

PNW464

InGaP HBT Gain Block Amplifier



Features

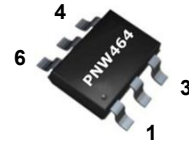
- 500 - 3000MHz
- 14.5 dB Gain at 1900MHz
- +21.5 dBm P1dB
- 32 dBm Output IP3
- Single 3.3V Supply Voltage
- Supply Current 58mA
- Lead-free / Green / RoHS-compliant SOT-363 Package



Applications

- Broadband Gain Block
- Mobile Infrastructure
- Cellular, GSM
- PCS, WCDMA, WiBro, WiMax
- W-LAN / ISM
- RFID / Fixed Wireless

Functional Diagram



* Marking : P46

Function	Pin No.
RF IN	3
RF OUT / Bias	6
Ground	1,2,4,5

Description

The PNW464 is a high performance InGaP HBT MMIC Amplifier and high linearity gain block amplifier in a high quality SOT-363 package. The device features excellent Input and output return loss, highly linear performance. The device can be easily matched to obtain optimum power and linearity. The product is targeted for use as gain block amplifier for wireless infrastructure applications. The PNW464 operates from a single +3.3 voltage supply and has an internal active bias. All devices are 100% RF and DC tested.

Specifications

Symbol	Units	Freq.	Min.	Typ.	Max.
S21	dB	900 MHz	18	18.5	
		1900 MHz	14	14.5	
		2600 MHz	11	12	
S11	dB	900 MHz		-9	
		1900 MHz		-15	
		2600 MHz		-9	
S22	dB	900 MHz		-19	
		1900 MHz		-16	
		2600 MHz		-9	
P1dB	dBm	900 MHz		20	
		1900 MHz		21.5	
		2600 MHz		19	
OIP3	dBm	900 MHz	26	27.5	
		1900 MHz	31	32	
		2600 MHz	30	31.5	
NF	dB	900 MHz		3	
		1900 MHz		2.8	
		2600 MHz		3.8	
Icc	mA		40	48	60
Vcc	V			3.3	
Rth	°C/W			40	

Test Conditions : T=25°C, Supply Voltage=+3.3V, 50ohm System, OIP3 measured with two tones at an output power of -3dBm/tone separated by 1MHz.

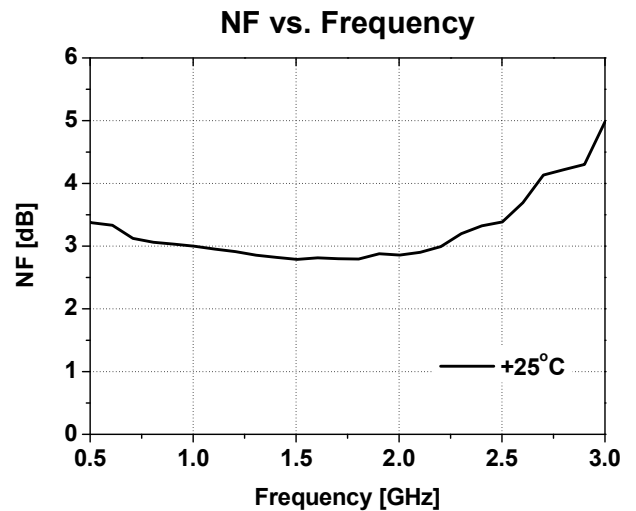
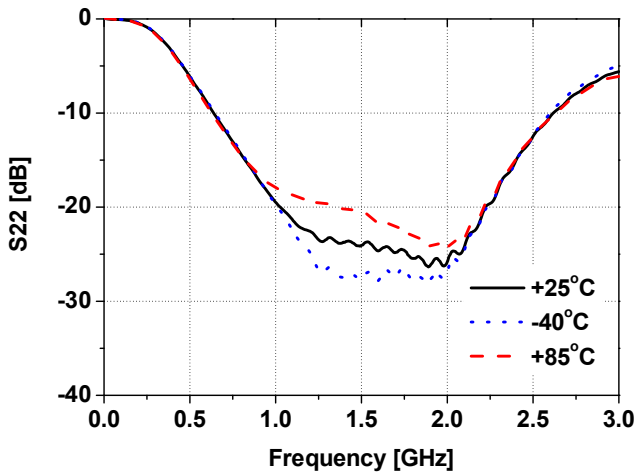
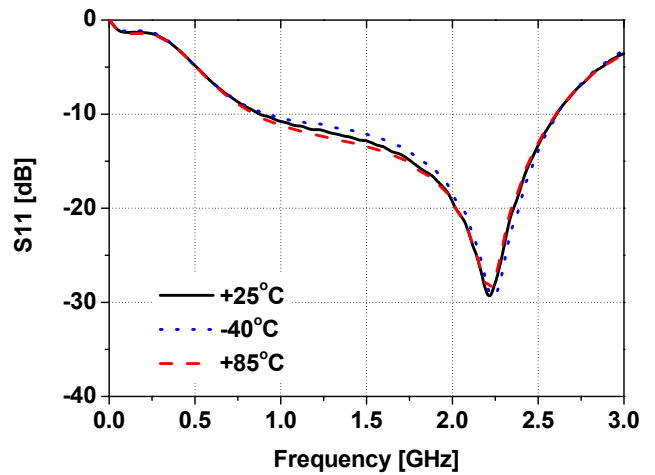
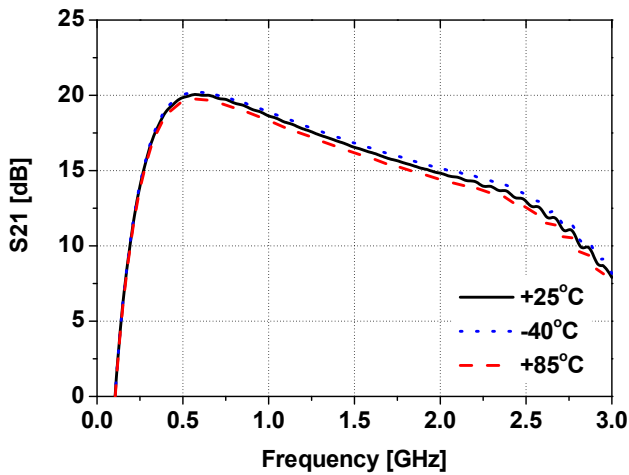
PNW464

