

Features

- 19.5 dB Gain at 900 MHz
- 29.5 dBm P1dB at 900 MHz
- 47 dBm Output IP3 at 900 MHz
- MTTF > 100 Years
- Single Supply

Description

The ASX401, a power amplifier MMIC, has a high linearity, high gain, and high efficiency over a wide range of frequency, being suitable for use in both receiver and transmitter of telecommunication systems up to 3 GHz. The amplifier is available in a SOT89 package and passes through the stringent DC, RF, and reliability tests.



Package Style: SOT89

Typical Performance

(Supply Voltage = +5 V, $T_A = +25\text{ }^{\circ}\text{C}$, $Z_0 = 50\text{ }\Omega$)

Parameters	Units	Typical			Typical			
Frequency	MHz	900	2000	2600	900	2000	900	2000
Gain	dB	19.5	13.0	10.0	19.5	13.0	19.0	13.0
S11	dB	-15	-15	-14	-15	-15	-14	-15
S22	dB	-18	-16	-18	-18	-16	-16	-15
Output IP3 ¹⁾	dBm	47	46	46	44	44	41	42
Noise Figure	dB	4.5	4.2	4.4	4.5	4.2	4.5	4.2
Output P1dB	dBm	29.5	29.5	30.0	29.5	28.5	28.5	28.5
Current	mA	290			260		190	
Device Voltage	V	+5			+4.8		+4.4	

1) OIP3 measured with two tones at an output power of +10 dBm/tones (+6 dBm/tones for 4.4V operating) separated by 1 MHz.

Product Specifications

Parameters	Units	Min	Typ.	Max
Testing Frequency	MHz		900	
Gain	dB	19.0	19.5	
S11	dB		-15	
S22	dB		-18	
Output IP3	dBm	45	47	
Noise Figure	dB		4.5	4.8
Output P1dB	dBm	29.0	29.5	
Current	mA	260	290	320
Device Voltage	V		+5	

Absolute Maximum Ratings

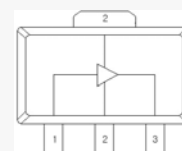
Parameters	Rating
Operating Case Temperature	-40 to +85 $^{\circ}\text{C}$
Storage Temperature	-40 to +150 $^{\circ}\text{C}$
Device Voltage	+6 V
Operating Junction Temperature	+150 $^{\circ}\text{C}$
Input RF Power (CW, 50 Ω matched) ¹⁾	+25 dBm
Thermal Resistance	29 $^{\circ}\text{C/W}$

1) Please find the max. input power data from http://www.asb.co.kr/pdf/Maximum_Input_Power_Analysis.pdf

Application Circuit

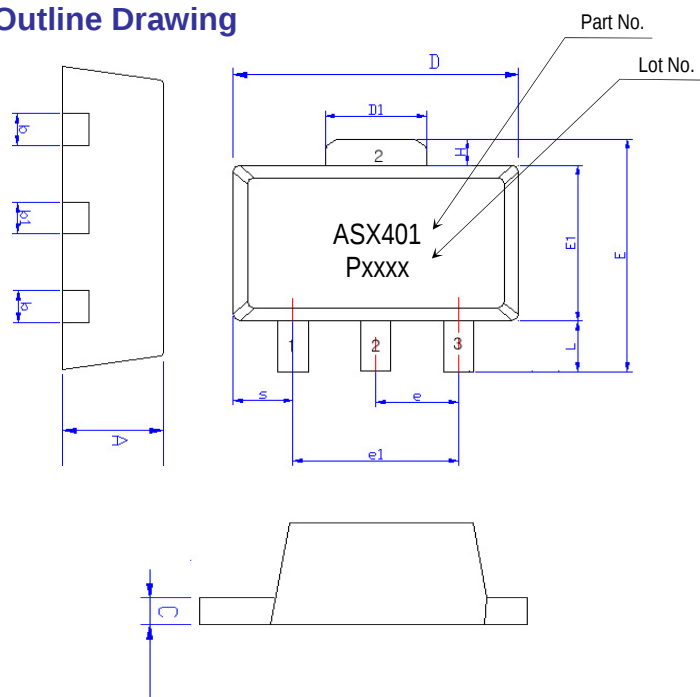
- IF (128 ~ 152 MHz)
- IF (225 ~ 236 MHz)
- IF (440 ~ 460 MHz)
- LTE (698 ~ 787 MHz)
- CDMA & GSM (776 ~ 901 MHz)
- TRS
- CDMA
- GSM
- Others (1200 ~ 1400 MHz)
- Others (1600 MHz)
- PCS
- WCDMA
- WLAN
- WiMAX
- LTE (2300~ 2700 MHz)
- Others (1680 MHz)
- Others (1710 ~1785 MHz, Balanced)
- Others (2050 ~ 2350 MHz, Balanced)

Pin Configuration



Pin No.	Function
1	RF IN
2	GND
3	RF OUT & Bias

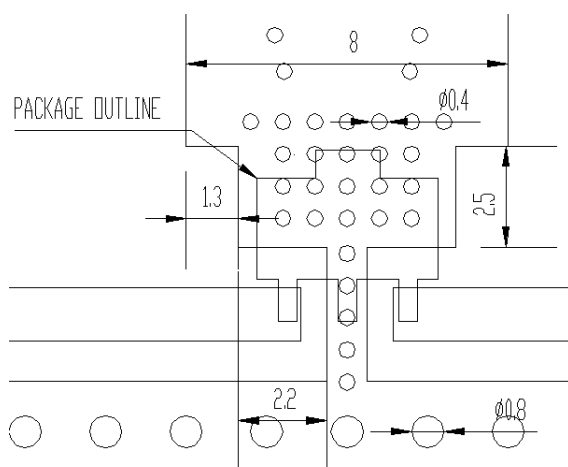
Outline Drawing



Symbols	Dimensions (In mm)		
	MIN	NOM	MAX
A	1.40	1.50	1.60
L	0.89	1.04	1.20
b	0.36	0.42	0.48
b1	0.41	0.47	0.53
C	0.38	0.40	0.43
D	4.40	4.50	4.60
D1	1.40	1.60	1.75
E	3.64	---	4.25
E1	2.40	2.50	2.60
e1	2.90	3.00	3.10
H	0.35	0.40	0.45
S	0.65	0.75	0.85
e	1.40	1.50	1.60

Pin No.	Function
1	RF IN
2	GND
3	RF OUT & Bias

Mounting Recommendation (In mm)



- Note:**
1. The number and size of ground via holes in a circuit board is critical for thermal and RF grounding considerations.
 2. We recommend that the ground via holes be placed on the bottom of the lead pin 2 and exposed pad of the device for better RF and thermal performance, as shown in the drawing at the left side.

ESD Classification & Moisture Sensitivity Level

ESD Classification

HBM	Class 1B
	Voltage Level: 500 V ~ 1000 V
MM	Class A
	Voltage Level: <200 V

CAUTION: ESD-sensitive device!

Moisture Sensitivity Level (MSL)

Level 3 at 260 °C reflow

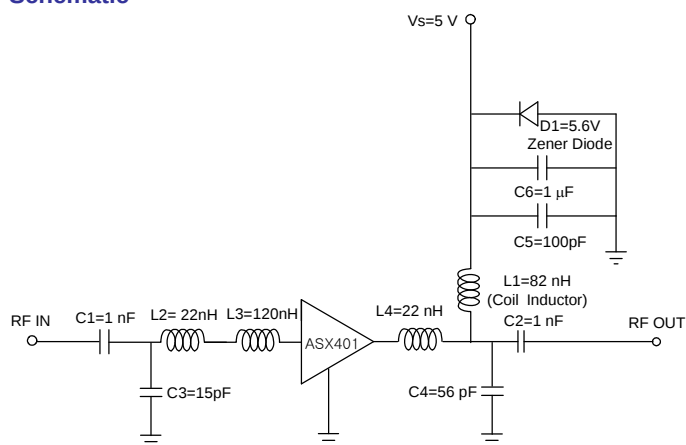
APPLICATION CIRCUIT

IF
128 ~ 152 MHz
+5 V

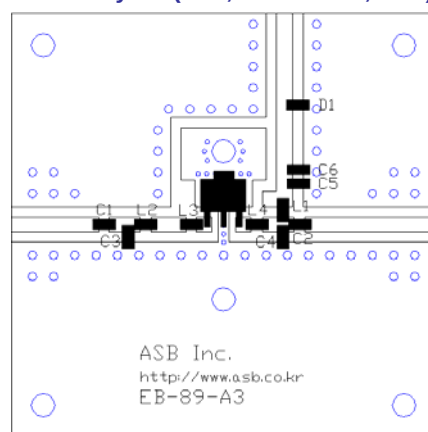
Frequency (MHz)	128	140	152
Magnitude S21 (dB)	19.0	20.0	19.5
Magnitude S11 (dB)	-7	-10	-7
Magnitude S22 (dB)	-10	-15	-12
Output P1dB (dBm)	30.0	30.5	30.5
Output IP3 ¹⁾ (dBm)	40.5	43.5	42.5
Noise Figure (dB)	11.5	10.0	9.5
Device Voltage (V)	+5	+5	+5
Current (mA)	290	290	290

1) OIP3 is measured with two tones at an output power of +8 dBm/tone separated by 1 MHz.

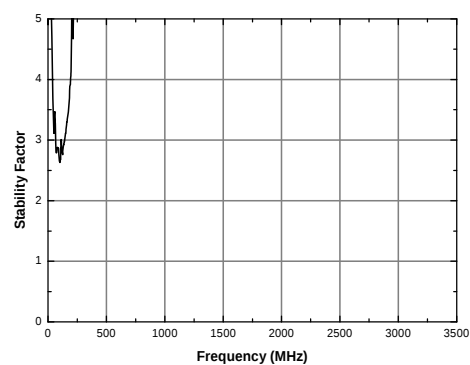
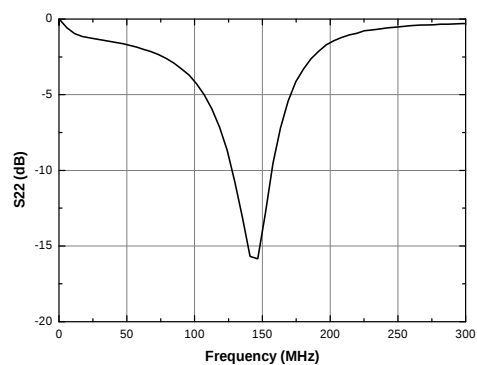
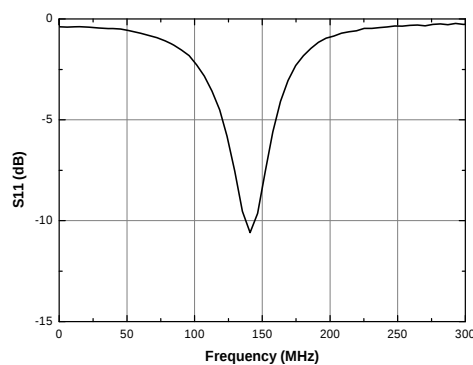
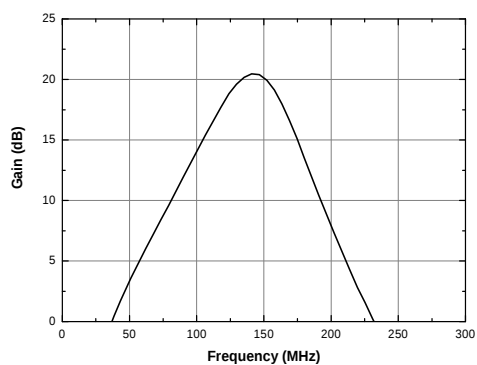
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



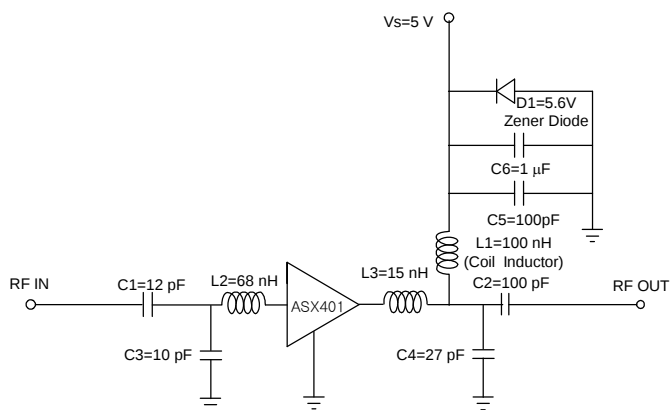
APPLICATION CIRCUIT

IF
225 ~ 236 MHz
+5 V

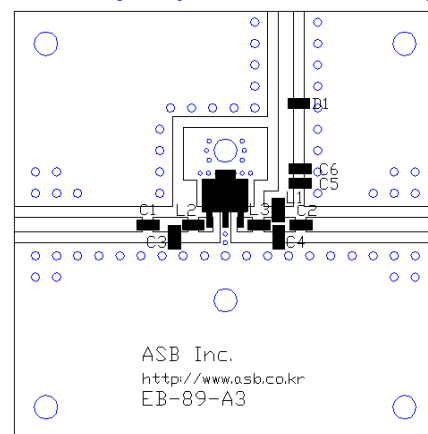
Frequency (MHz)	225 ~ 236
Magnitude S21 (dB)	21.8
Magnitude S11 (dB)	-12
Magnitude S22 (dB)	-14
Output P1dB (dBm)	29.5
Output IP3 ¹⁾ (dBm)	41.5
Noise Figure (dB)	8.4
Device Voltage (V)	+5
Current (mA)	290

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

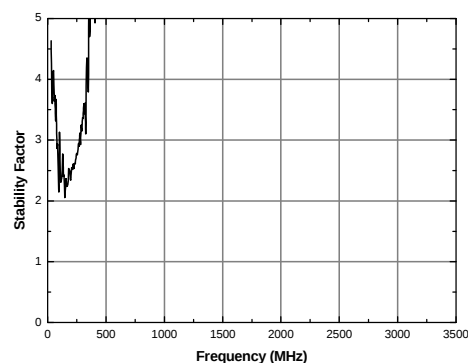
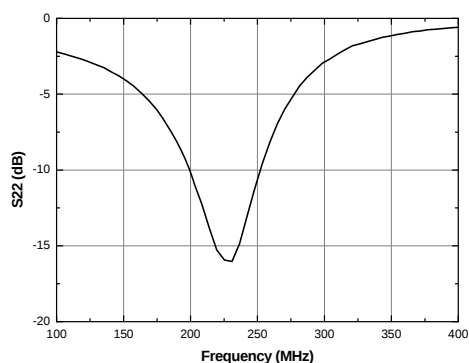
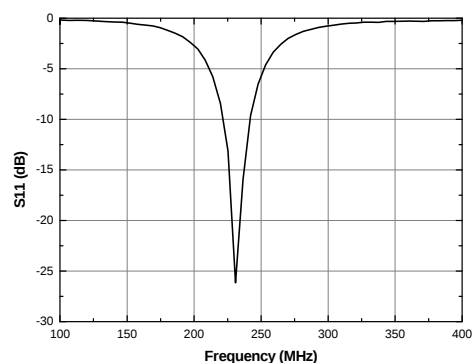
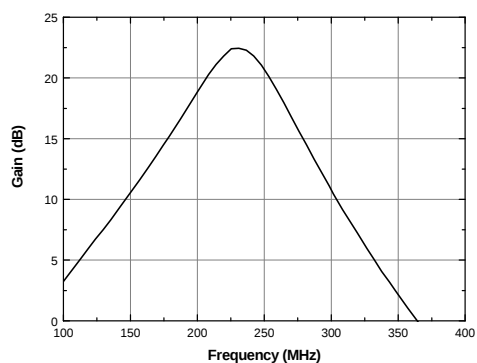
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



