

# Broadband Standard Product PA0218-30 High Power Amplifier Module Broadband Power 2GHz to 18GHz

September 14, 2005

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



## DESCRIPTION

Our new innovative broadband power amplifier designs provide performance without sacrificing output power. The ultra wideband performance of the PA0218-30 can replace multiple narrowband power amplifiers, there by reducing cost and complexity in microwave systems.

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

- >30dBm P1 dB up to 18GHz
- 7dB NF @ 16GHz (Typical)
- IP3 >40dBm @ 8GHz
- High Efficiency
- Compact Size

## SPECIFICATIONS

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

PARAMETER	SYMBOL	MIN	MAX	UNITS
Operating Temperature – Case	$T_{MO}$	-40	+65	°C
Storage Temperature – Case	$T_{MS}$	-40	+125	°C
Negative Supply Voltage	$V_{NS}$	-15	-5	V
Positive Supply Voltage	$V_{PS}$	+12	+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, $T_O$	Full Range	-40	+55	°C
Positive Supply Voltage, $V_{PS}$		+12	+15	V
Negative Supply Voltage, $V_{NS}$		-15	-5	V

*Aeroflex Plainview*

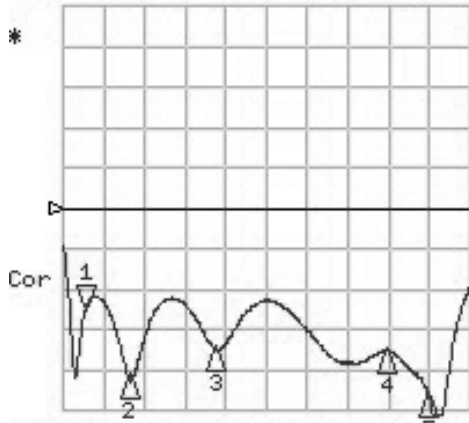
# SPECIFICATIONS

## ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Frequency Range		2.0	-	18	GHz
Power Output	1dB Compression Point	+30	+32	+34	dBm
Power Output Saturated	Saturated Power	+31	+33	+35	dBm
Gain		14	-	-	dB
Gain Flatness		-1.5	-	+1.5	dB
Noise Figure	@ 8GHz	-	6.5	-	dB
RF Input Return Loss	4 - 18GHz, Reference to 50 ohms	-	-	10	dB
RF Output Return Loss	4 - 18GHz, Reference to 50 ohms	-	-	10	dB
Supply Voltage					
Positive		+12	-	+15	V
Negative		-15	-	-5	V
Supply Current					
+12V, +15V		-	-	2.2	Amps
-15V, -5V		-	-	100	mA

## TYPICAL S-PARAMETERS

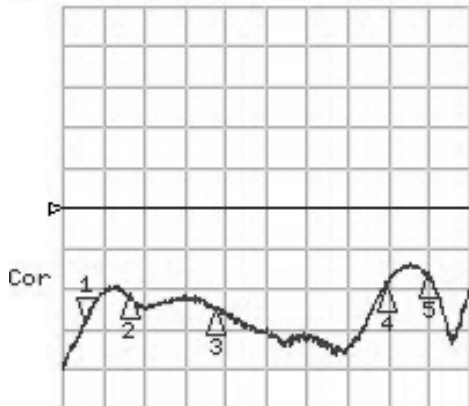
CH1 LOG 5 dB/ REF 0 dB  
S11 1:-12.799 dB 2.000 000 000 GHz



CH1 Markers  
2:-20.596 dB  
4.00000 GHz  
3:-17.223 dB  
8.00000 GHz  
4:-17.535 dB  
16.0000 GHz  
5:-22.878 dB  
18.0000 GHz