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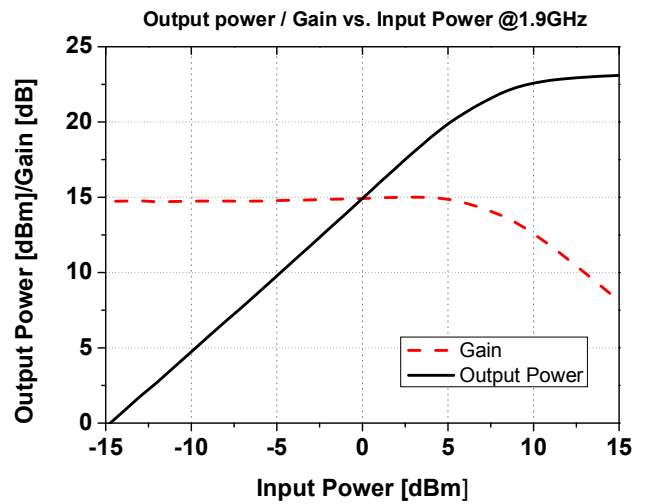
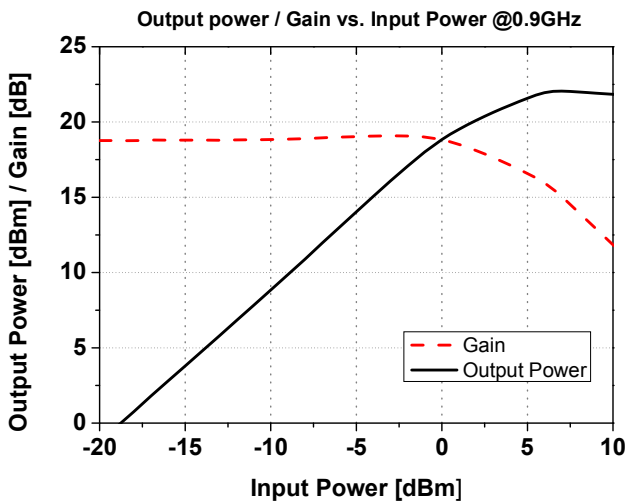
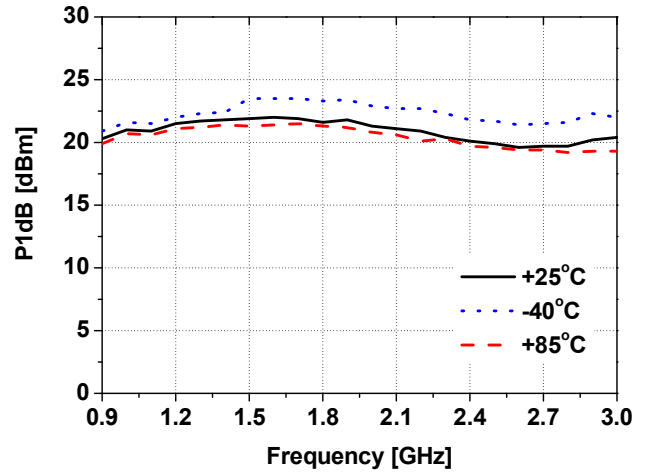
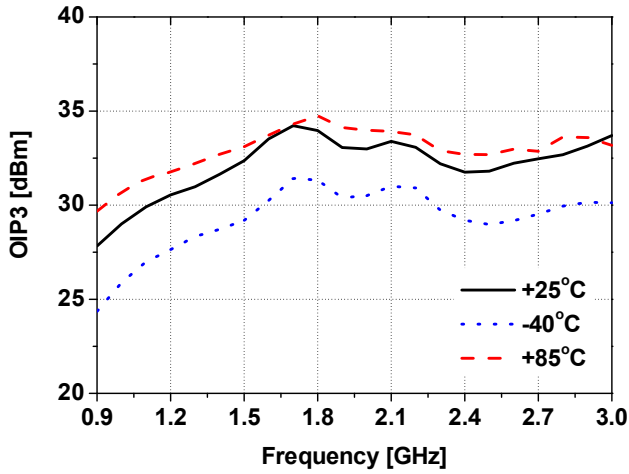
Typical RF Performance for 1.9GHz Tuned Application Circuit