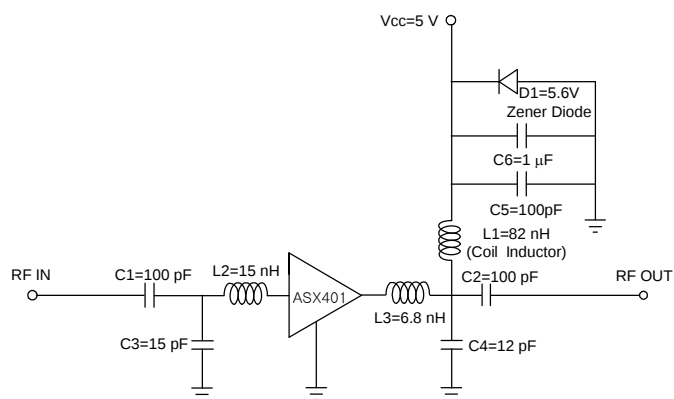
APPLICATION CIRCUIT

IF
440 ~ 460 MHz
+5 V

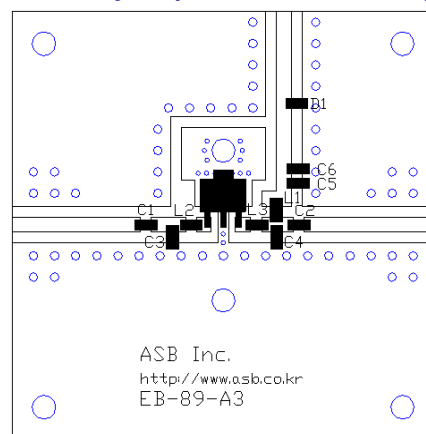
Frequency (MHz)	440 ~ 460
Magnitude S21 (dB)	22.0
Magnitude S11 (dB)	-15
Magnitude S22 (dB)	-16
Output P1dB (dBm)	30.5
Output IP3 ¹⁾ (dBm)	45
Noise Figure (dB)	5.5
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +16 dBm/tones separated by 1 MHz.

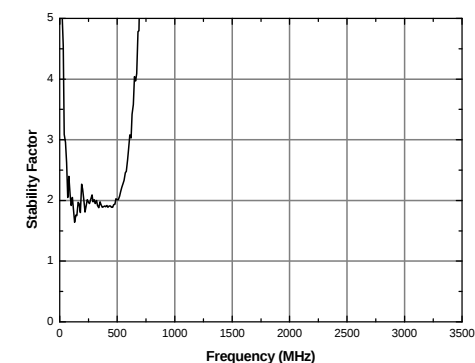
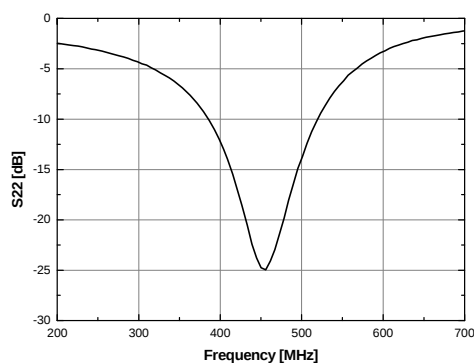
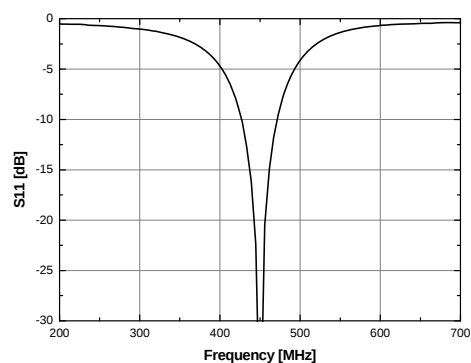
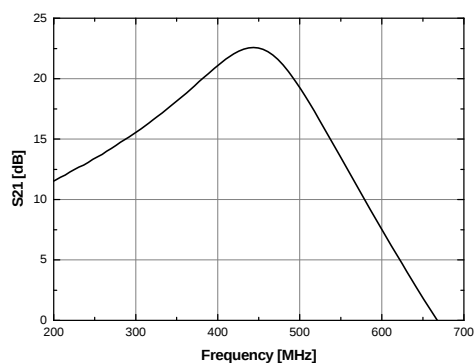
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



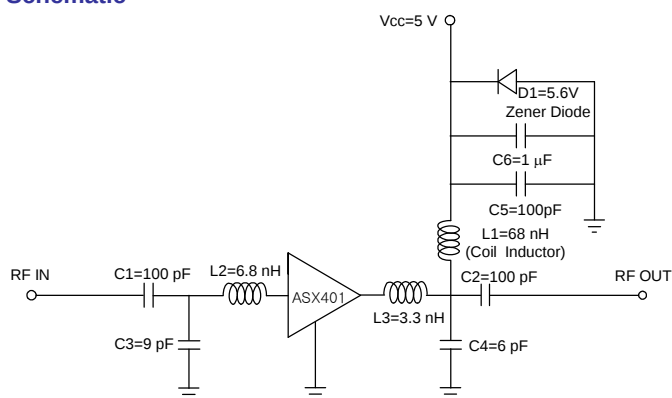
APPLICATION CIRCUIT

LTE
698 ~ 787 MHz
+5 V

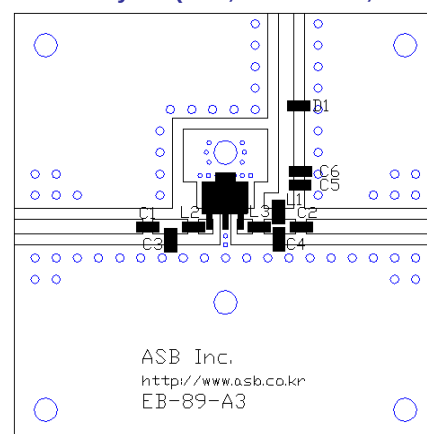
Frequency (MHz)	698 ~ 787
Magnitude S21 (dB)	19.5
Magnitude S11 (dB)	-9
Magnitude S22 (dB)	-12
Output P1dB (dBm)	30
Output IP3 ¹⁾ (dBm)	47
Noise Figure (dB)	4.4
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +11 dBm/tone separated by 1 MHz.

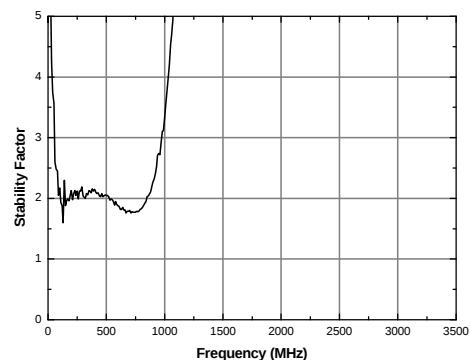
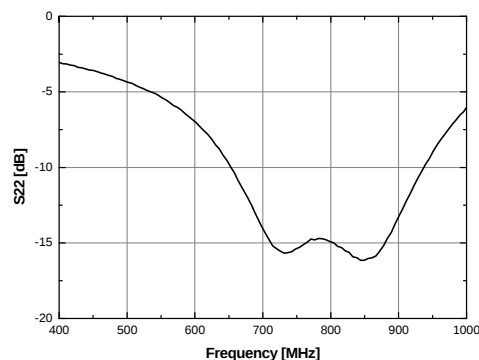
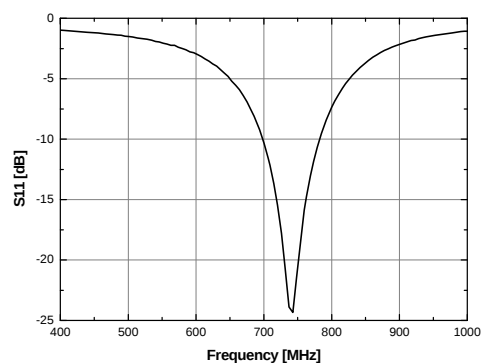
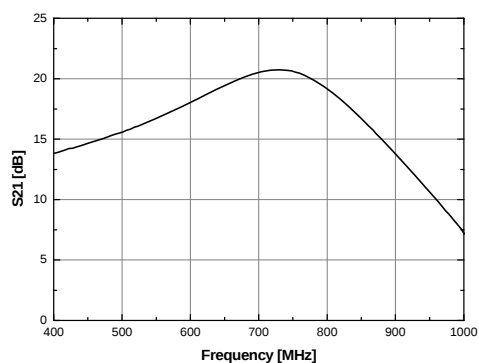
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

CDMA & GSM

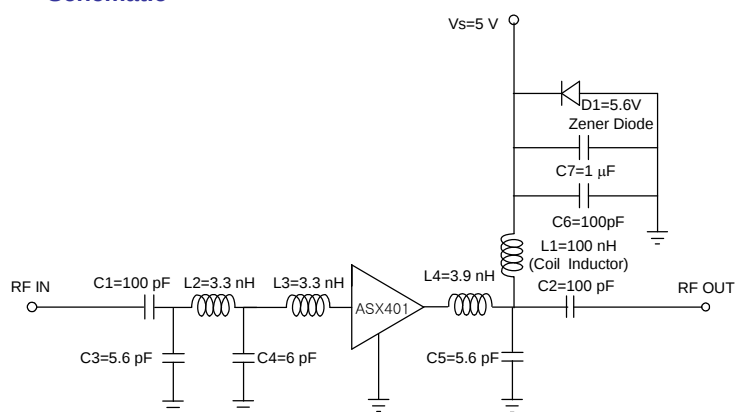
776 ~ 901 MHz

+5 V

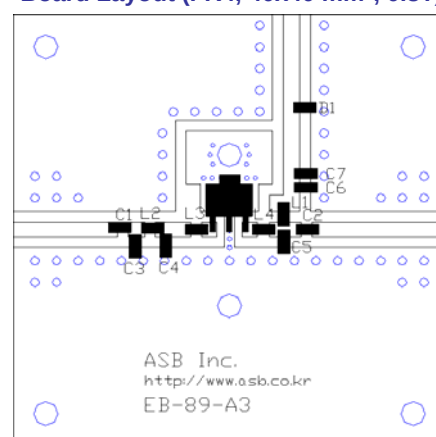
Frequency (MHz)	776	901
Magnitude S21 (dB)	19.2	18.6
Magnitude S11 (dB)	-6	-9
Magnitude S22 (dB)	-16	-14
Output P1dB (dBm)	29.0	28.5
Output IP3 ¹⁾ (dBm)	44	45
Noise Figure (dB)	5.5	4.5
Device Voltage (V)	+5	+5
Current (mA)	290	290

1) OIP3 is measured with two tones at an output power of +9 dBm/tones separated by 1 MHz.

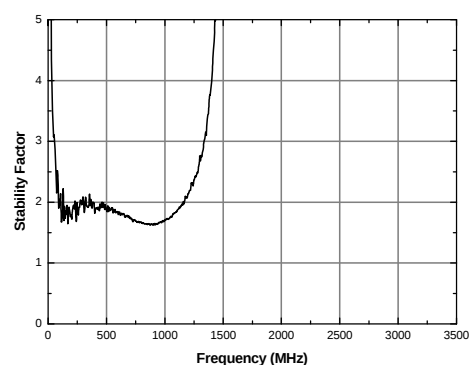
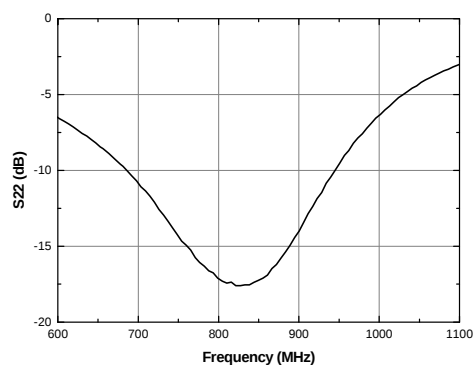
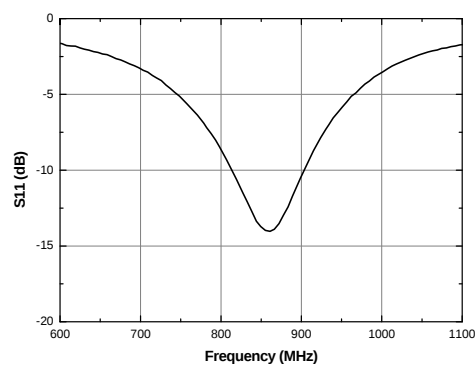
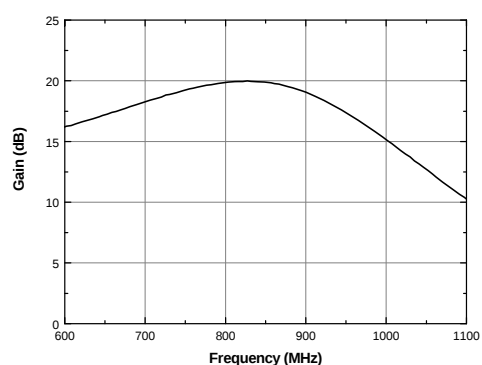
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

TRS Rx

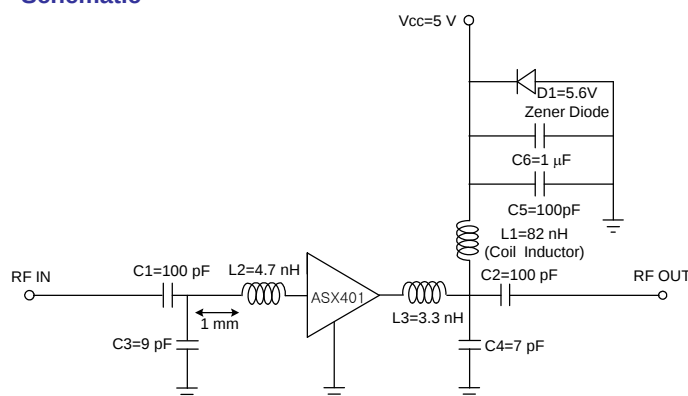
806 ~ 822 MHz

+5 V

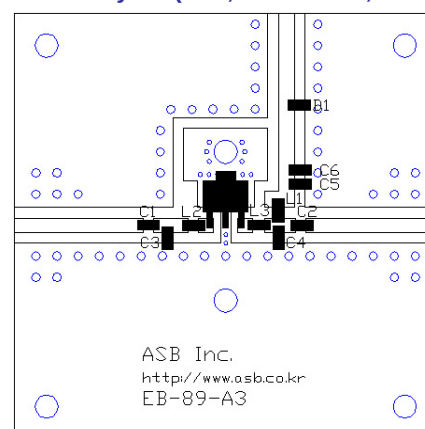
Frequency (MHz)	806 ~ 822
Magnitude S21 (dB)	19.5
Magnitude S11 (dB)	-14.5
Magnitude S22 (dB)	-14.5
Output P1dB (dBm)	30
Output IP3 ¹⁾ (dBm)	47
Noise Figure (dB)	4.5
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

