

Features

- SiGe Technology
- 11 dB Gain at 1950 MHz
- +20 dBm P1dB
- +43 dBm Output IP3
- 3.8 dB Noise Figure
- MTTF > 100 Years
- Operate at Single +5 V Supply
- SOT-89 Surface Mount Package

Description

The ASG330 is designed for high linearity, high gain, and low noise over a wide range of frequency, being suitable for use in both receiver and transmitter of wireless and wireline telecommunication systems. The product is manufactured using a state-of-the-art SiGe HBT process of the company's own, making it cost-effective and highly reliable. The amplifiers are available in a low cost SOT-89 package completing stringent DC and RF tests.



Package Style: SOT-89

Specifications ¹⁾

Parameters	Units	Min.	Typ.	Max.
Frequency Range	MHz		250 - 2500	
Gain ¹⁾	dB		11	
Input VSWR ¹⁾	-		1.4	
Output VSWR ¹⁾	-		1.4	
Output IP3 ²⁾	dBm	41	43	
Noise Figure ¹⁾	dB		3.8	
Output P1dB	dBm	18	20	
Supply Current	mA		75	
Supply Voltage	V		5	

¹⁾ Measurement conditions are as follows: T = 25°C, V_{CC} = 5 V, Freq. = 1950 MHz, 50 ohm system.
²⁾ OIP3 is measured with two tones at an output power of +10dBm/tone separated by 1MHz.

Applications

- CDMA, GSM, W-CDMA, PCS
WiBro, WLAN
- PA Driver Amplifier
- Gain Block
- CATV Amplifier
- IF Amplifier

More Information

Website: www.asb.co.kr
 E-mail: sales@asb.co.kr

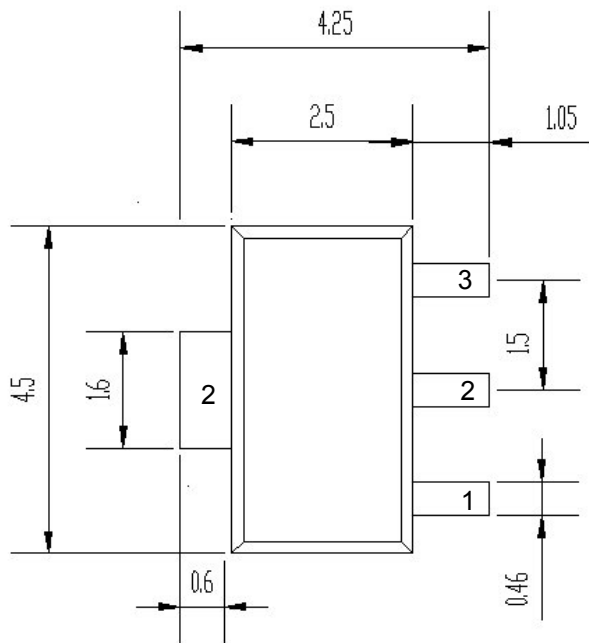
Tel: (82) 42-528-7220
 Fax: (82) 42-528-7222

ASB, Inc., 4F Fl. VentureTown Bldg.,
 367-17 Goijeong-Dong, Seo-Gu,
 Daejeon 302-120, Korea

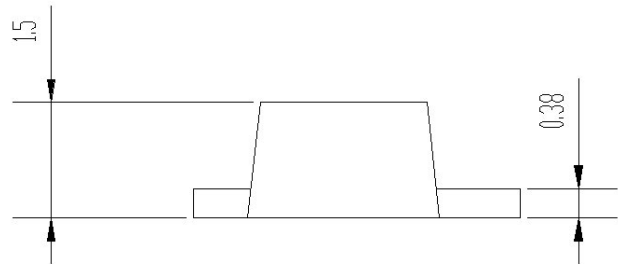
Absolute Maximum Ratings

Parameters	Rating	Remarks
Operating Case Temperature	-40 to + 85°C	
Storage Temperature	-40 to + 150°C	
Supply Voltage	8 V	
Operating Junction Temperature	150°C	
Input RF Power (continuous) ¹⁾	13 dBm	

Outline Drawing



(Unit: mm)