START 1000.000 MHz STOP 20000.000 MHz

CH3 LOG 5 dB/ REF -40 dB  
S12 1:-54.138 dB 2.000 000 000 GHz

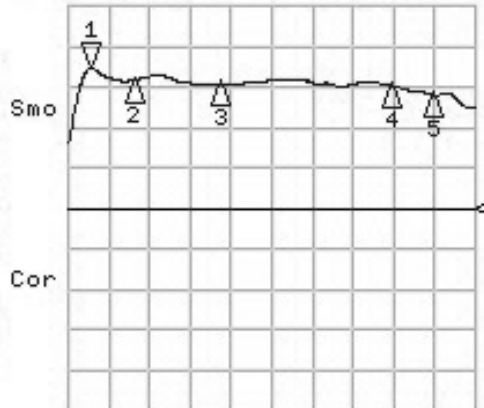


CH3 Markers  
2:-50.746 dB  
4.00000 GHz  
3:-52.617 dB  
8.00000 GHz  
4:-49.765 dB  
16.0000 GHz  
5:-48.095 dB  
18.0000 GHz

START 1000.000 MHz STOP 20000.000 MHz

31 Aug 2005 01:44:12

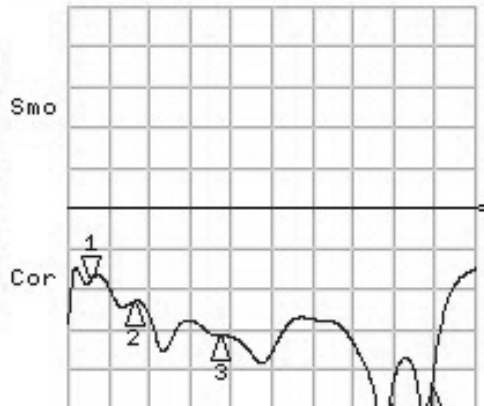
CH2 LOG 5 dB/ REF 0 dB  
S21 1: 17.448 dB 2.000 000 000 GHz



CH2 Markers  
2: 15.975 dB  
4.00000 GHz  
3: 15.515 dB  
8.00000 GHz  
4: 15.423 dB  
16.0000 GHz  
5: 14.244 dB  
18.0000 GHz