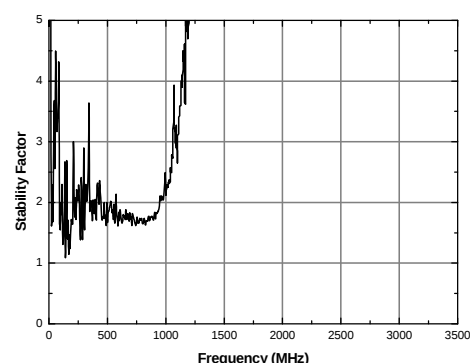
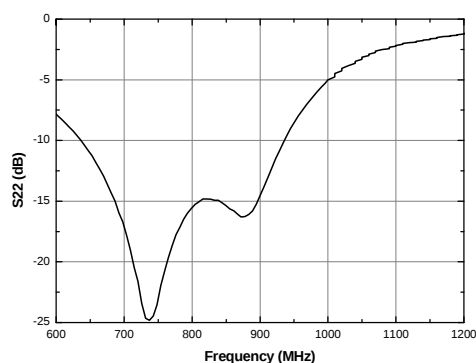
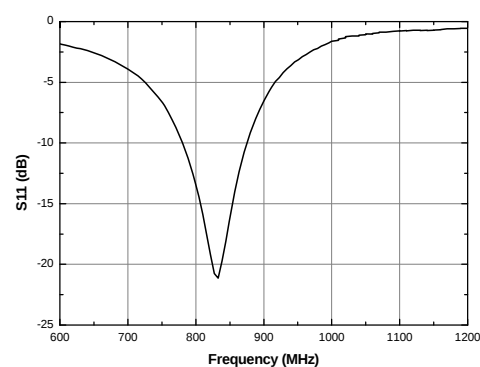
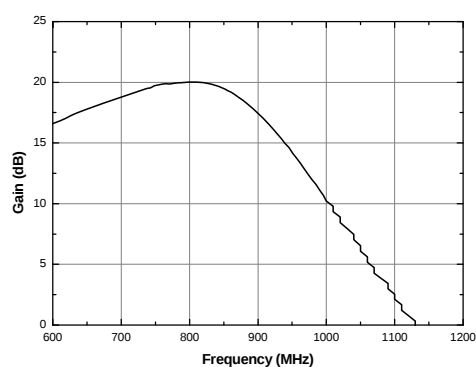
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

TRS Tx

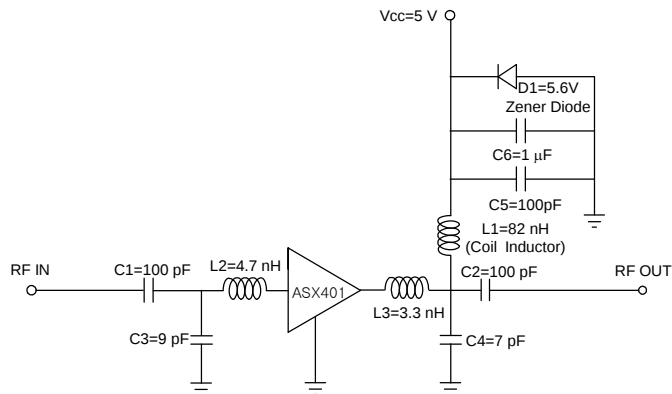
851 ~ 867 MHz

+5 V

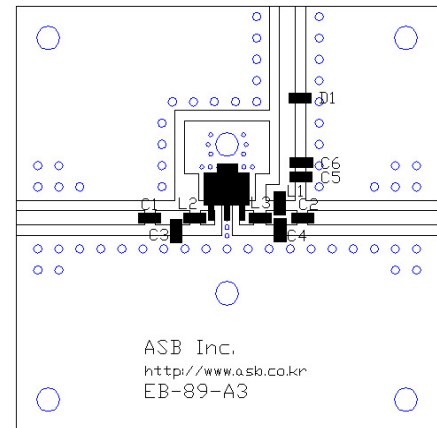
Frequency (MHz)	851 ~ 867
Magnitude S21 (dB)	19.0
Magnitude S11 (dB)	-16
Magnitude S22 (dB)	-14
Output P1dB (dBm)	30.5
Output IP3 ¹⁾ (dBm)	43
Noise Figure (dB)	4.5
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +16 dBm/tones separated by 1 MHz.

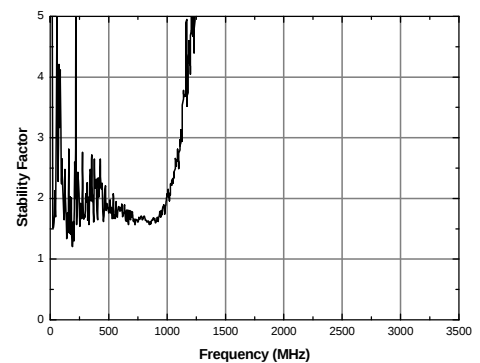
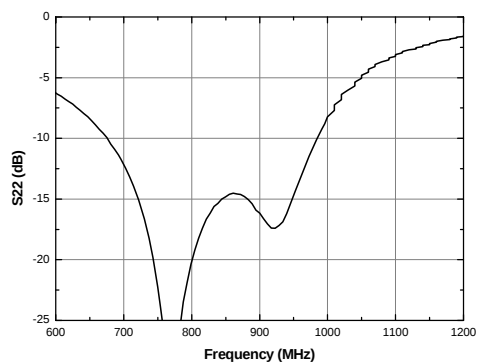
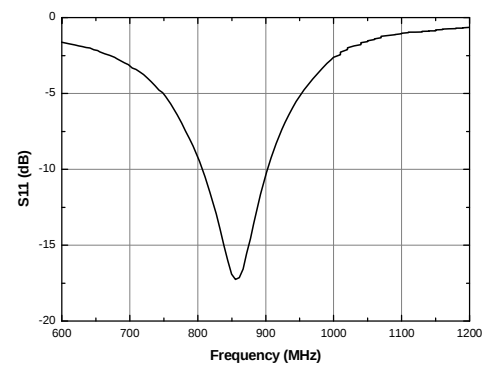
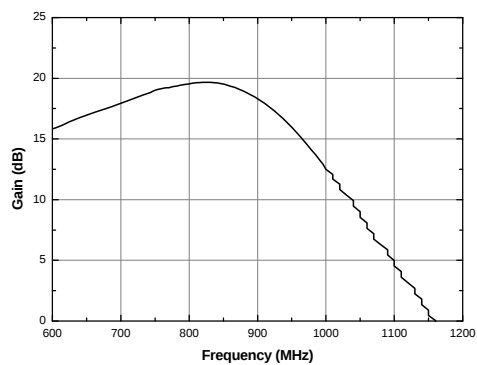
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

CDMA Rx

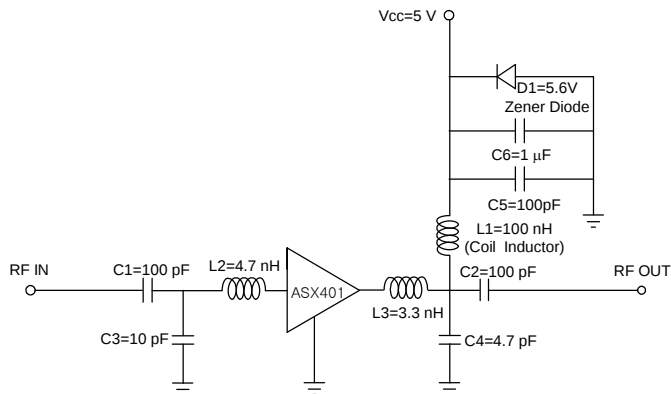
824 ~ 849 MHz

+5 V

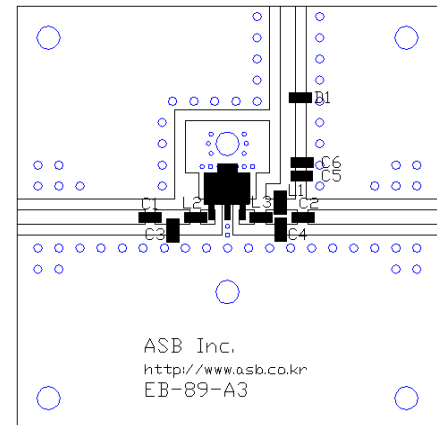
Frequency (MHz)	824 ~ 849
Magnitude S21 (dB)	19.5
Magnitude S11 (dB)	-15
Magnitude S22 (dB)	-14
Output P1dB (dBm)	30
Output IP3 ¹⁾ (dBm)	46
Noise Figure (dB)	4.4
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +11 dBm/tone separated by 1 MHz.

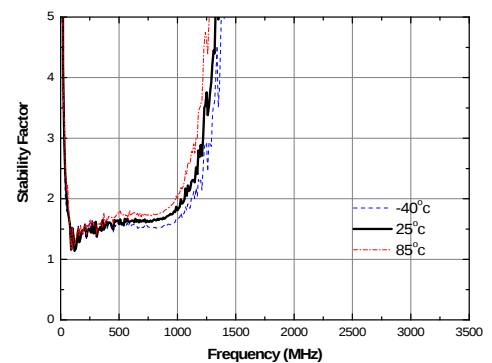
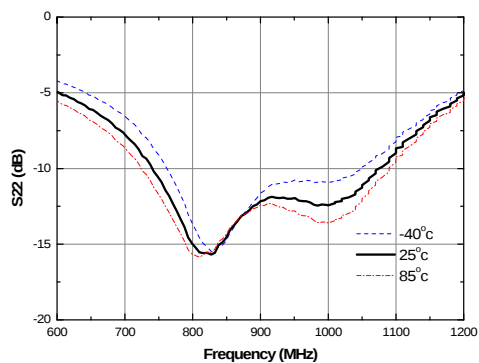
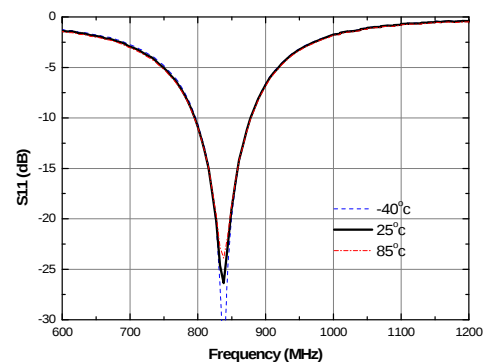
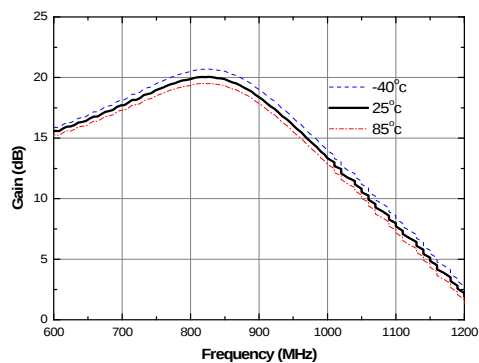
Schematic



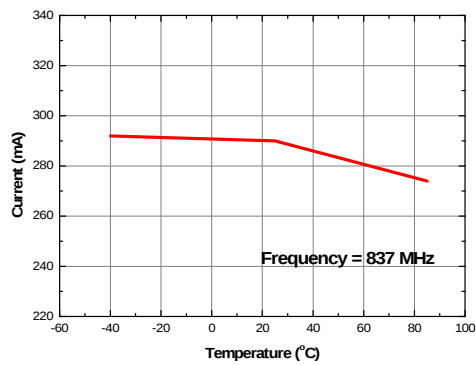
Board Layout (FR4, 40x40 mm², 0.8T)



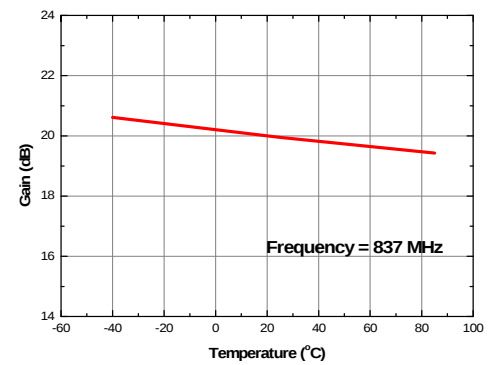
S-parameters & K-factor



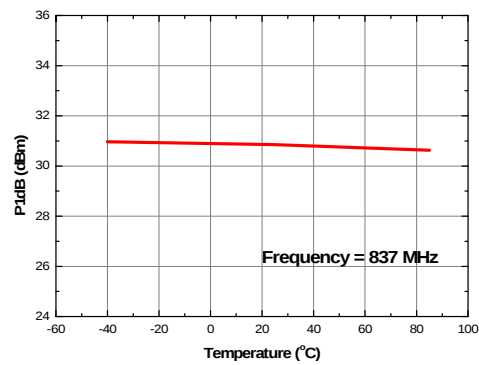
Current vs. Temperature



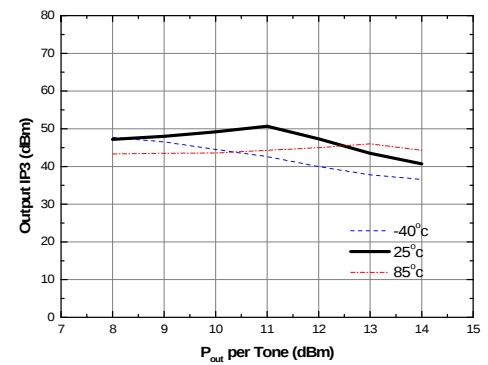
Gain vs. Temperature



P1dB vs. Temperature



Output IP3 vs. Tone Power (Frequency = 837 MHz)



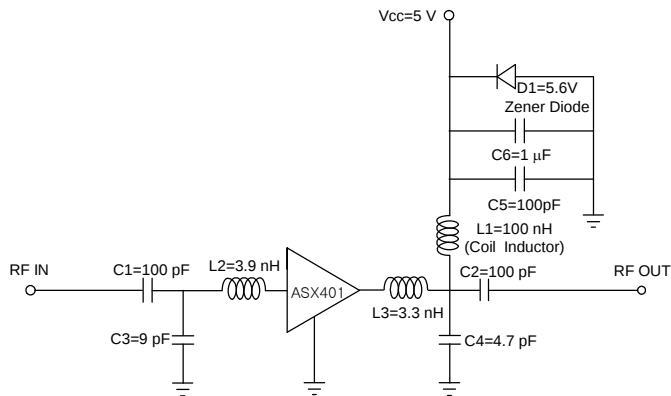
APPLICATION CIRCUIT

CDMA Tx
869 ~ 894 MHz
+5 V

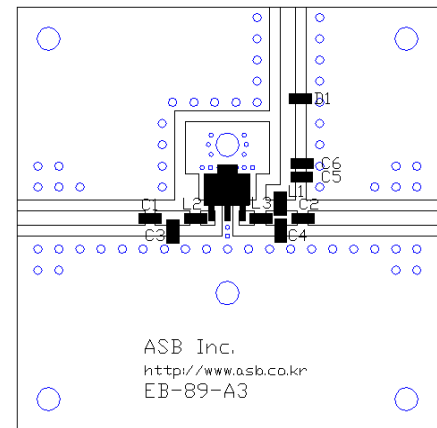
Frequency (MHz)	869 ~ 894
Magnitude S21 (dB)	19.5
Magnitude S11 (dB)	-15
Magnitude S22 (dB)	-18
Output P1dB (dBm)	29.5
Output IP3 ¹⁾ (dBm)	47
Noise Figure (dB)	4.5
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +11 dBm/tone separated by 1 MHz.