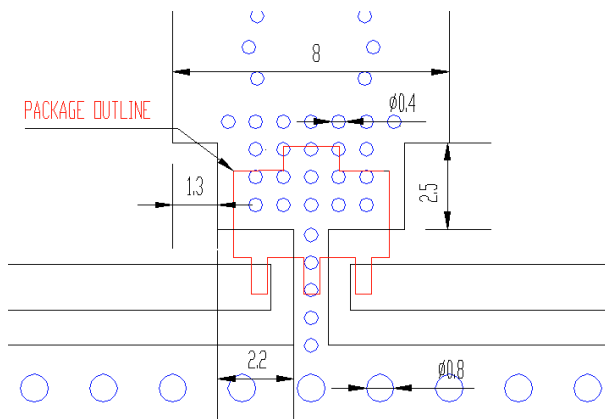


Pin Description

Function	Pin No.
Input	1
Ground	2
Output	3

Mounting Configuration

(Unit: mm)



- Note : 1. Ground vias are critical for thermal and RF grounding considerations.
- 2. If your PCB design rules allow, ground vias should be placed under bottom of pin 2 for better RF and thermal performance.

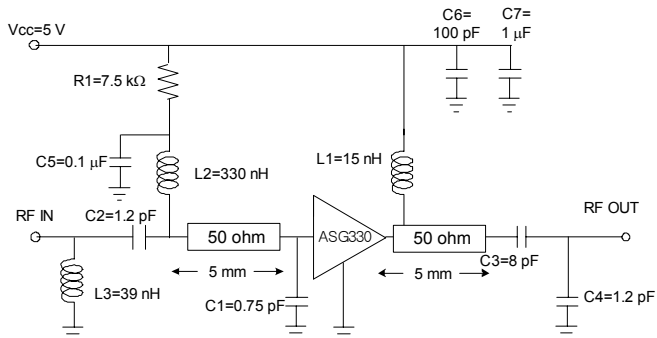
Application Circuit: 1920~1980 MHz (WCDMA Rx)

Typical Performance

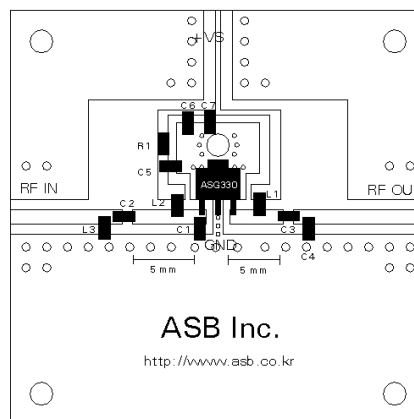
Frequency	1950 MHz
Magnitude S21	11 dB
Magnitude S11	-15 dB
Magnitude S22	-15 dB
Output P1dB	20 dBm
Output IP3 ¹⁾	43 dBm
Noise Figure	3.8 dB
Supply Voltage	5 V
Current	75 mA

1) OIP3 is measured with two tones at an output power of +10dBm/tone separated by 1MHz.

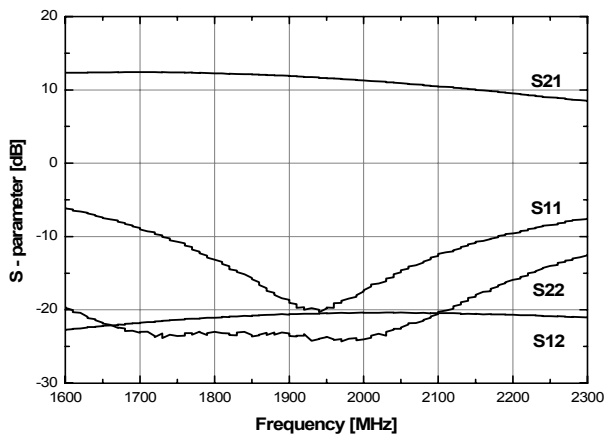
Schematic



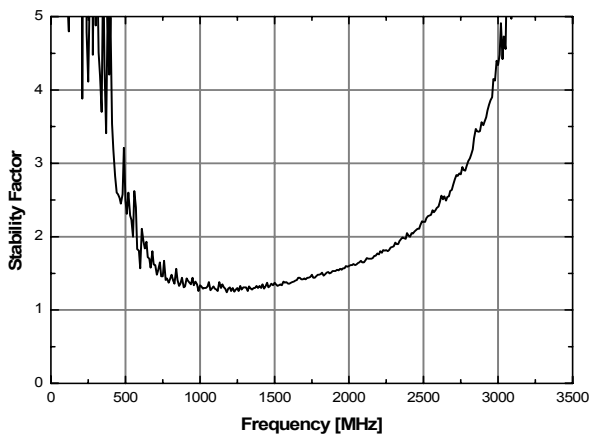
Board Layout (FR4, 40x40 mm², 0.8T)



