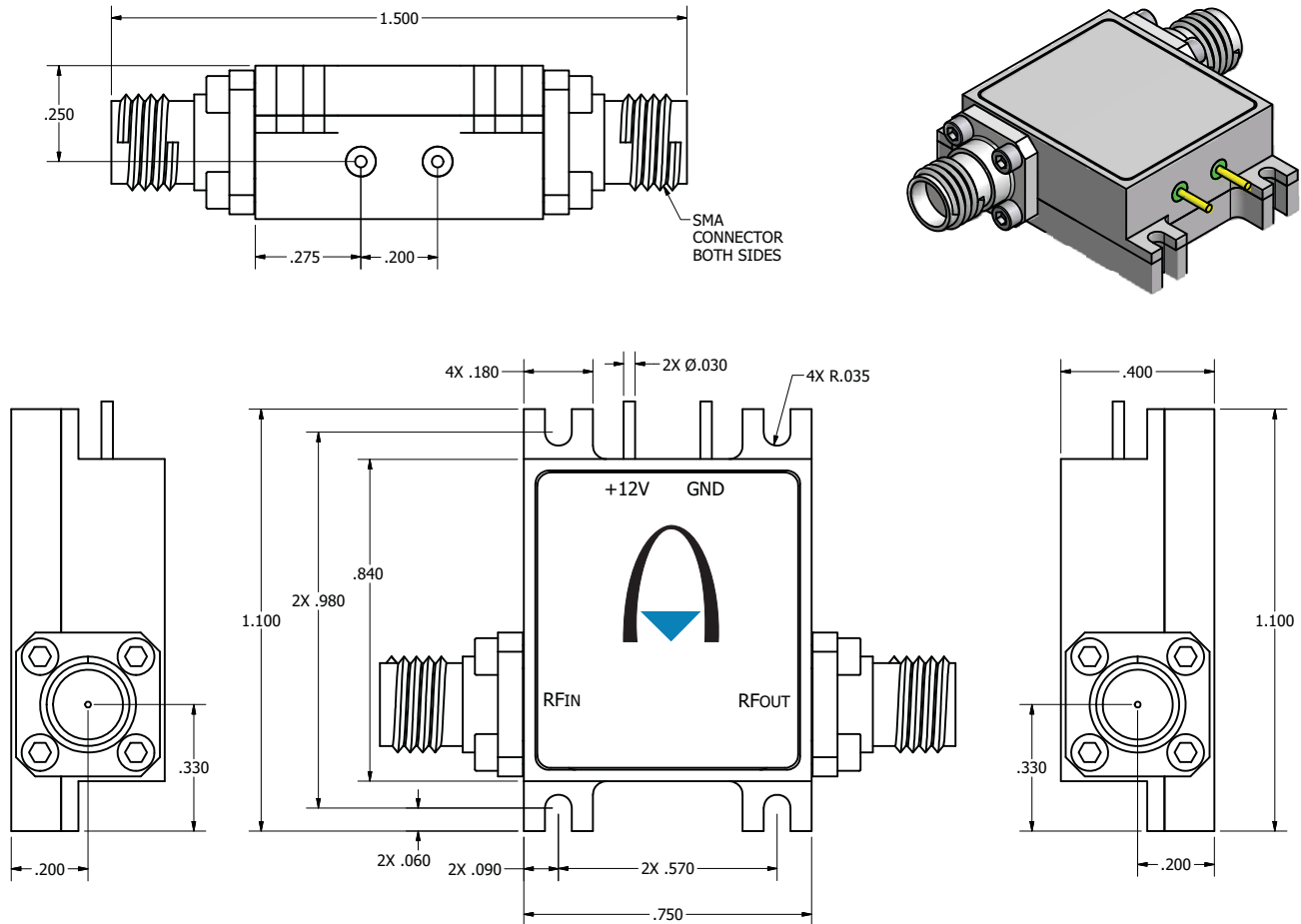
	CH1	CH2
PARAMETER:	b2/1	-S21-
NORMALIZATION:	DATA / MEMORY	DATA / MEMORY
REFERENCE PLANE:	0.0000 mm	0.0000 mm
SMOOTHING:	0.0 PERCENT	0.0 PERCENT
DELAY APERTURE:		

## - MULTIPLE FREQUENCY GAIN COMPRESSION POINT -

SWEPT POWER FREQUENCIES	POWER IN	POWER OUT
1. 0.400000 GHz	5.37 dBm	28.81 dBm
2. 0.450000 GHz	5.54 dBm	28.59 dBm
3. 0.500000 GHz	5.69 dBm	28.34 dBm
4. 0.550000 GHz	5.87 dBm	28.06 dBm



## OUTLINE DRAWING



## ORDERING INFORMATION

MODEL NUMBER	HERMETICITY	PACKAGE
PA001005-28	Non-Hermetic	.840"L x 0.750"W x 0.40"Ht

**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  
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