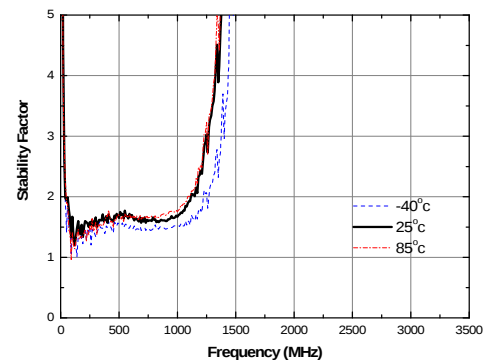
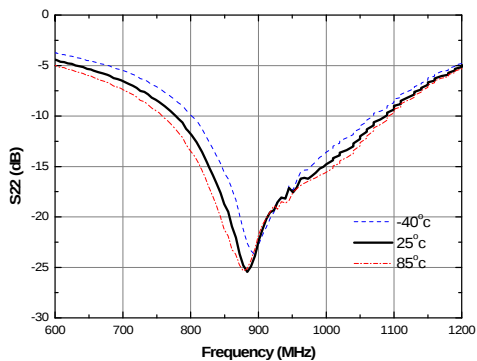
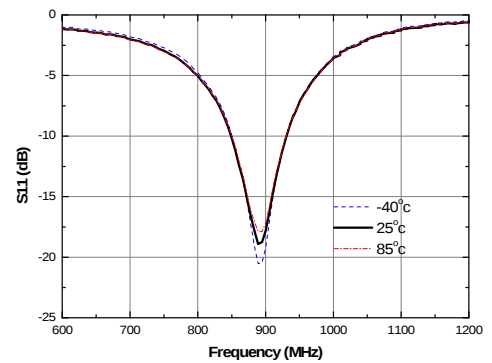
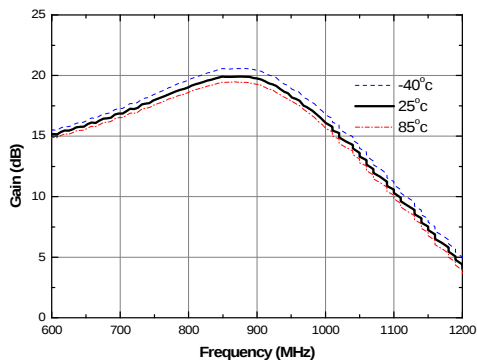
Schematic



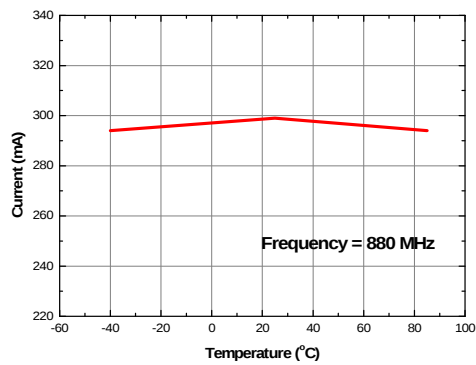
Board Layout (FR4, 40x40 mm², 0.8T)



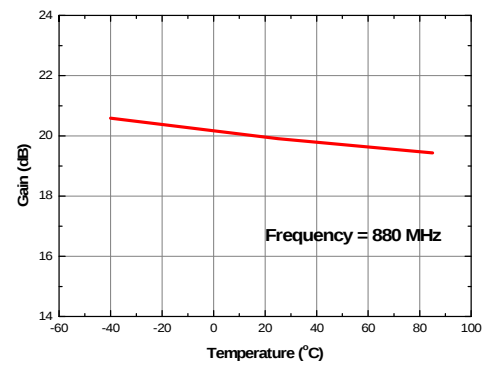
S-parameters & K-factor



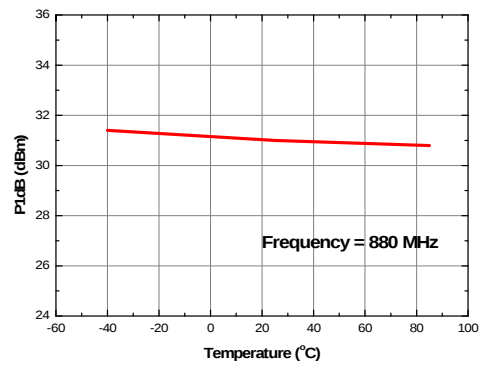
Current vs. Temperature



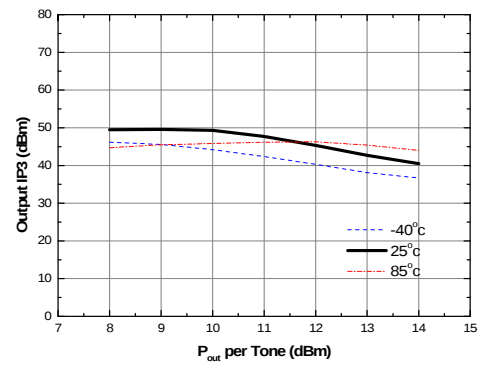
Gain vs. Temperature



P1dB vs. Temperature



Output IP3 vs. Tone Power (Frequency = 880 MHz)



APPLICATION CIRCUIT

GSM Rx

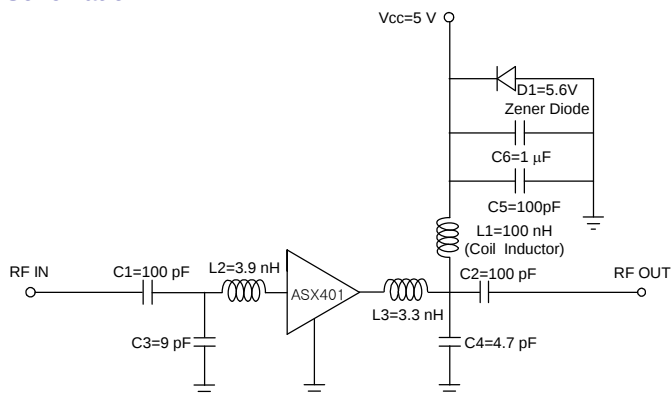
890 ~ 915 MHz

+5 V

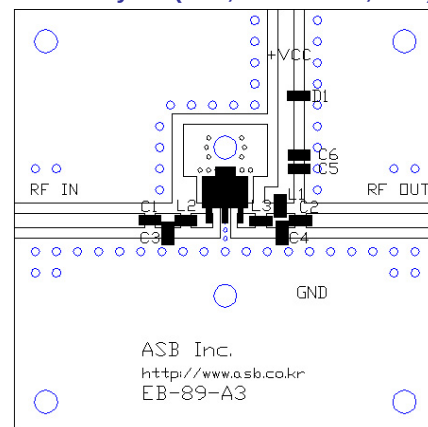
Frequency (MHz)	890 ~ 915
Magnitude S21 (dB)	19.3
Magnitude S11 (dB)	-15
Magnitude S22 (dB)	-18
Output P1dB (dBm)	30
Output IP3 ¹⁾ (dBm)	47
Noise Figure (dB)	4.4
Device Voltage (V)	+5
Current (mA)	290

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

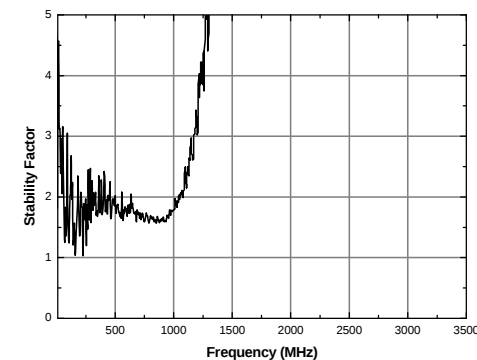
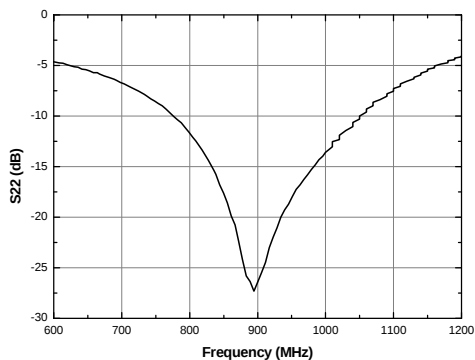
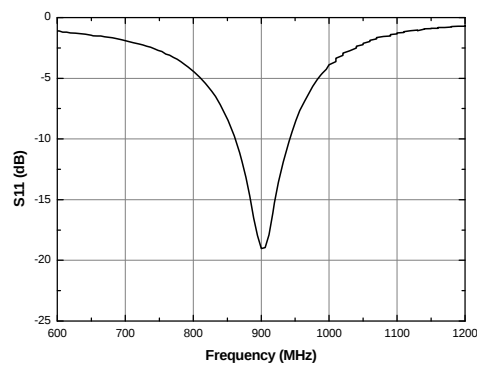
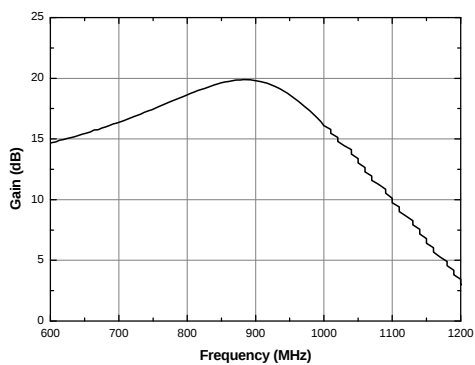
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

GSM Tx

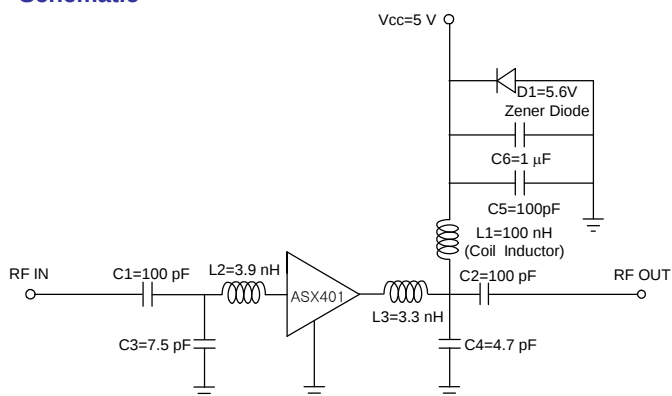
935 ~ 960 MHz

+5 V

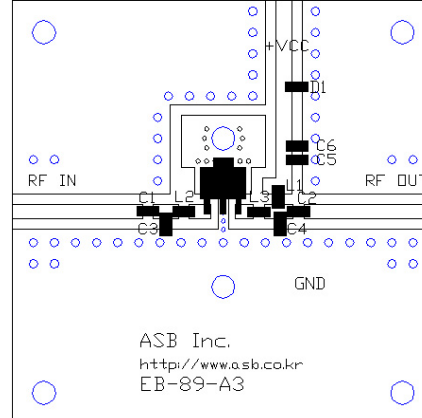
Frequency (MHz)	935 ~ 960
Magnitude S ₂₁ (dB)	19
Magnitude S ₁₁ (dB)	-17
Magnitude S ₂₂ (dB)	-16
Output P _{1dB} (dBm)	29.5
Output IP ₃ ¹⁾ (dBm)	47
Noise Figure (dB)	4.3
Device Voltage (V)	+5
Current (mA)	290

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

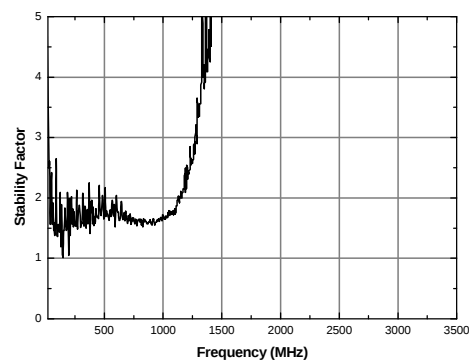
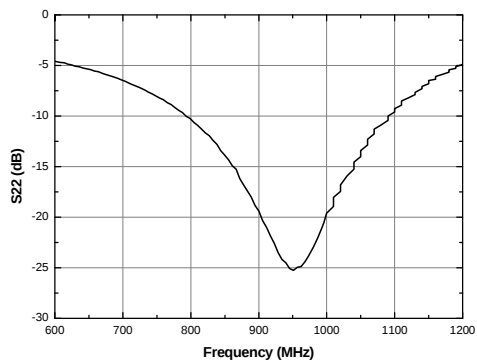
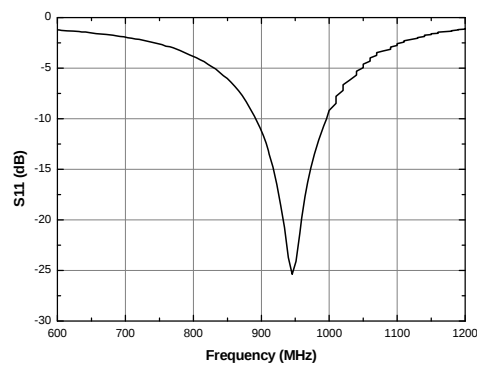
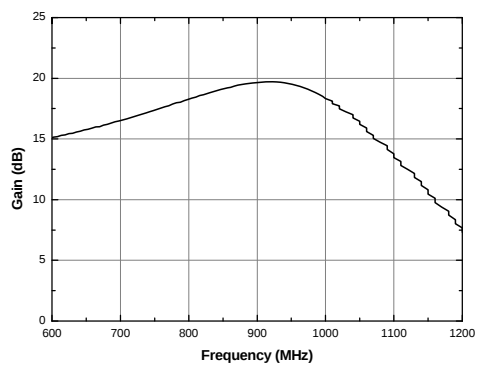
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