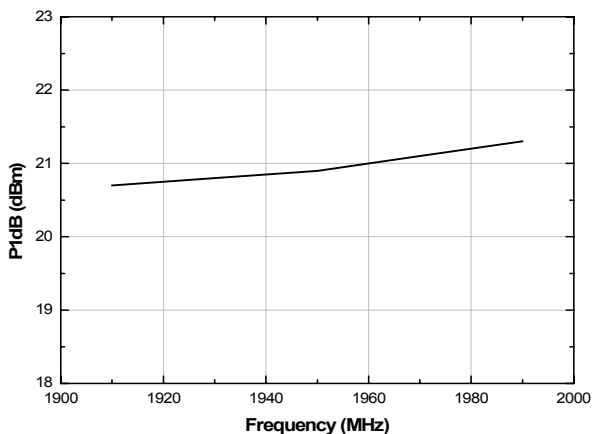
S-parameters



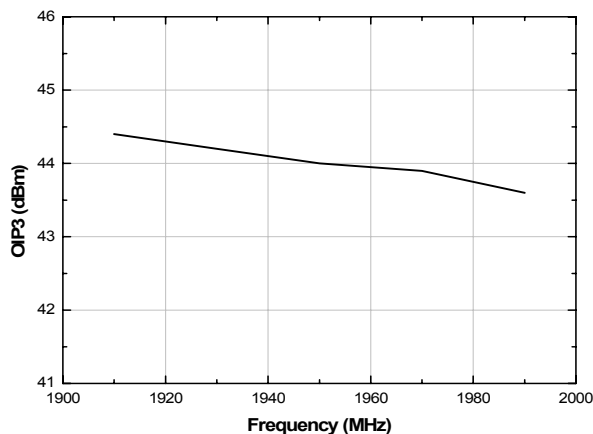
K-Factor



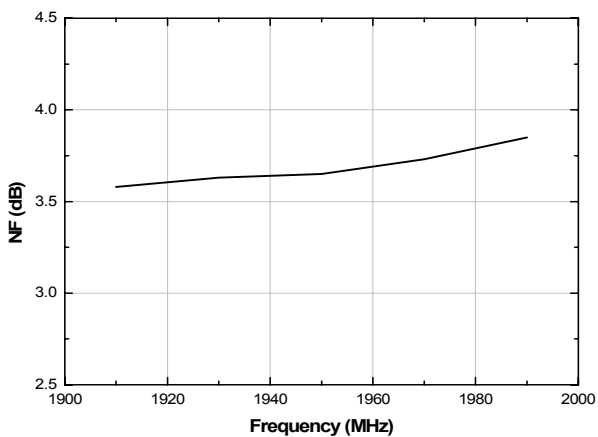
P1dB Vs. Frequency



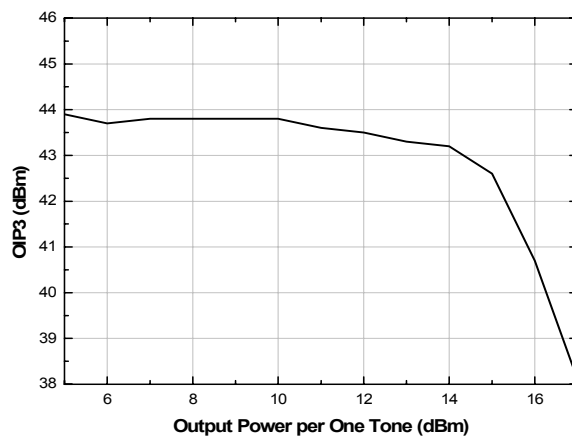
OIP3 Vs. Frequency (Pout per tone=10dBm)



