BROADBAND RF POWER AMPLIFIER
ABP0300-01-3830, Revision A02

Features:

- 1 Watt typical P-1dB output Power from 30MHz to 3 GHz
- High power gain with good gain flatness
- Low VSWR, unconditional stable
- SMA female connector I/O
- Single DC power supply, Integrated internal voltage regulator
- Operating temperature -40~+75°C, storage temperature -55~+125°C

General Description

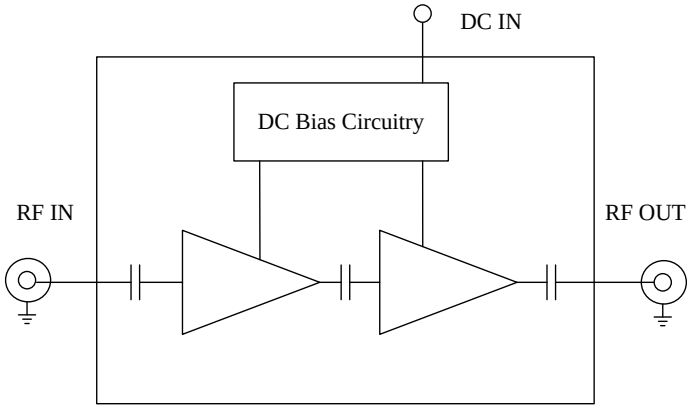
ABP0300-01-3830 is a three stage pHEMT broadband power amplifier module operating in the frequency of 30MHz to 3GHz. The amplifier provides 38dB of small signal gain, +30dBm of typical output power at 1dB gain compression, excellent gain flatness and good VSWR at both input and output. The amplifier requires only a single positive DC power supply, its built-in DC voltage regulator and internal sequencing circuitry makes the application more robust.

Typical Applications

ABP0300-01-3830 is ideal for:

- General laboratory test application
- Academic research
- Defense industry
- Communication systems
- General purpose power amplifiercations

Functional Diagram



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Electrical Specifications

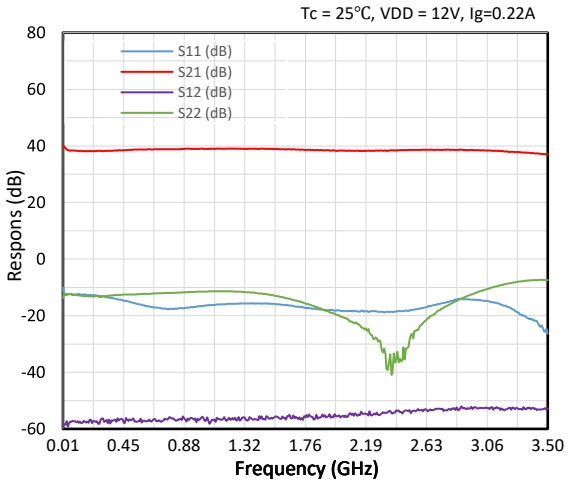
Parameters	Units	Specifications		
		Minimum	Typical	Maximum
Frequency Range	MHz	30.0		3000.0
P-1dB Compression Point	dBm	+29.0	+30.0	
Saturated Output Power	dBm	+29.5	+31.0	
Output IP3 @P1dB-3, Δf=5MHz	dBm	+34.0	+35.0	
Noise Figure @25°C	dB		4.3	5.0
Nominal SS Gain @25°C	dB	35.0	38.0	41.0
Gain flatness	dB		+/-0.8	+/-1.2
Gain Variation	dB		+/-1.0	
Input VSWR	-		1.6:1	1.8:1
Output VSWR	-		1.7:1	2.0:1
Reverse Isolation	dB	50.0	55.0	
Non-harmonic Spurious	dBc			-60.0
Operating Temperature	℃	-40.0		+75.0
Survival Temperature	℃	-55.0		+125.0
DC Voltage	V	+11.0	+12 .0	+13.0
DC Supply Current @Iq	mA		220	260
DC Supply Current @1 Watts	mA		430	550
In/Out connectors		50 ohm SMA female		
Outline Dimensions for ABP0300-01-3830 without heatsink	inches	2.08”x1.08”x0.50”		
Outline Dimensions for ABP0300-01-3830-X with heatsink	inches	2.40”x4.60”x1.90”		