Others

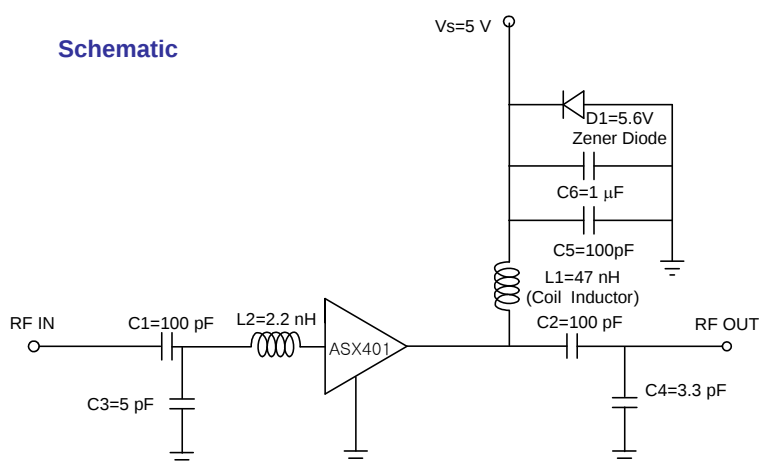
1200 ~ 1400 MHz

+5 V

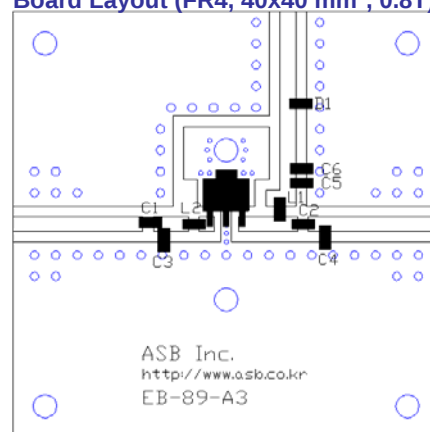
Frequency (MHz)	1200	1400
Magnitude S21 (dB)	16.0	14.5
Magnitude S11 (dB)	-7	-7
Magnitude S22 (dB)	-20	-16
Output P1dB (dBm)	29.5	29.5
Output IP3 ¹⁾ (dBm)	44	44
Noise Figure (dB)	4.6	4.8
Device Voltage (V)	+5	+5
Current (mA)	290	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

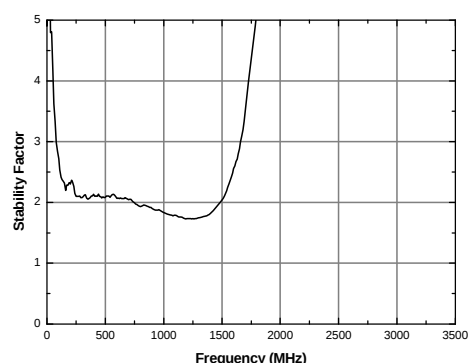
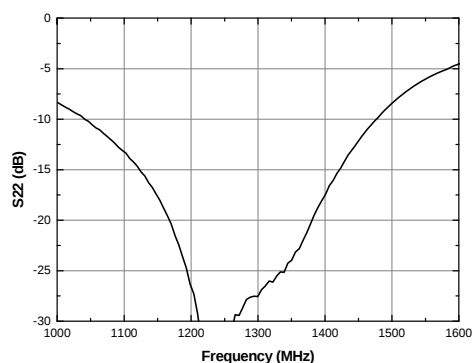
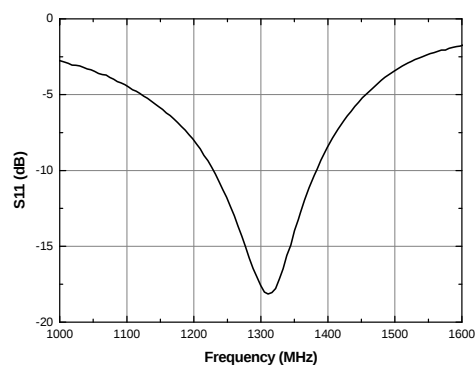
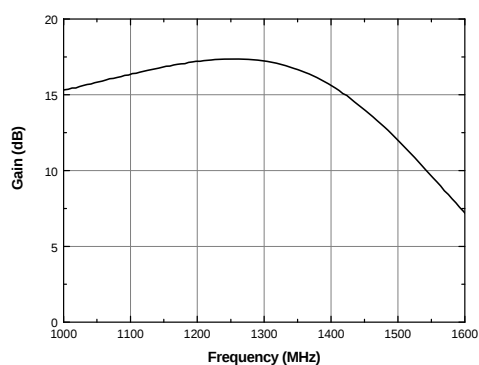
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

Others

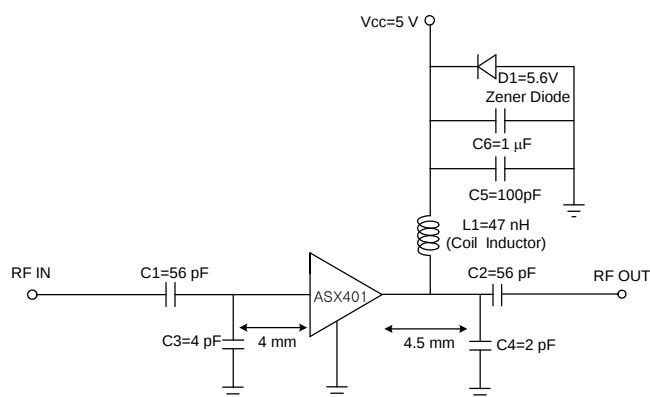
1600 MHz

+5 V

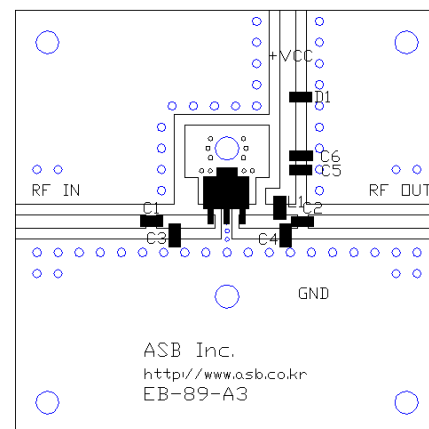
Frequency (MHz)	1600
Magnitude S21 (dB)	15.5
Magnitude S11 (dB)	-18
Magnitude S22 (dB)	-14
Output P1dB (dBm)	29
Output IP3 ¹⁾ (dBm)	47
Noise Figure (dB)	3.8
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

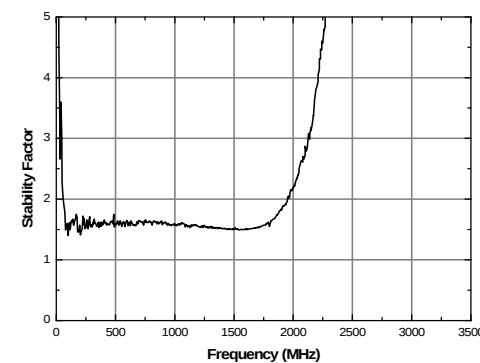
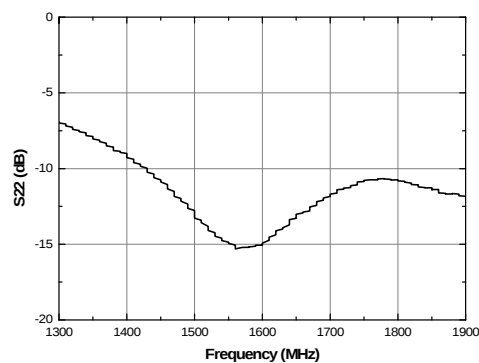
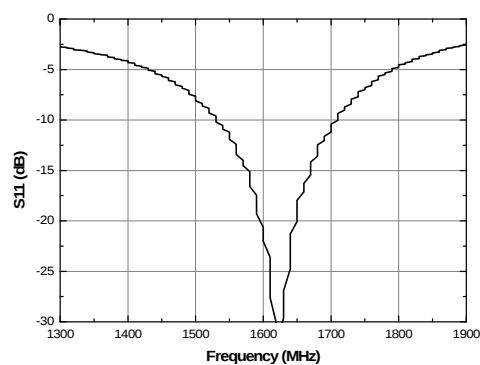
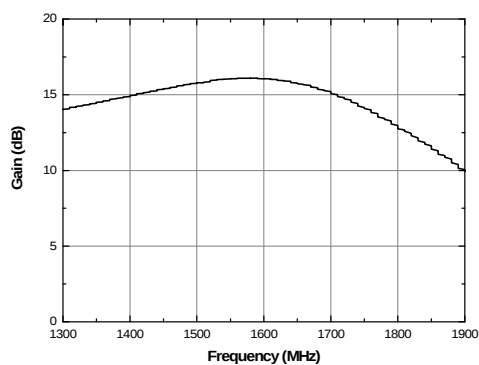
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

PCS Rx

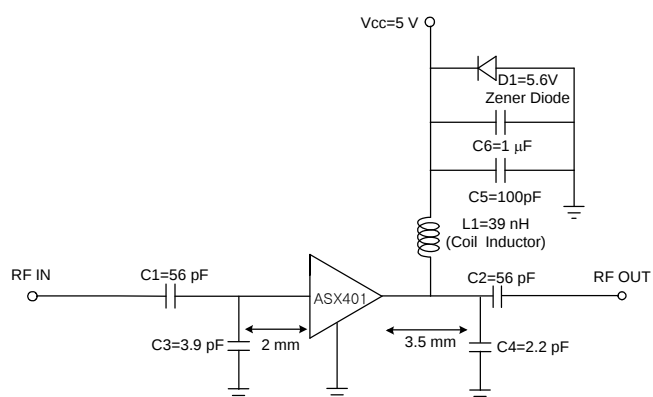
1750 ~ 1780 MHz

+5 V

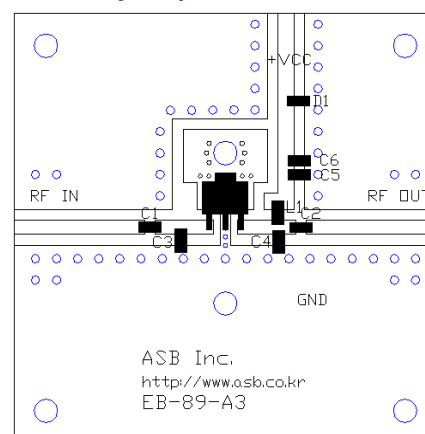
Frequency (MHz)	1750 ~ 1780
Magnitude S ₂₁ (dB)	14.7
Magnitude S ₁₁ (dB)	-17
Magnitude S ₂₂ (dB)	-18
Output P _{1dB} (dBm)	29.5
Output IP ₃ ¹⁾ (dBm)	46
Noise Figure (dB)	4.1
Device Voltage (V)	+5
Current (mA)	290

1) OIP₃ is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

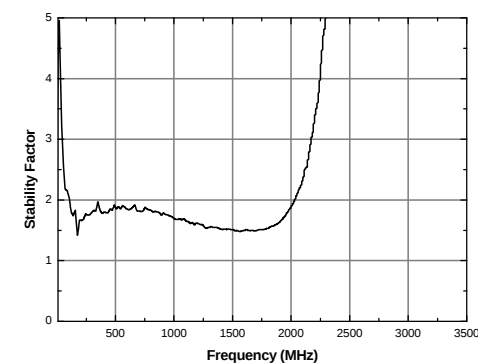
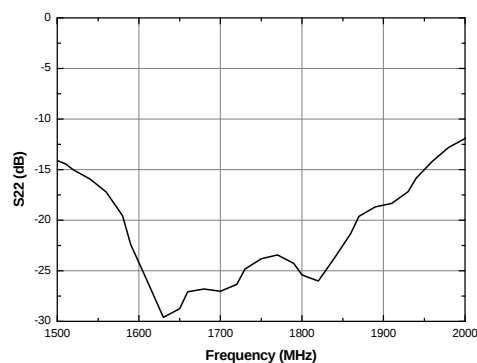
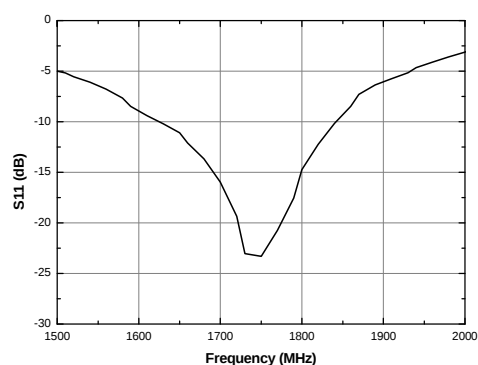
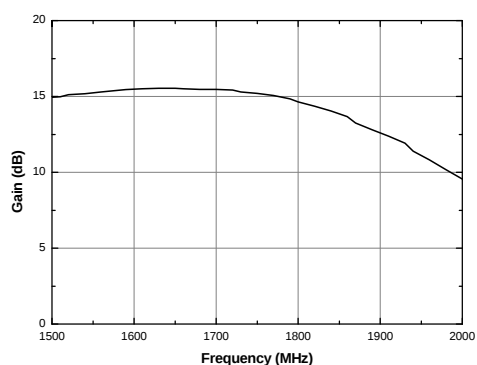
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

PCS Tx

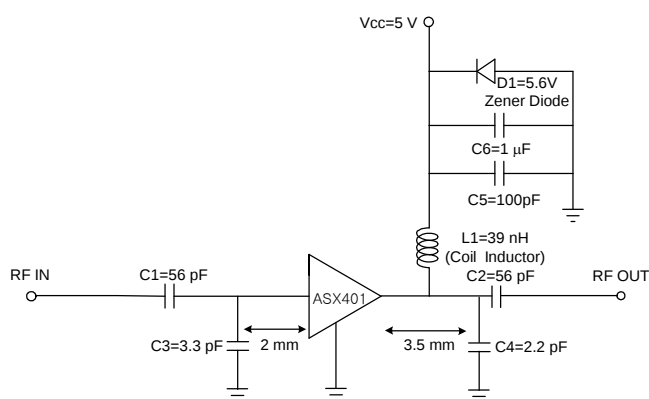
1840 ~ 1870 MHz

+5 V

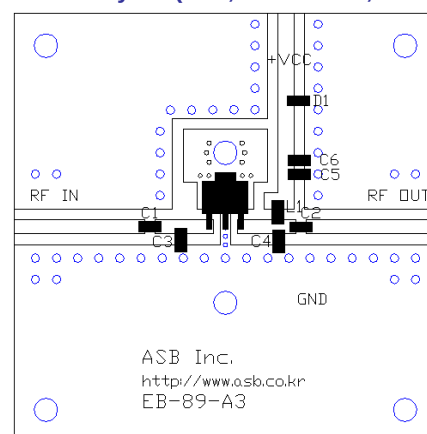
Frequency (MHz)	1840 ~ 1870
Magnitude S21 (dB)	14.0
Magnitude S11 (dB)	-15
Magnitude S22 (dB)	-18
Output P1dB (dBm)	30
Output IP3 ¹⁾ (dBm)	47
Noise Figure (dB)	4.1
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