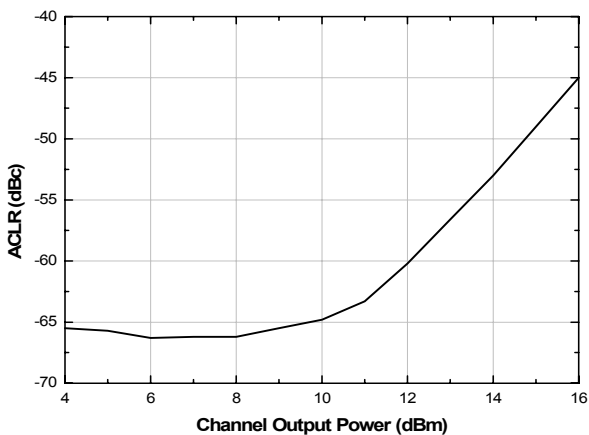
NF Vs. Frequency



OIP3 Vs. Output Tone Power



1950MHz ACLR Vs. Channel Output Power



Agilent 06:58:58 Nov 25, 2005 W-CDMA

BTS Ch Freq 1.95000 GHz ACPR-FFT: RRC Filter On 36PP Averages: 10 PASS

Ref 10.00 dBm 10.00 dB/ MaxP 13.6 ExtFit 0.0

Spectrum (Total Pwr Ref)

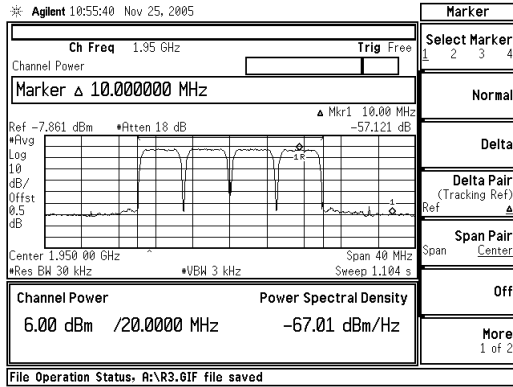
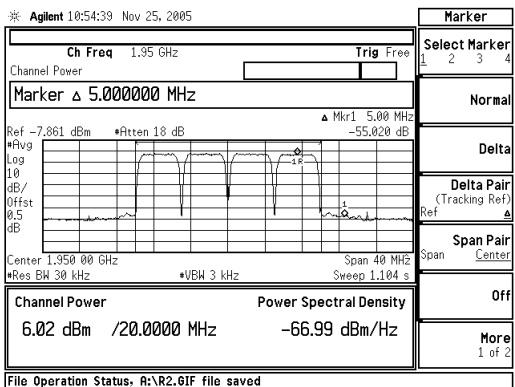
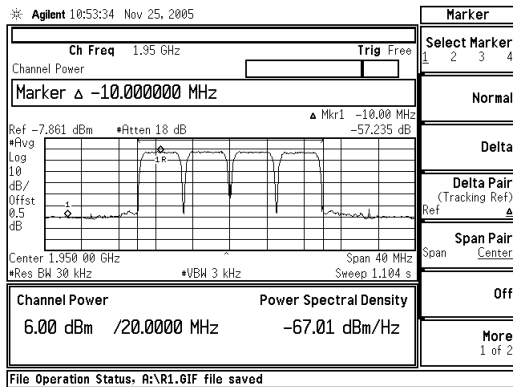
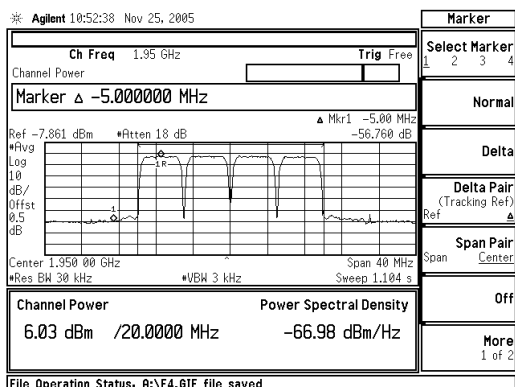
Center 1.95000 GHz Span 25.00 MHz

Total Pwr Ref:	15.95 dBm/	3.84 MHz			
ACPR-FFT: RRC Filter On	Lower	Upper			
Offset Freq	Integ BW	dBc	dBm	dBc	dBm
5.00 MHz	3.84 MHz	-46.31	-30.36	-44.26	-26.31
10.00 MHz	3.84 MHz	-55.65	-49.70	-55.65	-50.70