Absolute Maximum Ratings

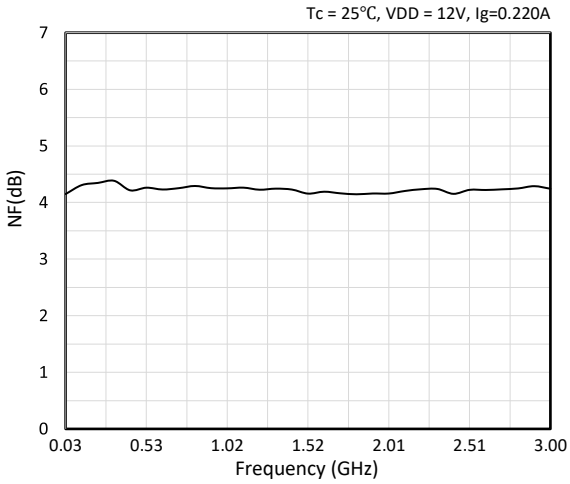
DC Voltage	+15V
RF Input Power	+10 dBm
Maximum Load VSWR	3:1
Storage Temperature	-55~+125°C
Operating amplifier housing Temperature	-40~+75°C

Typical Performance:

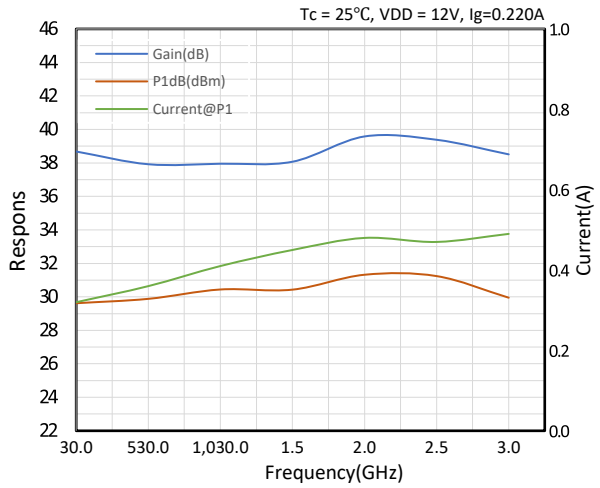
Gain & ReturnLoss



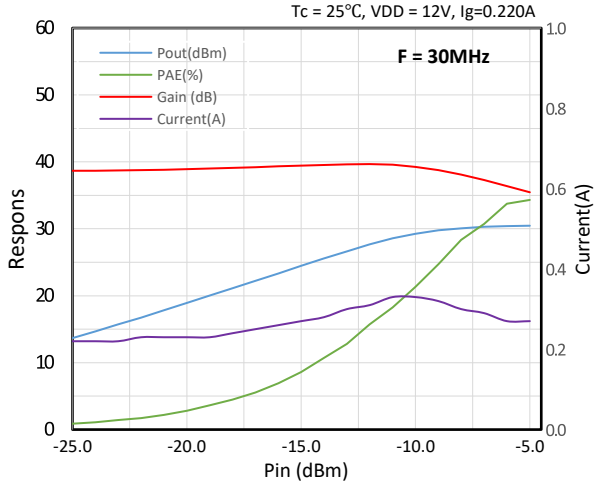
Noise Figure



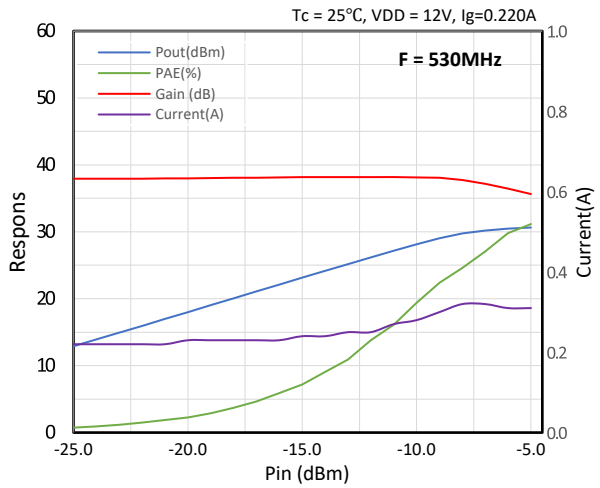
