



## RF Amplifier

InGaP HBT MMIC Amplifier  
High Reliability  
High Linearity Performance

### APPLICATION

Gain Blocks  
Mobile Infrastructure  
Cellular, PCS, WCDMA, GSM  
WLAN, DMB, CATV, WiBro, WiMAX

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# Prewell IF Amp solution

2008/Mar



# IF Amplifiers : 4 kinds

## ➤ PW113 : 5V / 90mA

### Typical RF Performance for IF Amp Application Circuit 1

Supply Bias Voltage = 5V, R(bias)= 3ohm, Current= 90mA

Frequency	MHz	50	70	140	250	500	900
S21	dB	22.2	22.3	22.3	22.1	21.8	21.0
S11	dB	-20	-21	-22	-23	-24	-25
S22	dB	-13	-13	-14	-14	-13	-11
P1dB	dBm	20.1	20.1	20.1	20.2	20.3	20.0
OIP3(@9dBm)	dBm	39.5	39.3	39.1	39.0	37.0	34.5
Noise Figure	dB	3.6	3.6	3.7	3.6	3.6	3.6

## ➤ PW117 : 5V / 105mA

### Typical RF Performance for IF Amp Application Circuit 1

Supply Bias Voltage = 5V, R(bias)= 2.4ohm, Current= 105mA

Frequency	MHz	50	70	140	250	500	900
S21	dB	16.1	16.1	16.1	16.1	15.9	15.6
S11	dB	-18	-18	-19	-19	-20	-20
S22	dB	-15	-17	-18	-18	-17	-14
P1dB	dBm	19.2	19.6	19.7	19.7	19.9	19.5
OIP3(@9dBm)	dBm	43.0	42.7	42.0	41.2	38.7	36.4
Noise Figure	dB	4.1	4.1	4.1	4.2	4.2	4.2

# IF Amplifiers : 4 kinds

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## ➤ PW118 : 5V / 115mA

### Typical RF Performance for IF Amp Application Circuit

Supply Bias Voltage = 5V, R(bias)= 3ohm, Current= 115mA

Frequency	MHz	50	70	140	250	500
S21	dB	29.3	29.2	29.0	28.4	26.8
S11	dB	-21	-26	-25	-19	-14
S22	dB	-24	-31	-19	-13	-8
P1dB	dBm	20.8	20.9	21.2	21.2	20.8
OIP3(@9dBm)	dBm	40.5	40.3	39.5	38.3	35.5
Noise Figure	dB	2.8	2.8	2.8	2.8	2.8

## ➤ PW119 : 5V / 115mA

### Typical RF Performance for IF Amp Application Circuit

Supply Bias Voltage = 5V, R(bias)= 2.4ohm, Current= 115mA

Frequency	MHz	50	70	140	250	500
S21	dB	22.3	22.3	22.2	22.0	21.6
S11	dB	-20	-23	-30	-25	-20
S22	dB	-20	-25	-25	-18	-12
P1dB	dBm	20.6	20.6	20.6	20.5	20.3
OIP3(@9dBm)	dBm	42.3	42.1	41.0	39.5	36.5
Noise Figure	dB	2.9	2.9	2.9	2.9	2.9

# Cross Ref. : PW113

## PW113 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	22.0 dB
Output P1dB	70MHz	20.0 dBm
Output IP3	70MHz	39.0 dBm
Noise Figure	70MHz	3.6 dB
Device voltage		4.7 V
Device current		89 mA
ESD Rating		Class 2

Test Conditions : T=25°C, Supply Voltage=+5V, Rbias=30ohm, 50ohm System, OIP3 measured with two tones at an output power of +9dBm/tone separated by 1MHz.

## PW113 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	22.0 dB
Output P1dB	70MHz	20.0 dBm
Output IP3	70MHz	39.0 dBm
Noise Figure	70MHz	3.6 dB
Device voltage		4.7 V
Device current		89 mA
ESD Rating		Class 2

Test Conditions : T=25°C, Supply Voltage=+5V, Rbias=30ohm, 50ohm System, OIP3 measured with two tones at an output power of +9dBm/tone separated by 1MHz.

## BG20A Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	23.8 dB
Output P1dB	70MHz	20.5 dBm
Output IP3	70MHz	39.0 dBm
Noise Figure	70MHz	3.4 dB
Device voltage		5.0 V
Device current		90 mA
ESD Rating		Class 1C

Test Conditions : T=25°C, Supply Voltage=+5V, 50ohm System, OIP3 measured with two tones at an output power of +10dBm/tone separated by 1MHz.

## SBB2089 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	20.0 dB
Output P1dB	70MHz	20.0 dBm
Output IP3	70MHz	40.0 dBm
Noise Figure	70MHz	2.9 dB
Device voltage		5.0 V
Device current		90 mA
ESD Rating		Class 1C

Test Conditions : T=25°C, Supply Voltage=+5V, 50ohm System, OIP3 measured with two tones at an output power of +0dBm/tone separated by 1MHz.