Input: Input Port, RF; RF Input Range: Auto; Max Total Pwr: 13.60 dBm; Input Atten: 30.00 dB; Ext RF Atten; IF Align Signal

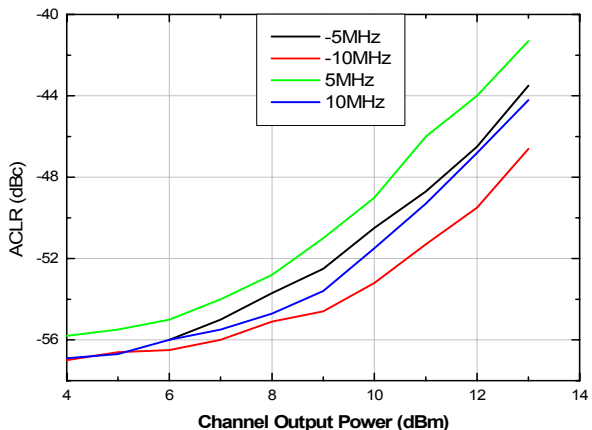
ACLR

- 4FA / Test Model 1-54 DPCH @ Fc=1950MHz, Pout=6dBm



ACLR Vs. Channel Output Power

- 4FA / Test Model 1-54 DPCH @ Fc=1950MHz



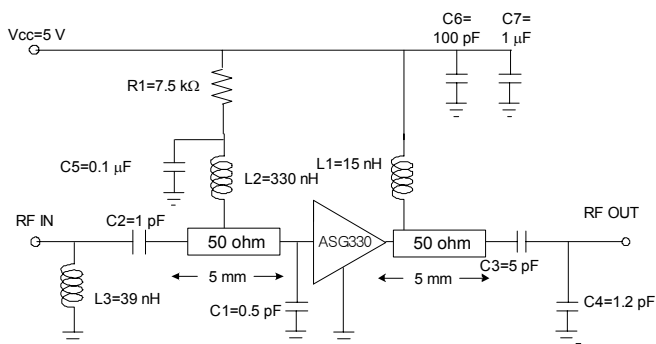
Application Circuit: 2110~2170 MHz (WCDMA Tx)

Typical Performance

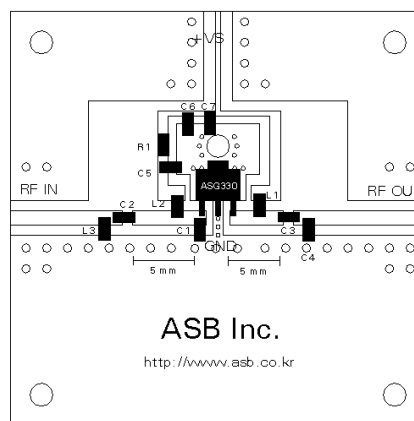
Frequency	2140 MHz
Magnitude S21	10 dB
Magnitude S11	-14 dB
Magnitude S22	-18 dB
Output P1dB	20 dBm
Output IP3 ¹⁾	43 dBm
Noise Figure	4.3 dB
Supply Voltage	5 V
Current	75 mA

1) OIP3 is measured with two tones at an output power of +10dBm/tone separated by 1MHz.