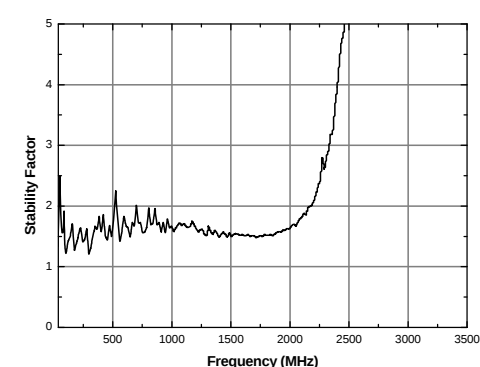
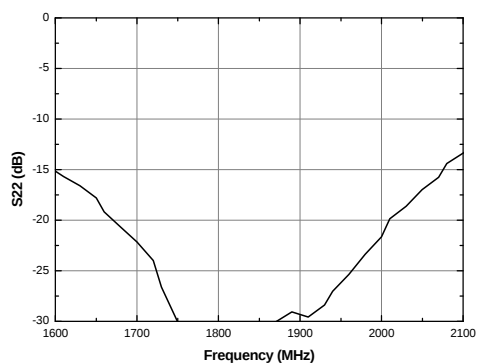
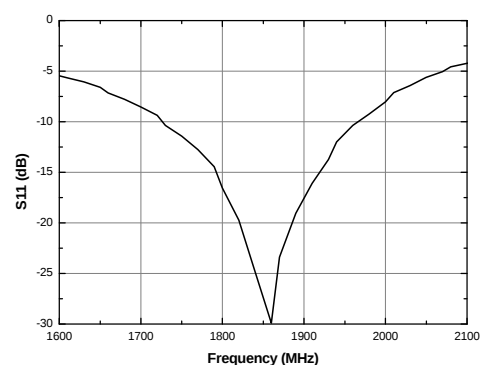
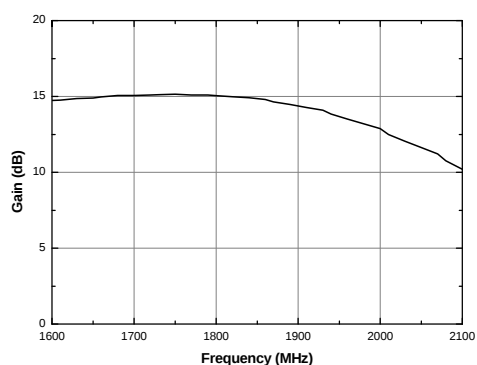
Schematic



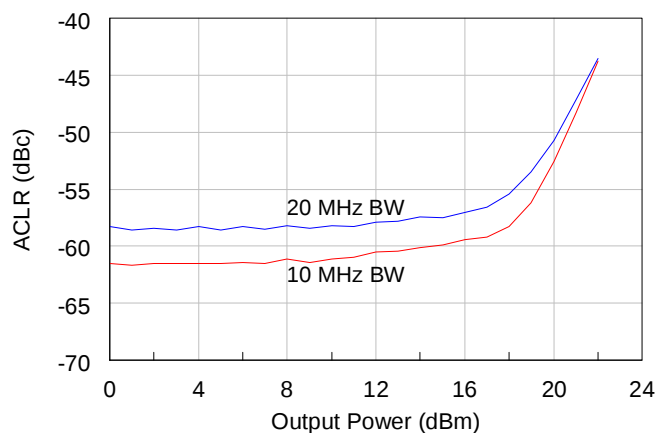
Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor

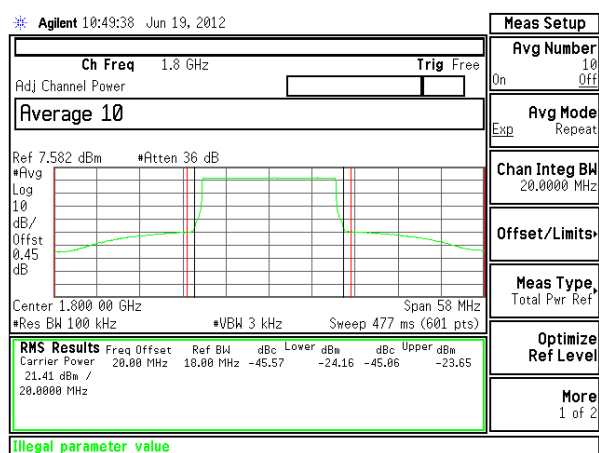


LTE ACLR – 10 MHz & 20 MHz



1) Test Source : LTE_FDD_test model 3.1, BW: 10 MHz & 20 MHz, Test Frequency: 1.8 GHz

LTE ACLR – 20 MHz



2) Test Source : LTE_FDD_test model 3.1, BW: 20 MHz, Test Frequency: 1.8 GHz

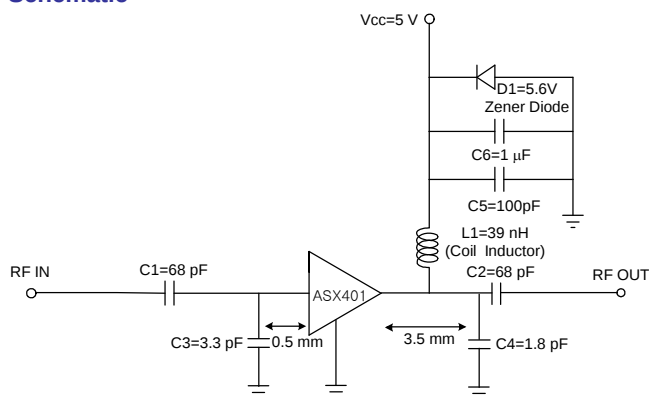
APPLICATION CIRCUIT

WCDMA Rx
1920 ~ 1980 MHz
+5 V

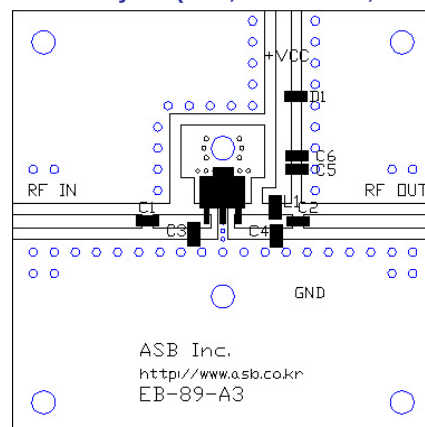
Frequency (MHz)	1920 ~ 1980
Magnitude S21 (dB)	13.0
Magnitude S11 (dB)	-16
Magnitude S22 (dB)	-17
Output P1dB (dBm)	28.5
Output IP3 ¹⁾ (dBm)	47
Noise Figure (dB)	4.2
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

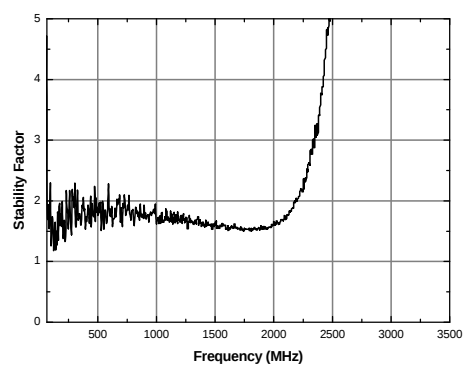
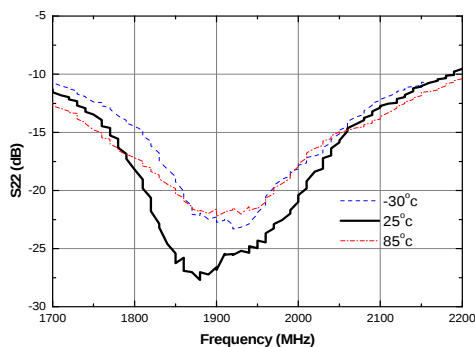
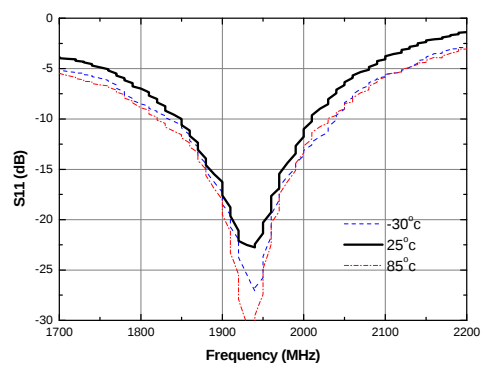
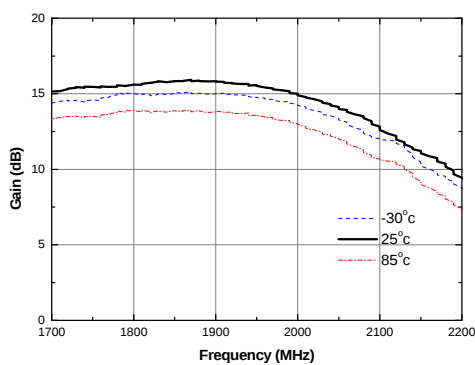
Schematic



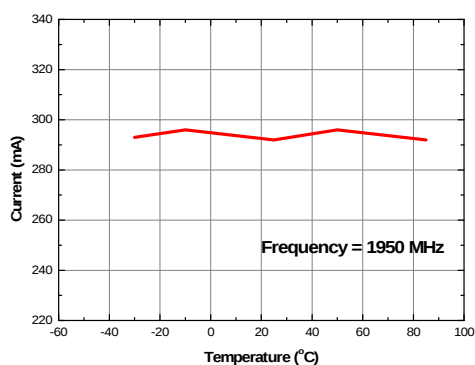
Board Layout (FR4, 40x40 mm², 0.8T)



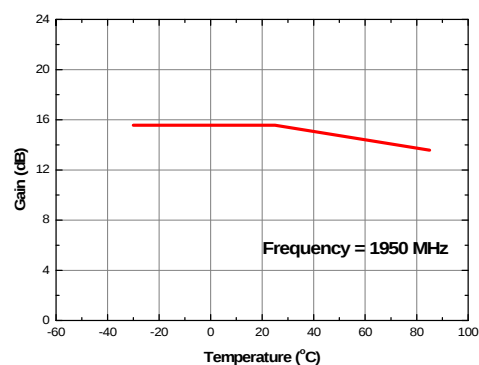
S-parameters & K-factor



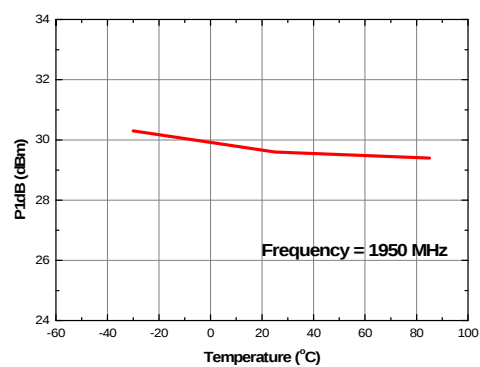
Current vs. Temperature



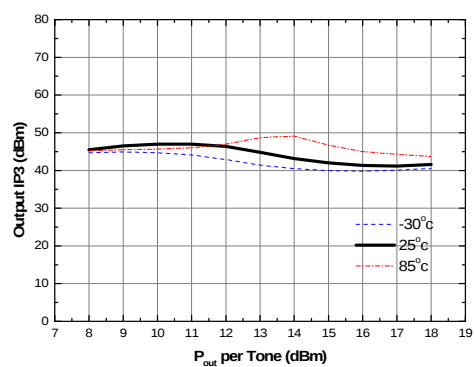
Gain vs. Temperature



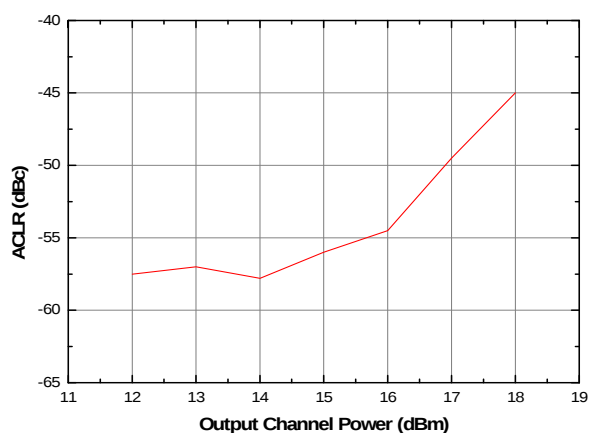
P1dB vs. Temperature



Output IP3 vs. Tone Power (Frequency = 1950 MHz)

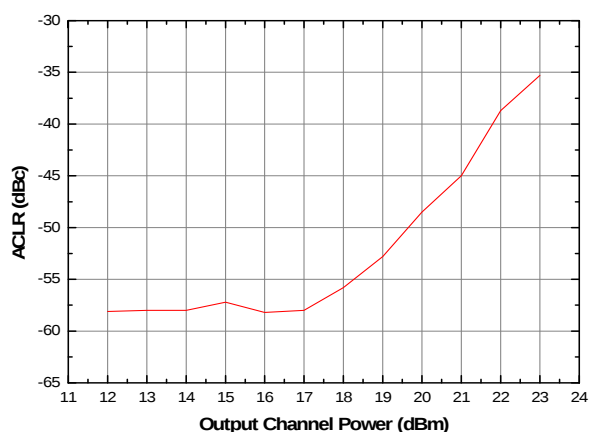


WCDMA ACLR – 4FA



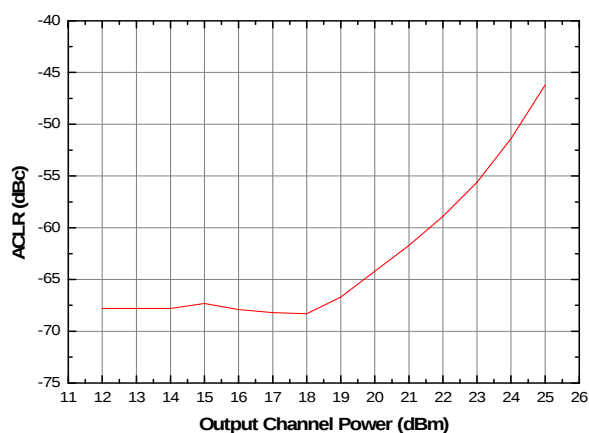
* Test Source : WCDMA 4FA (3GPP 3.4 12-00), Test Model1 w/64 DPCH, PAR=13 dB @ 0.01 % probability on CCDF / 1950 MHz / 5 MHz offset

WCDMA ACLR – 2FA



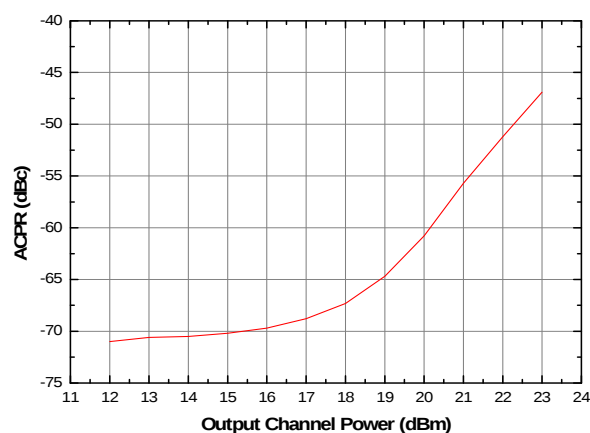
* Test Source : WCDMA 2FA (3GPP 3.4 12-00), Test Model1 w/64 DPCH, PAR= 13 dB @ 0.01 % probability on CCDF / 1950 MHz / 5 MHz offset