Gain & P1dB & Current vs. Frequency



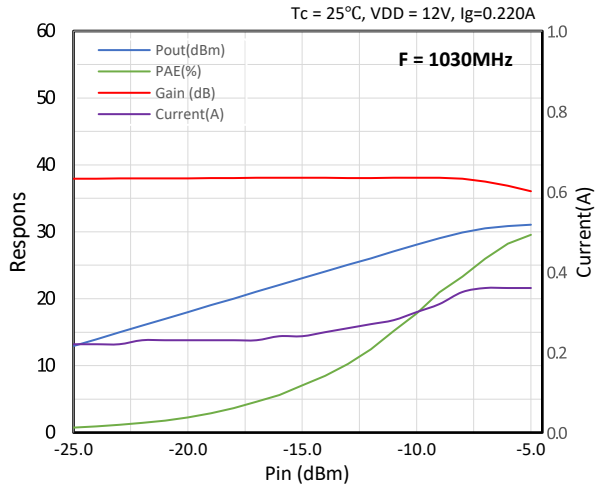
Out Power & Current vs. Input Power



Out Power & Current vs. Input Power



Out Power & Current vs. Input Power



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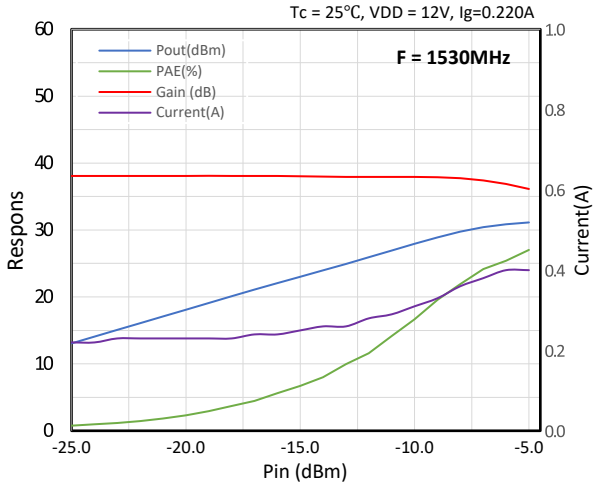
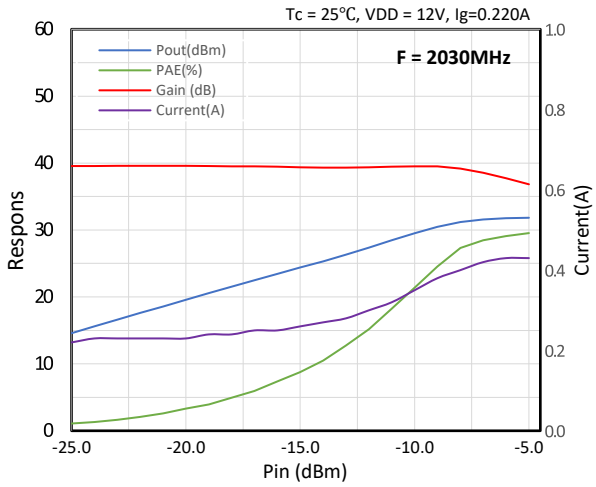
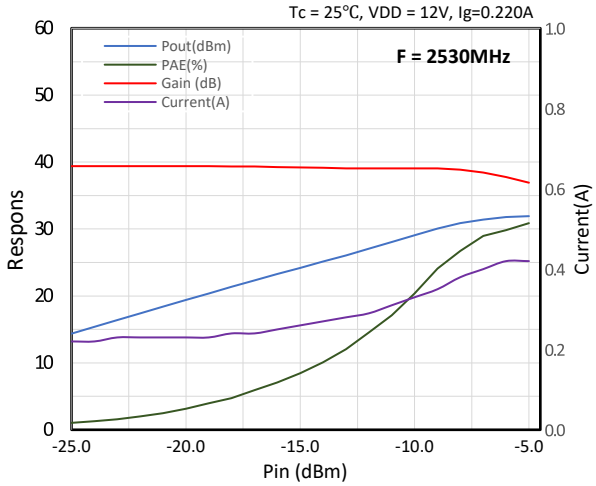
Out Power & Current vs. Input Power