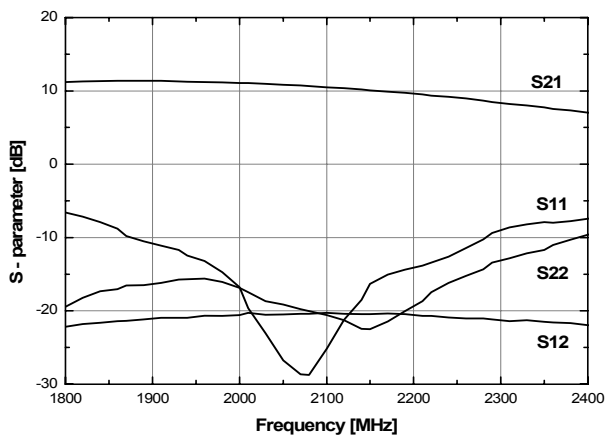
Schematic



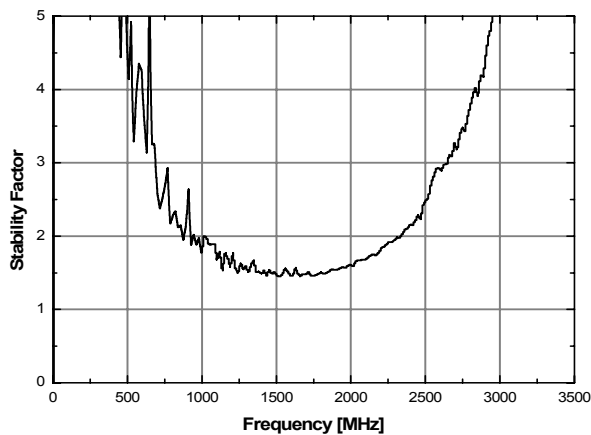
Board Layout (FR4, 40x40 mm², 0.8T)



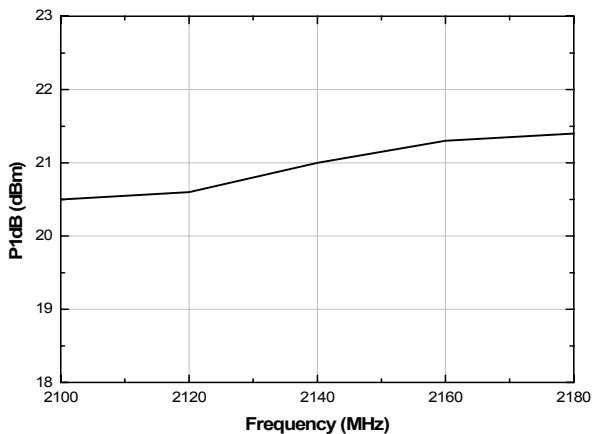
S-parameters



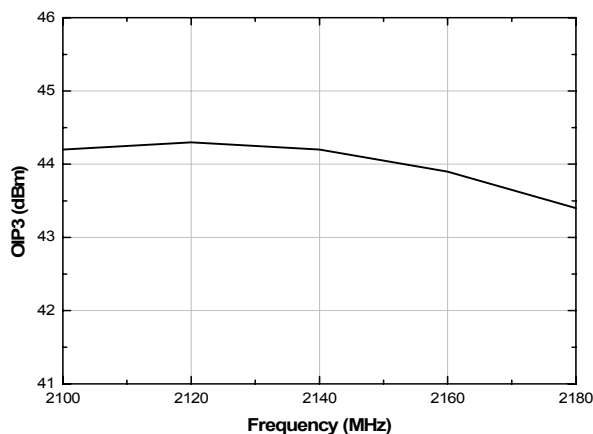
K-Factor



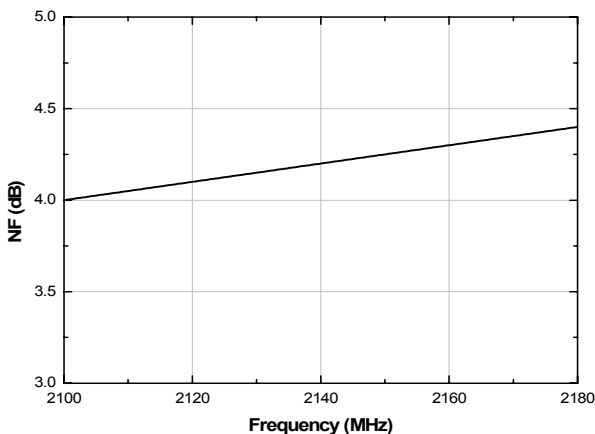
P1dB Vs. Frequency



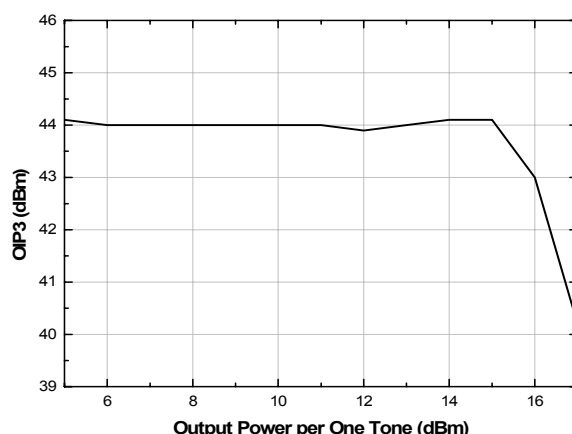
OIP3 Vs. Frequency (Pout per tone=10dBm)