Frequency	MHz	900	1500	1900	2140	2300	2600
S21	dB	19.0	16.4	15.0	14.2	13.6	12.0
S11	dB	-9	-12	-16	-22	-20	-9
S22	dB	-20	-28	-17	-13	-17	-9
P1dB	dBm	20.2	21.8	21.5	20.5	20.5	19.5
OIP3 @-3dBm	dBm	27.8	31.8	32.3	31.8	31.8	31.8
Noise Figure	dB	3.0	2.8	2.8	2.8	3.0	3.7

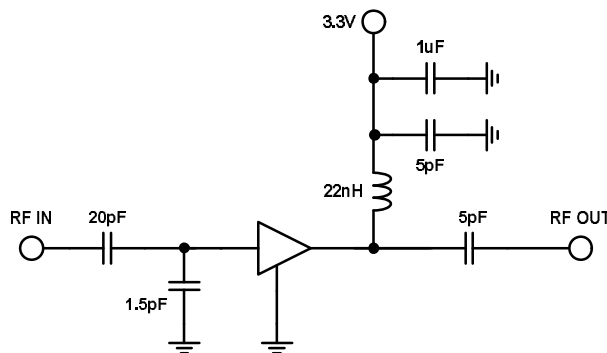


PNW464

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1.9GHz Tuned Application Circuit



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Absolute Maximum Ratings

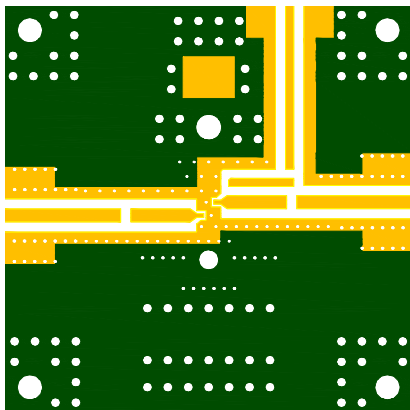
Parameter	Rating	Unit
Device Voltage	+4.5	V
Device Current	140	mA
RF Power Input	7	dBm
Storage Temperature	-55 to +150	°C
Ambient Operating Temperature	-40 to +85	°C
Junction Temperature for >10 ⁶ hours MTTF	185	°C

Operation of this device above any of these parameters may cause permanent damage.

ESD / MSL Ratings

1. ESD sensitive device. Observe Handling Precautions.
2. ESD Rating : Class 2 (Passes at 2000V min.) Human Body Model (HBM), JESD22-A114
3. ESD Rating : Class IV (Passes at 1000V min.) Charged Device Model (CDM), JESD22-C101
4. MSL (Moisture Sensitive Level) Rating : Level 1 at +260°C Convection reflow, J-STD-020

Evaluation Board Layout (4x4)



Mounting Instructions

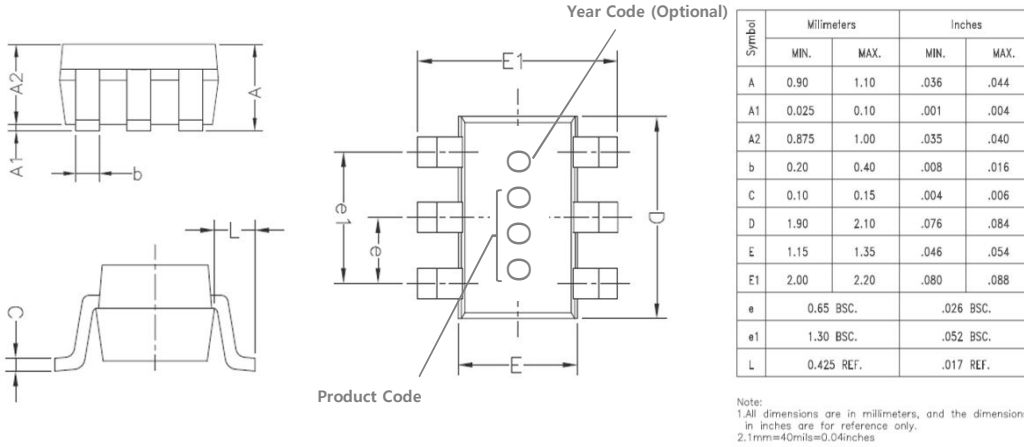
1. Use a large ground pad area with many plated through-holes as shown.
2. We recommend 1 oz copper minimum.
3. Measurement for our data sheet was made on 0.8mm thick FR-4 Board.
4. Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.
5. RF trace width depends on the board material and construction.
6. Add mounting screws near the part to fasten the board to a heatsink.

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Lead-free / RoHS Compliant / Green SOT-363 Package Outline



Land Pattern