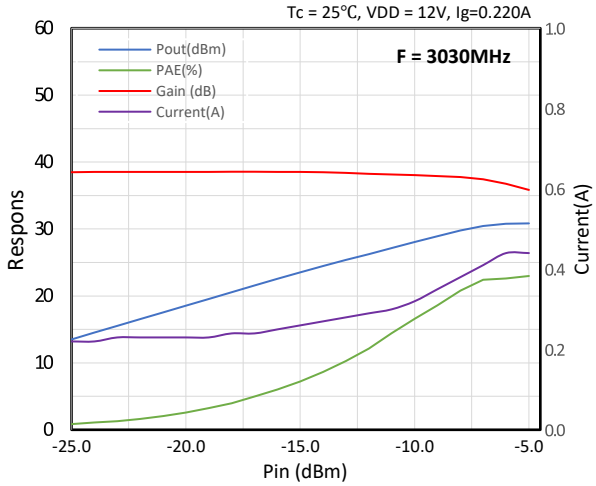
Out Power & Current vs. Input Power



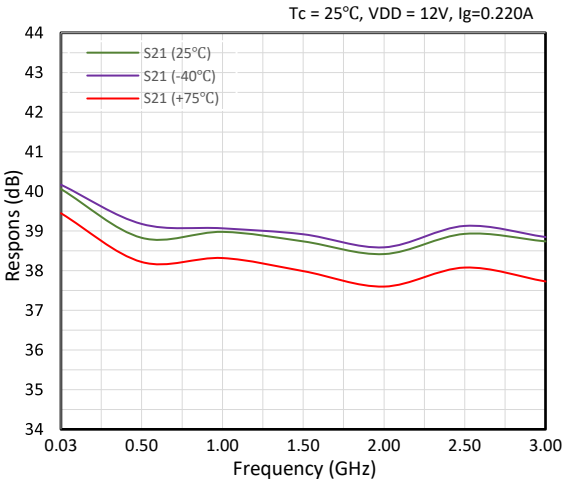
Out Power & Current vs. Input Power



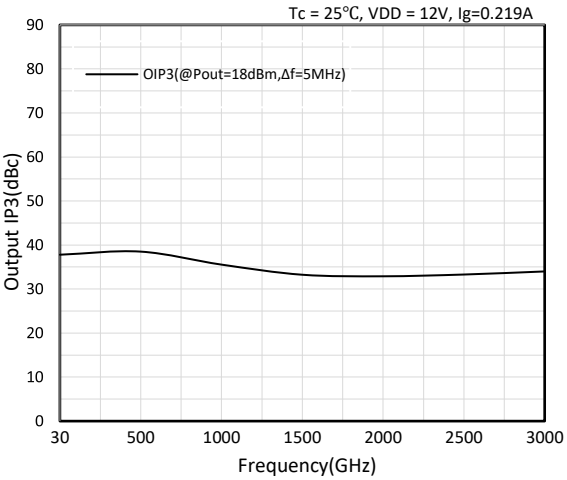
Out Power & Current vs. Input Power



GAIN vs. TEMPERATURE



Output IP3 vs. Frequency



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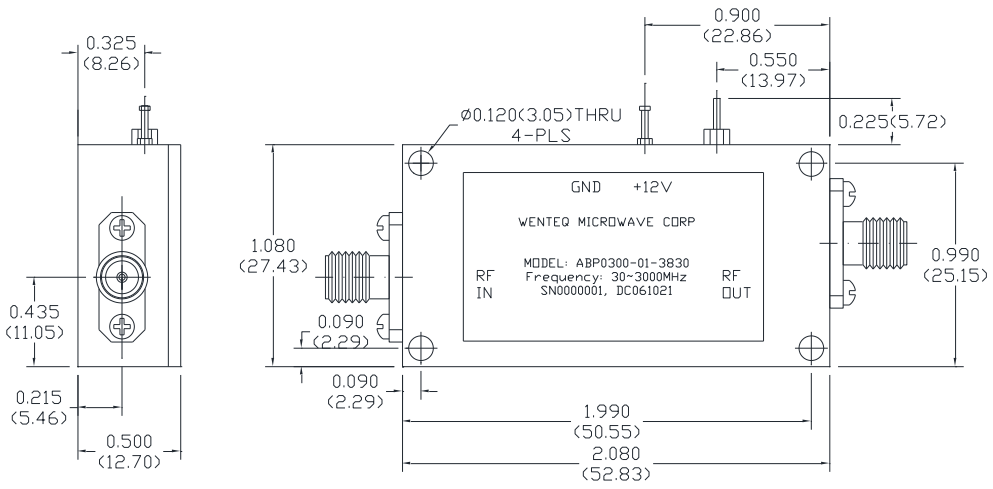
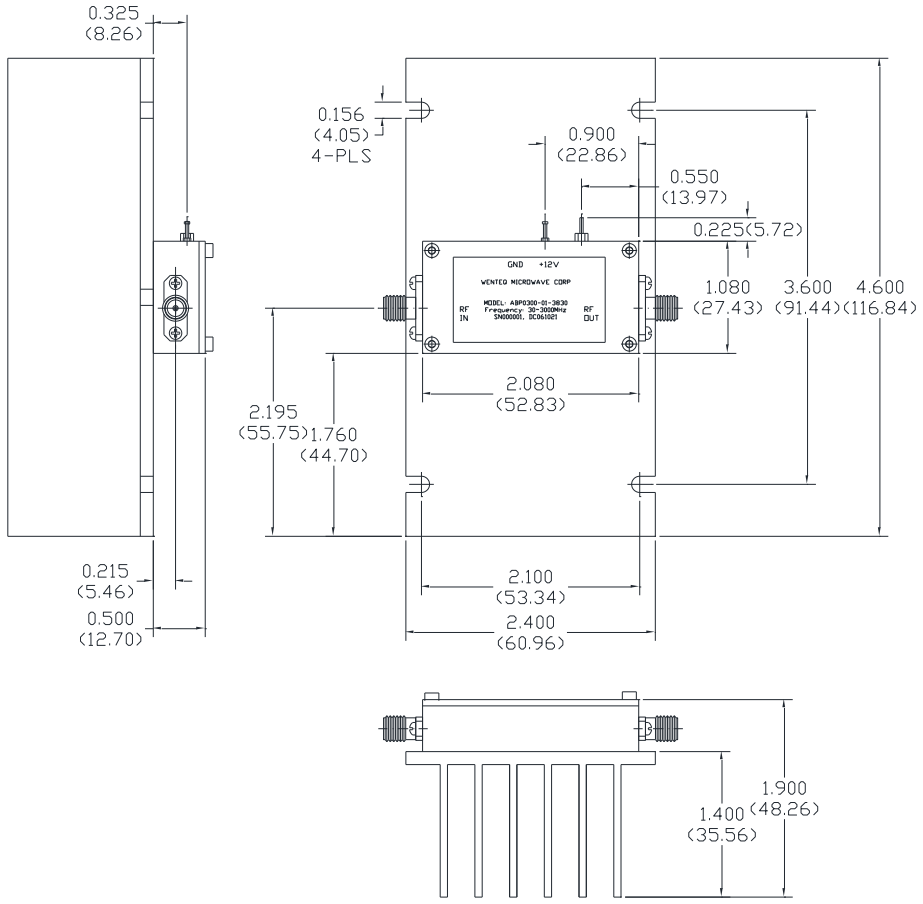
Mechanical Structure:



(a) ABP0300-01-3830 Amplifier without heatsink



(b) ABP0300-01-3830-X Amplifier with heatsink

Note: All units are in inches (mm). Tolerances are +/-0.005 inch unless otherwise specified

Housing Material and Surface Finish:

Body and cover material: aluminum
Surface finish: nickel plated
Connector material: Copper
Connector surface finish: gold plated
Heatsink material: Aluminum, surface finish: Black anodized

Revision History:

Revision	Date	Description	Comments
A00	12/28/2016	Initial Release	
A01	07/21/2022	Performances change due to transistor change	
A02	09/10/2025	Functional Diagram, P-1dB, Output IP3, and DC current change	Transistor change

WARNING: This device is electrostatic sensitive, please observe precautions for safe handling of this amplifier.

WARNING: This product can expose you to chemicals including Nickel (Metallic) and Gallium Arsenide which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to **www.P65warnings.ca.gov**.