WCDMA ACLR – 1FA



* Test Source : WCDMA 1FA (3GPP 3.4 12-00), Test Model1 w/64 DPCH,
PAR= 13 dB @ 0.01 % probability on CCDF / 1950 MHz / 5 MHz offset

CDMA ACPR – 1FA



* Test Source : IS-95, 9 ch. Forward 30kHz Meas BW, 1950 MHz /
750 kHz offset

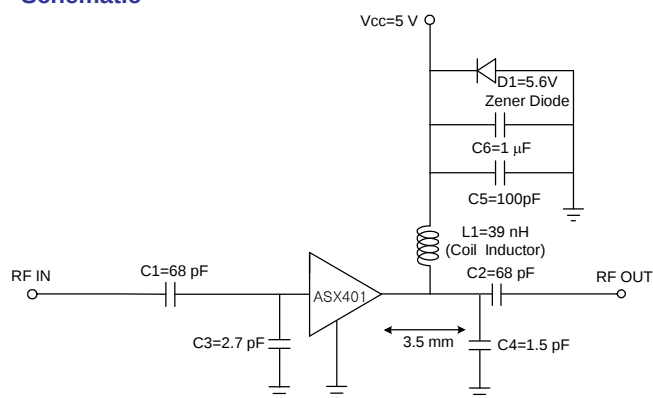
APPLICATION CIRCUIT

WCDMA Tx
2110 ~ 2170 MHz
+5 V

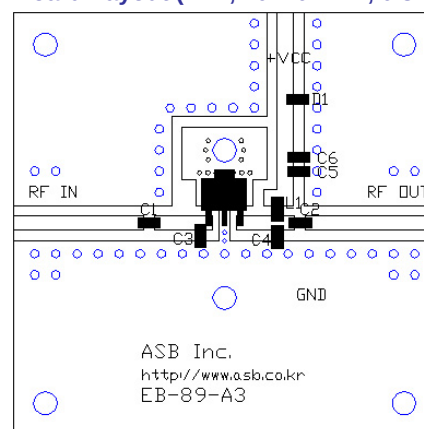
Frequency (MHz)	2110 ~ 2170
Magnitude S21 (dB)	13.0
Magnitude S11 (dB)	-16
Magnitude S22 (dB)	-14
Output P1dB (dBm)	29
Output IP3 ¹⁾ (dBm)	45
Noise Figure (dB)	4.3
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/one separated by 1 MHz.

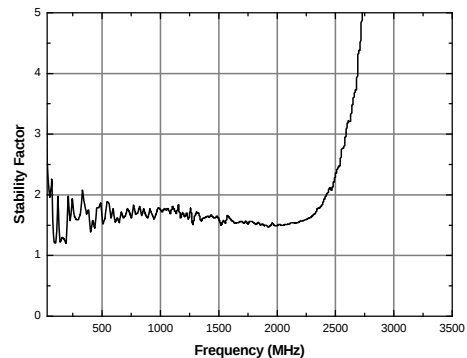
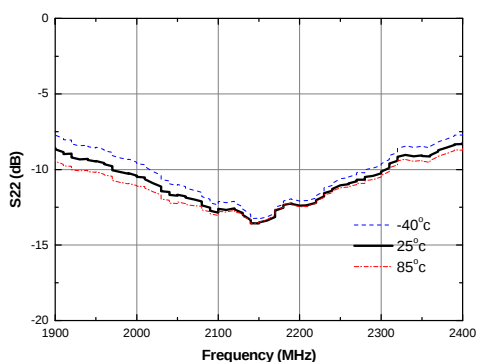
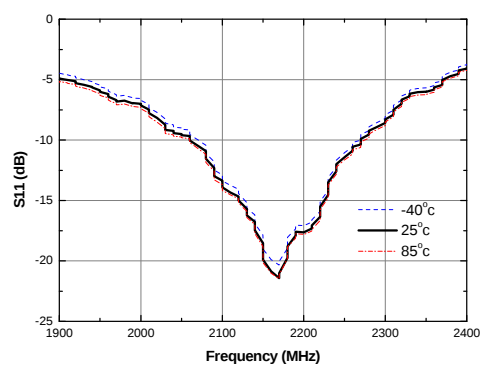
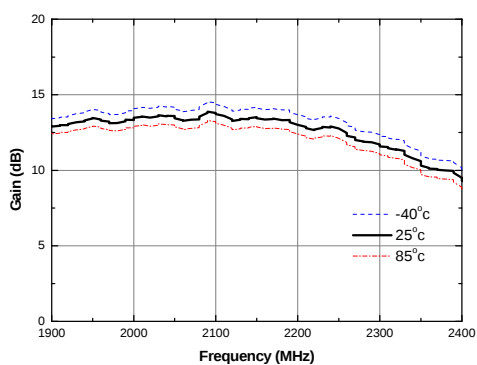
Schematic



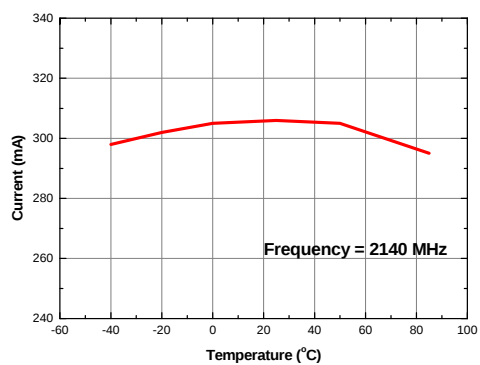
Board Layout (FR4, 40x40 mm², 0.8T)



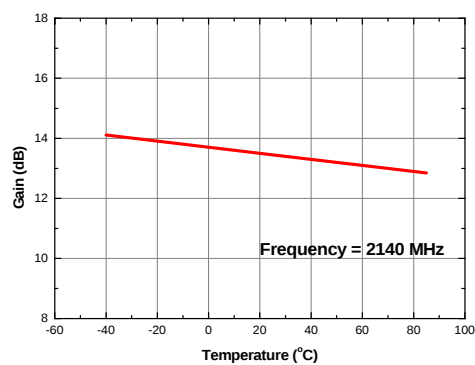
S-parameters & K-factor



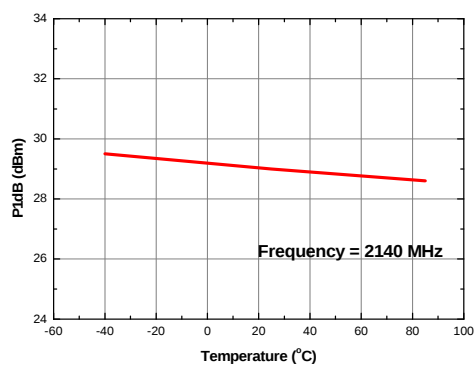
Current vs. Temperature



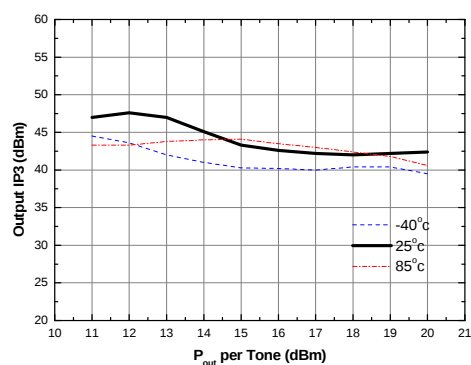
Gain vs. Temperature



P1dB vs. Temperature



Output IP3 vs. Tone Power (Frequency = 2140 MHz)



APPLICATION CIRCUIT

WLAN

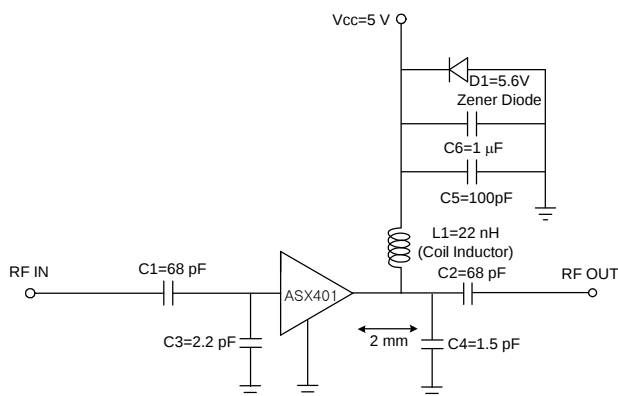
2400 ~ 2500 MHz

+5 V

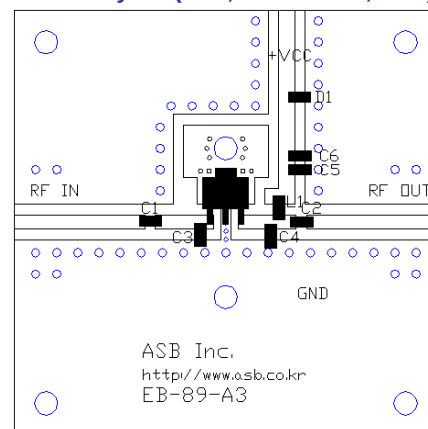
Frequency (MHz)	2400 ~ 2500
Magnitude S21 (dB)	11.0.
Magnitude S11 (dB)	-15
Magnitude S22 (dB)	-16
Output P1dB (dBm)	29.5
Output IP3 ¹⁾ (dBm)	46
Noise Figure (dB)	4.2
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

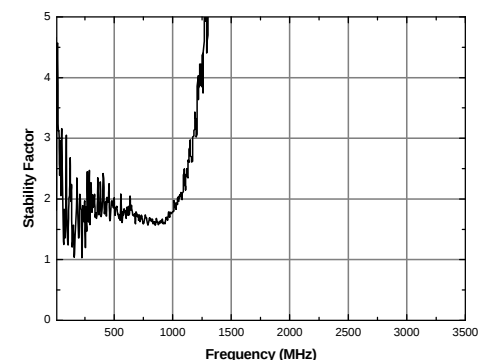
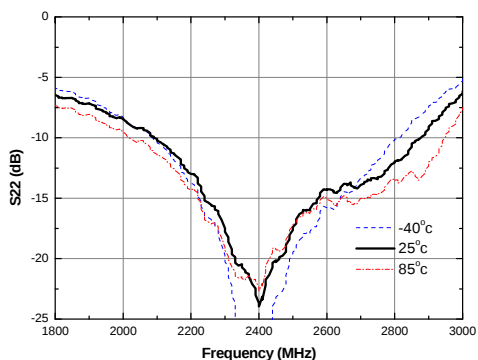
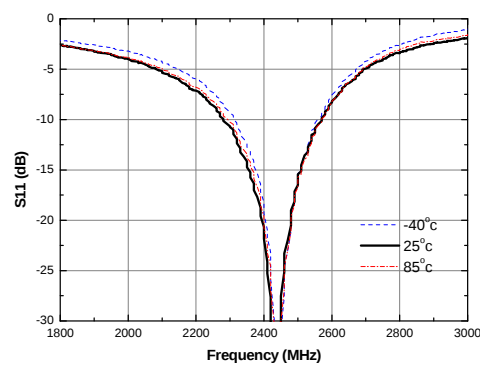
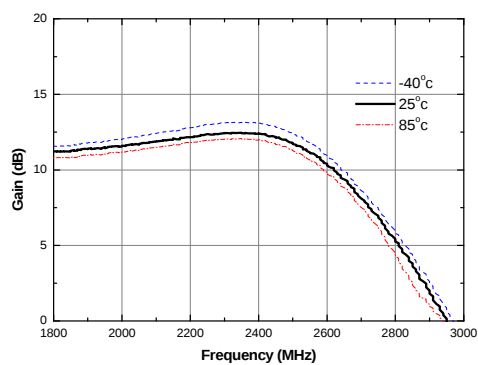
Schematic



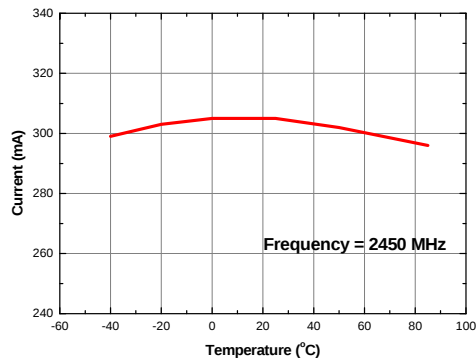
Board Layout (FR4, 40x40 mm², 0.8T)



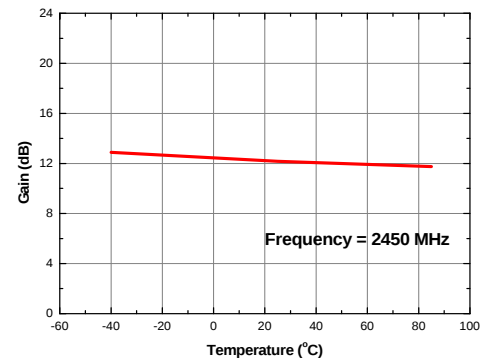
S-parameters & K-factor



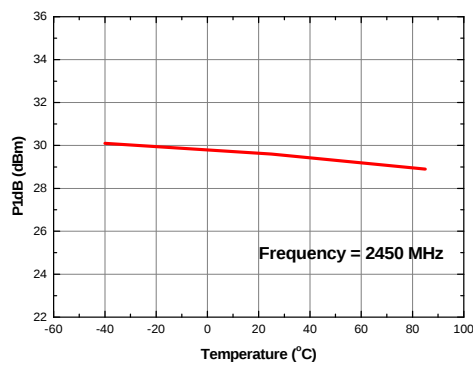
Current vs. Temperature



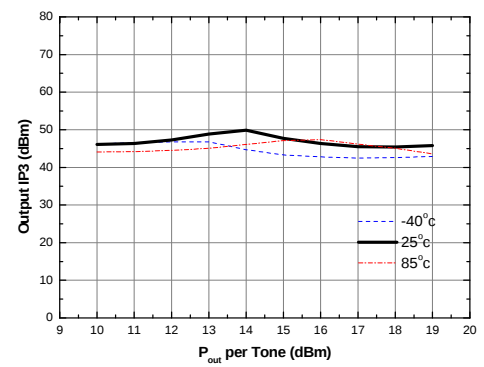
Gain vs. Temperature



P1dB vs. Temperature



Output IP3 vs. Tone Power (Frequency = 2450 MHz)