# Cross Ref. : PW117

## PW117 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	16.0 dB
Output P1dB	70MHz	19.5 dBm
Output IP3	70MHz	42.5 dBm
Noise Figure	70MHz	4.1 dB
Device voltage		4.7 V
Device current		1015 mA
ESD Rating		Class 2

Test Conditions : T=25°C, Supply Voltage=+5V, Rbias=2.4ohm, 50ohm System, OIP3 measured with two tones at an output power of +9dBm/tone separated by 1MHz.

## BIF1 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	15.0 dB
Output P1dB	70MHz	20.0 dBm
Output IP3	70MHz	44.0 dBm
Noise Figure	70MHz	4.2 dB
Device voltage		5.0 V
Device current		105 mA
ESD Rating		Class 1C

Test Conditions : T=25°C, Supply Voltage=+5V, 50ohm System, OIP3 measured with two tones at an output power of +10dBm/tone separated by 1MHz.

## PW117 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	16.0 dB
Output P1dB	70MHz	19.5 dBm
Output IP3	70MHz	42.5 dBm
Noise Figure	70MHz	4.1 dB
Device voltage		4.7 V
Device current		105 mA
ESD Rating		Class 2

Test Conditions : T=25°C, Supply Voltage=+5V, Rbias=2.4ohm, 50ohm System, OIP3 measured with two tones at an output power of +9dBm/tone separated by 1MHz.

## SBB1089 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	15.5 dB
Output P1dB	70MHz	19.0 dBm
Output IP3	70MHz	42.0 dBm
Noise Figure	70MHz	3.5 dB
Device voltage		5.0 V
Device current		90 mA
ESD Rating		Class 1C

Test Conditions : T=25°C, Supply Voltage=+5V, 50ohm System, OIP3 measured with two tones at an output power of +0dBm/tone separated by 1MHz.

# Cross Ref. : PW118 & PW119

## PW118 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	29.0 dB
Output P1dB	70MHz	20.8 dBm
Output IP3	70MHz	40.0 dBm
Noise Figure	70MHz	2.8 dB
Device voltage		4.6 V
Device current		115 mA
ESD Rating		Class 2

Test Conditions : T=25°C, Supply Voltage=+5V, Rbias=2.4ohm, 50ohm System, OIP3 measured with two tones at an output power of +9dBm/tone separated by 1MHz.

## BIF7 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	27.0 dB
Output P1dB	70MHz	21.0 dBm
Output IP3	70MHz	40.0 dBm
Noise Figure	70MHz	2.9 dB
Device voltage		5.0 V
Device current		95 mA
ESD Rating		Class 1C

Test Conditions : T=25°C, Supply Voltage=+5V, 50ohm System, 50ohm System, OIP3 measured with two tones at an output power of +10dBm/tone separated by 1MHz.

## PW119 Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	22.1 dB
Output P1dB	70MHz	21.5 dBm
Output IP3	70MHz	42.0 dBm
Noise Figure	70MHz	2.9 dB
Device voltage		4.66 V
Device current		115 mA
ESD Rating		Class 2

Test Conditions : T=25°C, Supply Voltage=+5V, Rbias=2.4ohm, 50ohm System, OIP3 measured with two tones at an output power of +9dBm/tone separated by 1MHz.

## BG20B Typical Performance

Parameter	Freq.	Typical
Gain	70MHz	21.7 dB
Output P1dB	70MHz	21.0 dBm
Output IP3	70MHz	41.0 dBm
Noise Figure	70MHz	4.6 dB
Device voltage		5.0 V
Device current		105 mA
ESD Rating		Class 1C

Test Conditions : T=25°C, Supply Voltage=+5V, 50ohm System, 50ohm System, OIP3 measured with two tones at an output power of +10dBm/tone separated by 1MHz.

# Prewell's Device Key Features

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- **PW Series IF Amplifiers :**
  - ✓ **High Linearity / High Reliability**
  - ✓ **Low Noise / High OIP3 Performance**
- **Temperature compensated bias circuit is included**
- **Power consumption down design**
- **100% DC & RF Tested**
- **ESD protected**
- **Cost effective solution**

# Prewell's Tomorrow

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- **Balun: 2kinds(1:1, 4:1)**
  - ✓ Mini-circuits : T1-1T, ADT 1-1WT etc.
  - ✓ Application : Digital Repeater (D-force, UHR, UTP etc.)
  - ✓ Date : 2008. 4. 10
  
- **Divider : 3 kinds(800MHz, 2GHz, 2.5(2.3)GHz)**
  - ✓ Ceramic type, SOT-26 replacement
  - ✓ Application : Repeater(PLL dividing, HPA)
  - ✓ Date : 2008. 4. 25
  
- **Etc. : Diode, HMIC(up/down converter, PLL+divider)**