CENTR 10500.000 MHz SPAN 19000.000 MHz

CH4 LOG 5 dB/ REF 0 dB  
S22 1:-8.9900 dB 2.000 000 000 GHz

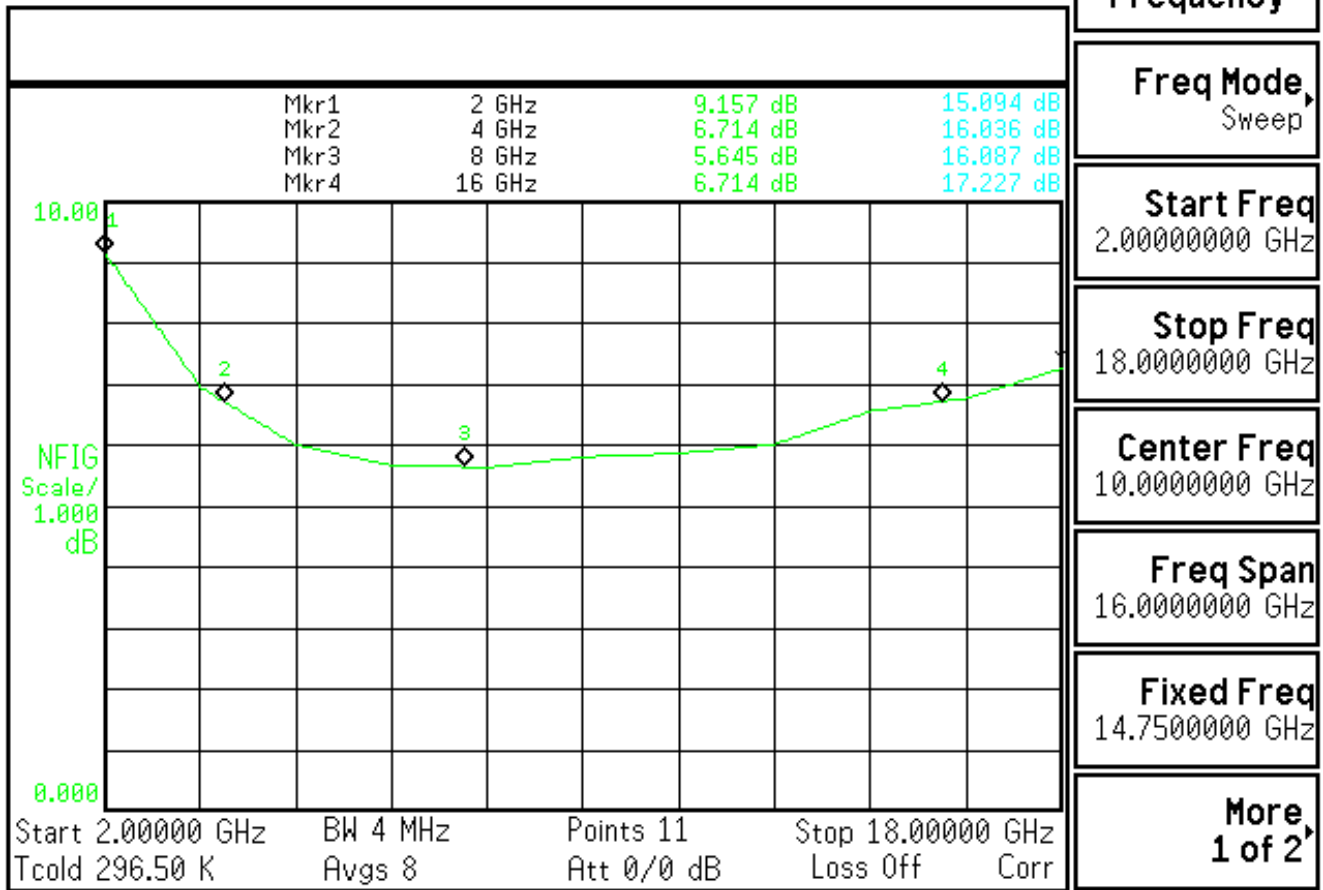


CH4 Markers  
2:-11.544 dB  
4.00000 GHz  
3:-15.782 dB  
8.00000 GHz  
4:-24.313 dB  
16.0000 GHz  
5:-22.330 dB  
18.0000 GHz