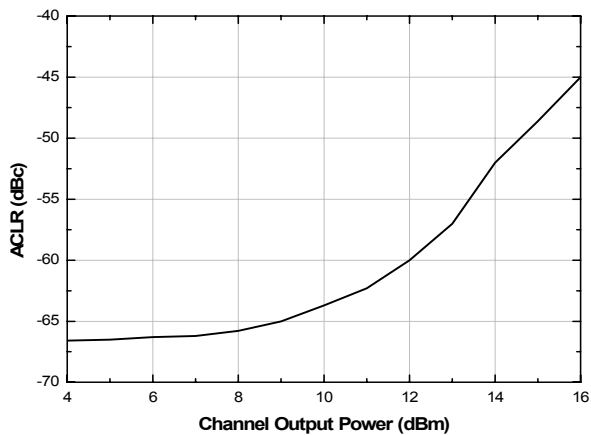
NF Vs. Frequency



OIP3 Vs. Output Tone Power



2140MHz ACLR Vs. Channel Output Power



Agilent 17:57:58 Nov 24, 2005 N-CDMA

BTS Ch Freq 2.14000 GHz
 ACPR-FFT: RRC Filter On 36PP

Y Scale/Div 10.00 dB

Ref 10.00 dBm
 dB/dB
 MaxP 14.6
 ExtFit 0.0

Center 2.14000 GHz Span 25.00 MHz

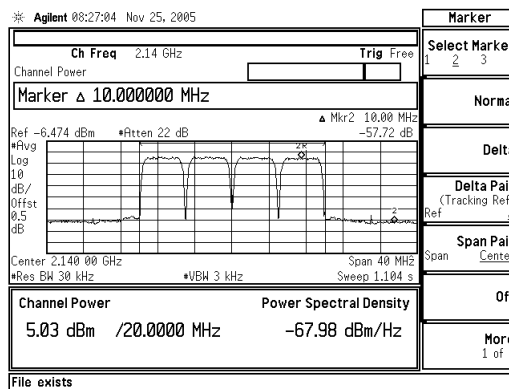
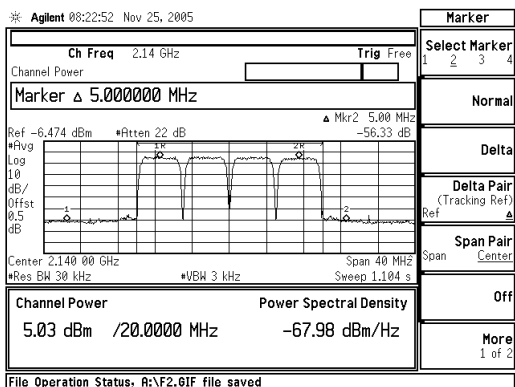
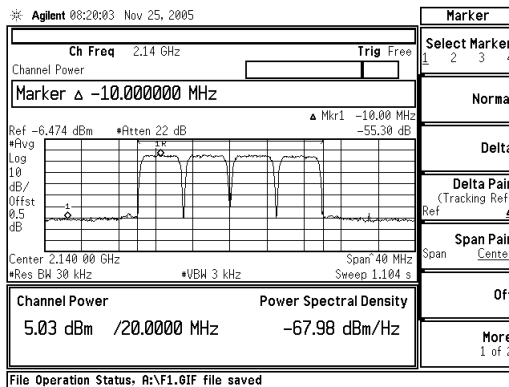
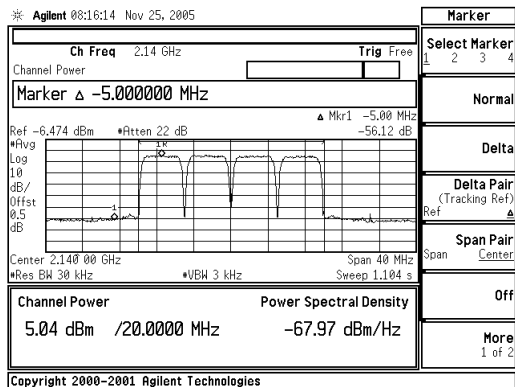
Total Pwr Ref: 16.00 dBm/ 3.84 MHz
 ACPR-FFT: RRC Filter On

	Lower	Upper			
Offset Freq	Integ BW	dBc	dBm	dBc	dBm
5.00 MHz	3.84 MHz	-45.52	-29.52	-46.06	-29.06
10.00 MHz	3.84 MHz	-66.88	-50.88	-65.03	-49.02

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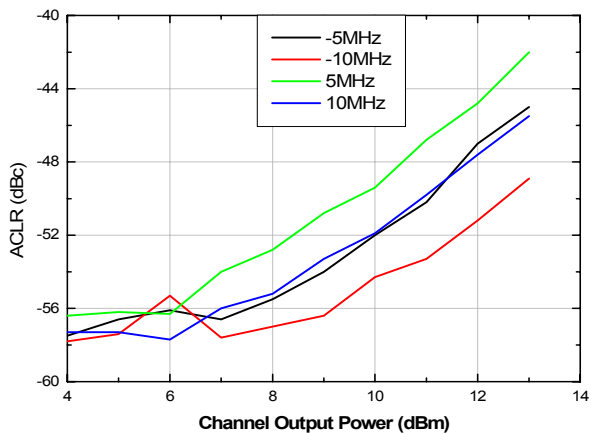
ACLR Vs. Channel Output Power

- 4FA / Test Model 1-54 DPCH @ Fc=2140MHz, Pout=5dBm



ACLR Vs. Channel Output Power

- 4FA / Test Model 1-54 DPCH @ Fc=2140MHz



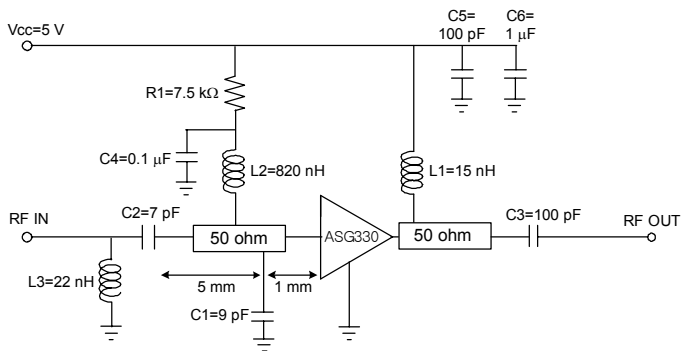
Application Circuit: 900~930 MHz

Typical Performance

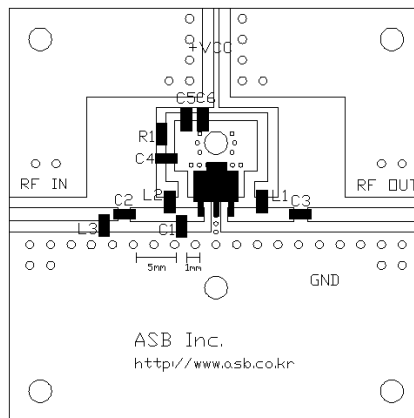
Frequency	900~930 MHz
Magnitude S21	18.5 dB
Magnitude S11	-15 dB
Magnitude S22	-12 dB
Output P1dB	21 dBm
Output IP3 ¹⁾	41 dBm
Noise Figure	2.8 dB
Supply Voltage	5 V
Current	75 mA

1) OIP3 is measured with two tones at an output power of +10dBm/tone separated by 1MHz.

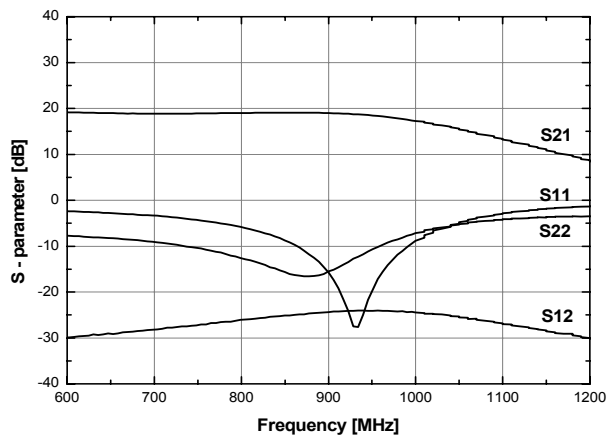
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters



K-Factor