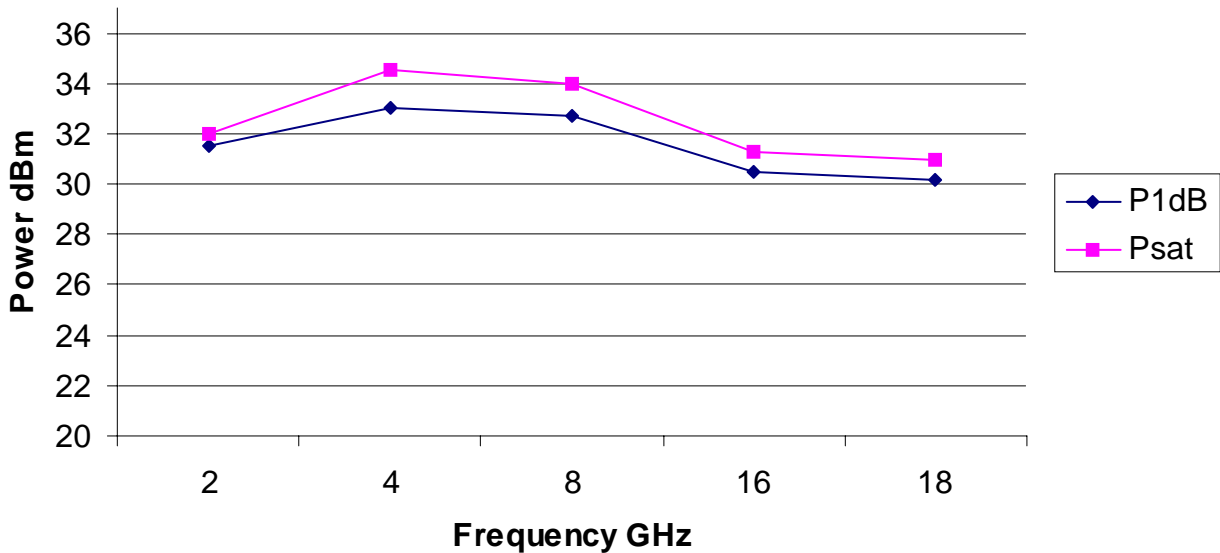
CENTR 10500.000 MHz SPAN 19000.000 MHz

## TYPICAL NOISE FIGURE

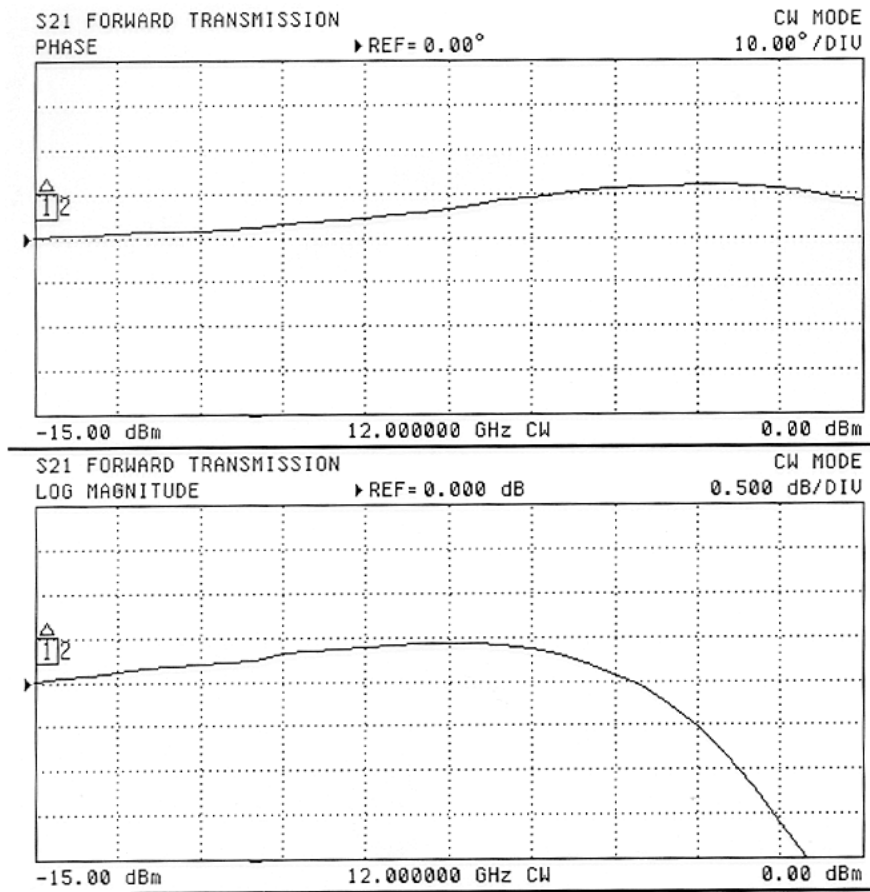
Agilent 15:24:52 Apr 6, 2005



## TYPICAL RF OUTPUT POWER

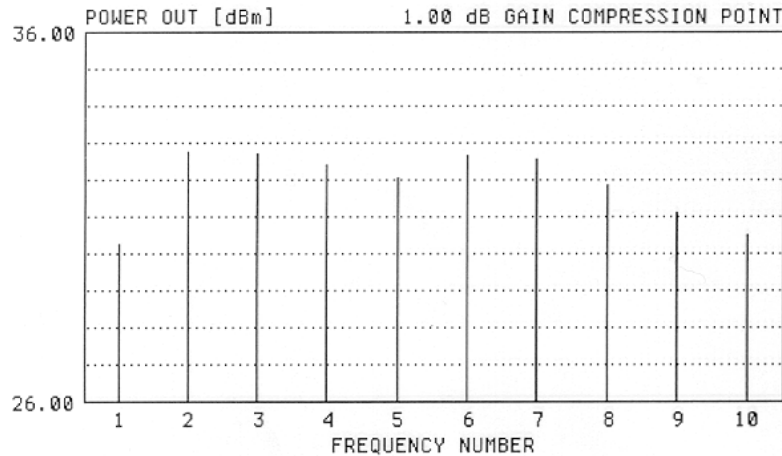


## TYPICAL AM TO PM DISTORTION

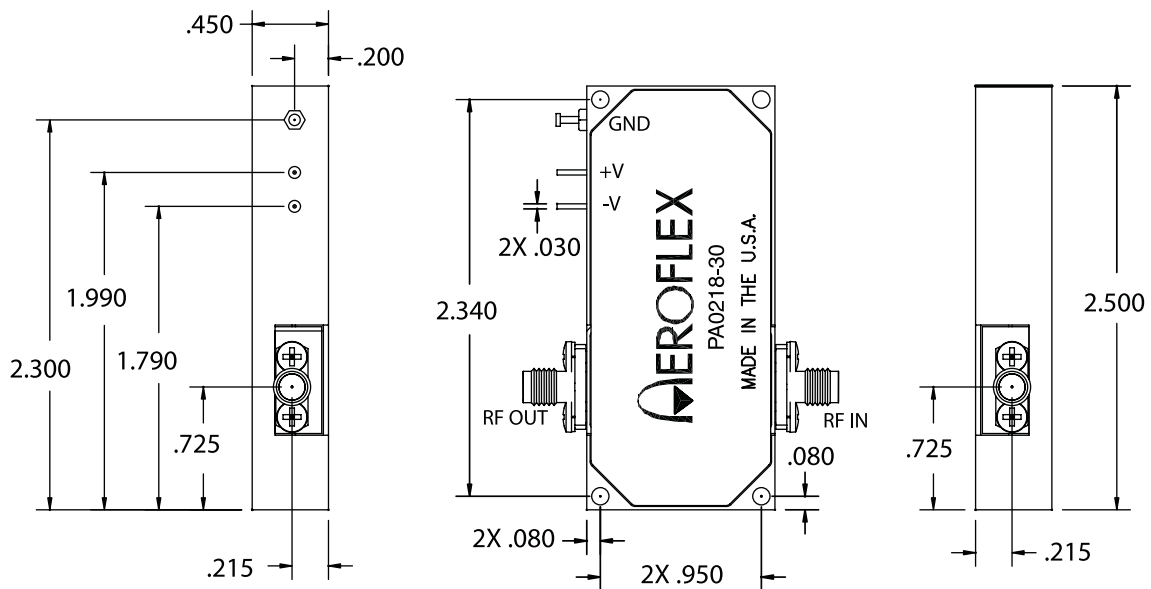


## TYPICAL MULTIPLE FREQUENCY GAIN COMPRESSION POINT

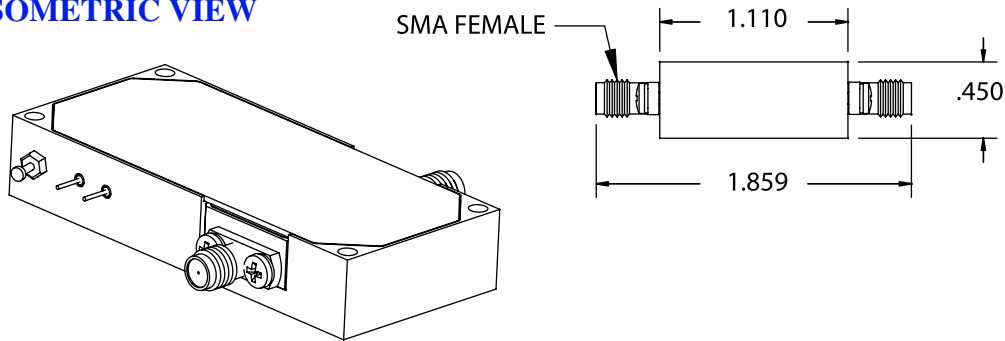
	SWEPT POWER FREQUENCIES	POWER IN	POWER OUT
1.	2.000000 GHz	-7.28 dBm	30.21 dBm
2.	3.000000 GHz	-3.02 dBm	32.75 dBm
3.	4.000000 GHz	-2.19 dBm	32.65 dBm
4.	6.000000 GHz	-3.85 dBm	32.40 dBm
5.	8.000000 GHz	-2.33 dBm	32.02 dBm
6.	10.000000 GHz	-2.82 dBm	32.62 dBm
7.	12.000000 GHz	-2.12 dBm	32.51 dBm
8.	14.000000 GHz	-0.79 dBm	31.82 dBm
9.	16.000000 GHz	-1.69 dBm	31.07 dBm
10.	18.000000 GHz	-0.20 dBm	30.47 dBm



## OUTLINE DRAWING



## ISOMETRIC VIEW



## ORDERING INFORMATION

MODEL NUMBER	HERMETICITY	PACKAGE
PA0218-30	Non Hermetic	2.5L x 1.11W x .45Ht

### 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

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