APPLICATION CIRCUIT

WiMAX

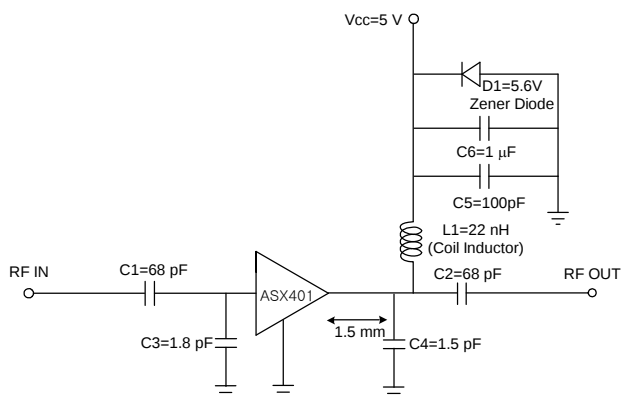
2500 ~ 2700 MHz

+5 V

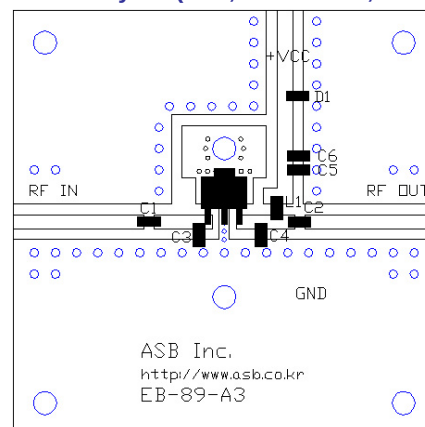
Frequency (MHz)	2500 ~ 2700
Magnitude S21 (dB)	10.0
Magnitude S11 (dB)	-14
Magnitude S22 (dB)	-18
Output P1dB (dBm)	30
Output IP3 ¹⁾ (dBm)	46
Noise Figure (dB)	4.4
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

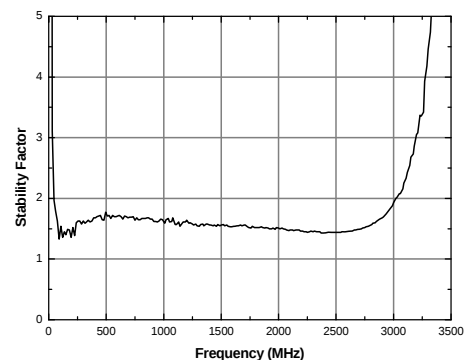
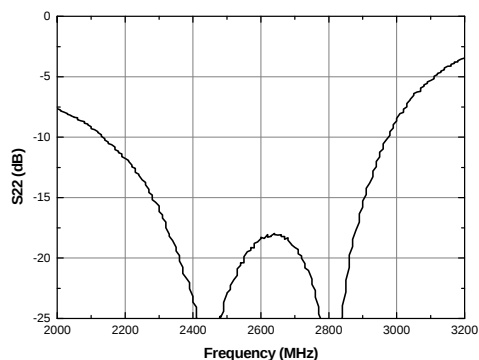
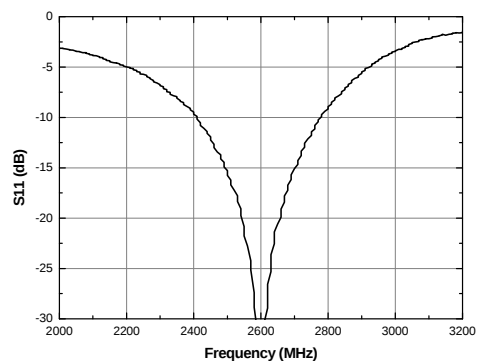
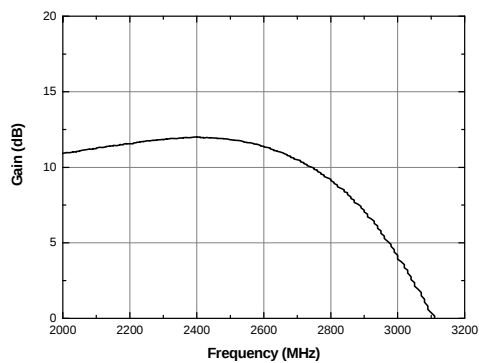
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

WiMAX

2500 ~ 2700 MHz

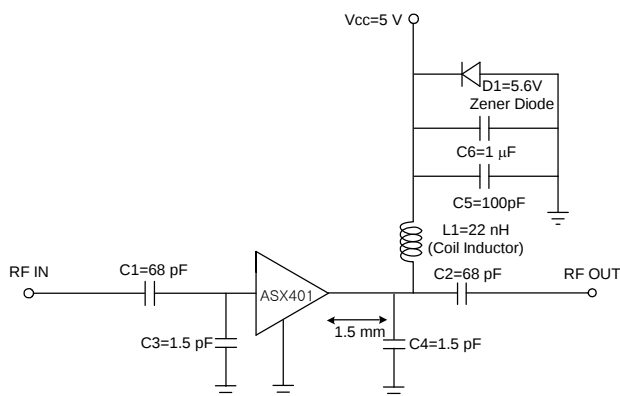
Gain Flatness < 0.5 dB

+5 V

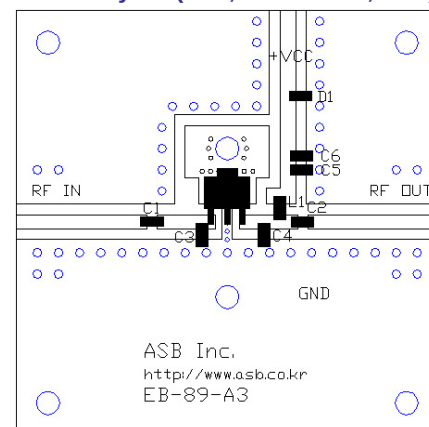
Frequency (MHz)	2500 ~ 2700
Magnitude S21 (dB)	10.0
Magnitude S11 (dB)	-12
Magnitude S22 (dB)	-14
Output P1dB (dBm)	29
Output IP3 ¹⁾ (dBm)	46
Noise Figure (dB)	4.4
Device Voltage (V)	+5
Current (mA)	290

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

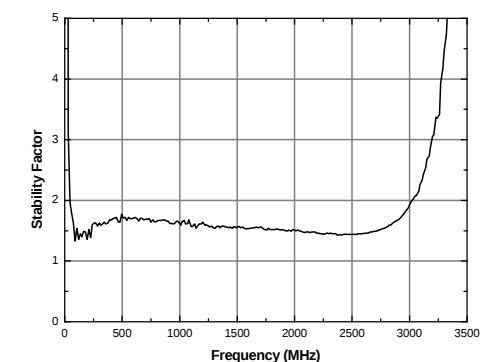
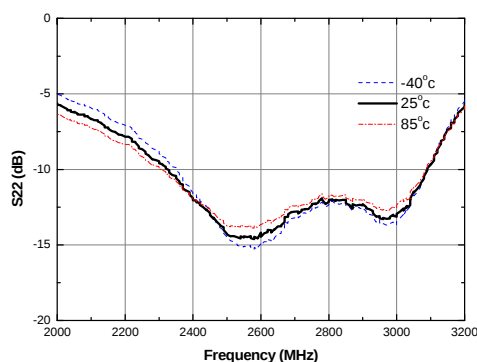
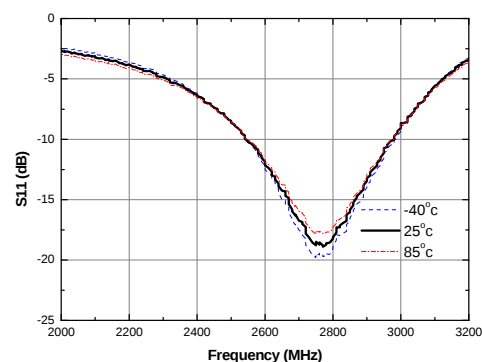
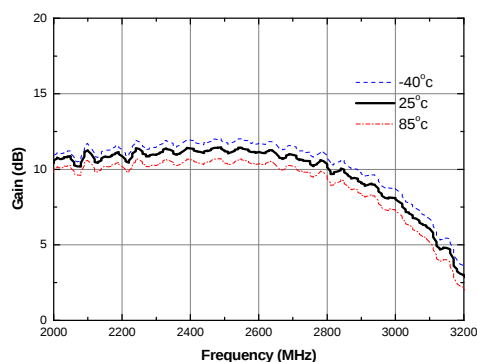
Schematic



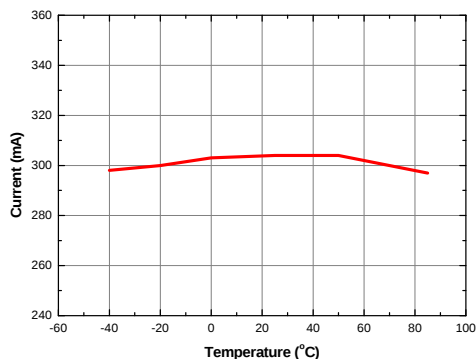
Board Layout (FR4, 40x40 mm², 0.8T)



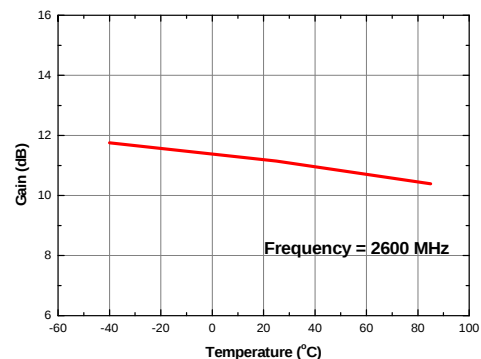
S-parameters & K-factor



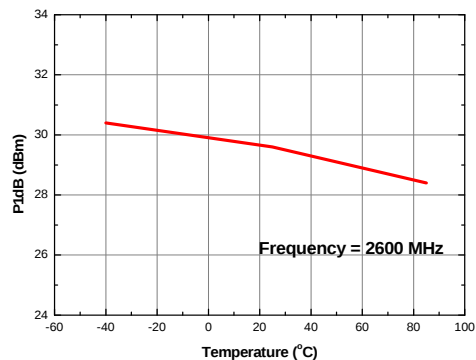
Current vs. Temperature



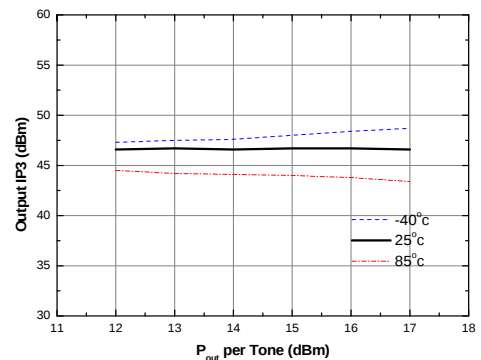
Gain vs. Temperature



P1dB vs. Temperature



Output IP3 vs. Tone Power (Frequency = 2600 MHz)



APPLICATION CIRCUIT

LTE

2300 ~ 2700 MHz

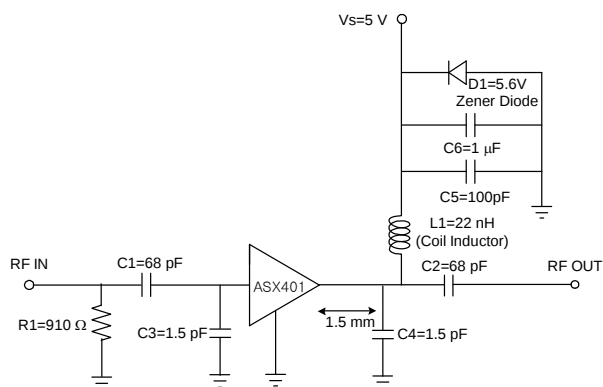
Gain Flatness < 0.5 dB

+5 V

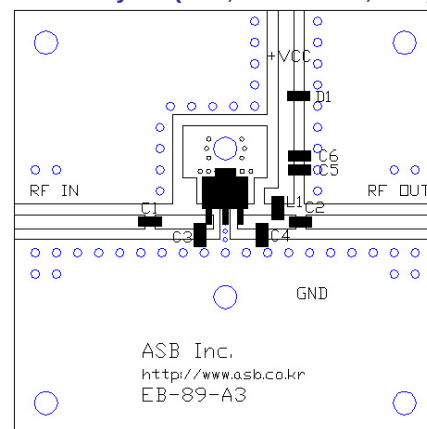
Frequency (MHz)	2300	2500	2700
Magnitude S21 (dB)	10.6	10.7	10.3
Magnitude S11 (dB)	-6	-9	-14
Magnitude S22 (dB)	-16	-20	-17
Output P1dB (dBm)	29.5		
Output IP3 ¹⁾ (dBm)	46		
Noise Figure (dB)	6.1		
Device Voltage (V)	+5		
Current (mA)	290		

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

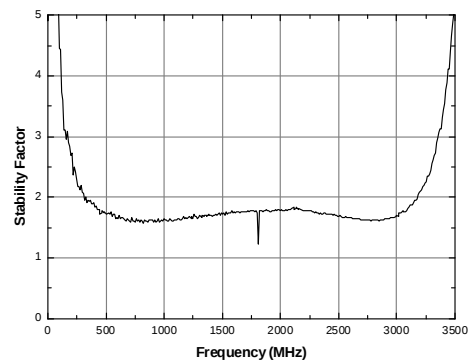
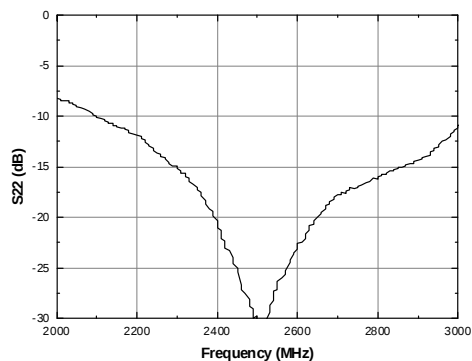
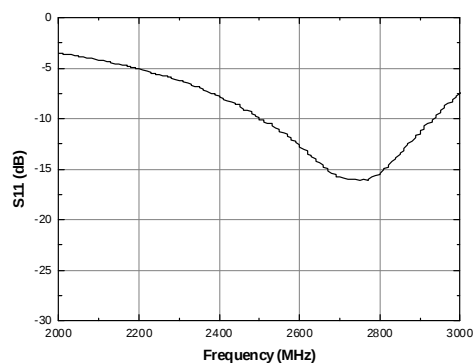
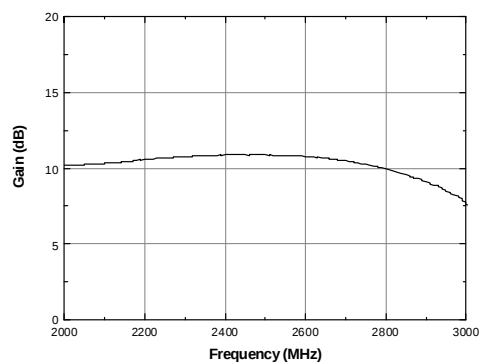
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

Others

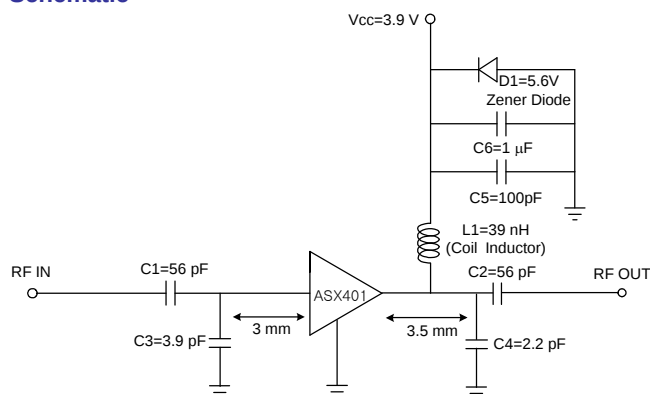
1680 MHz

+3.9 V

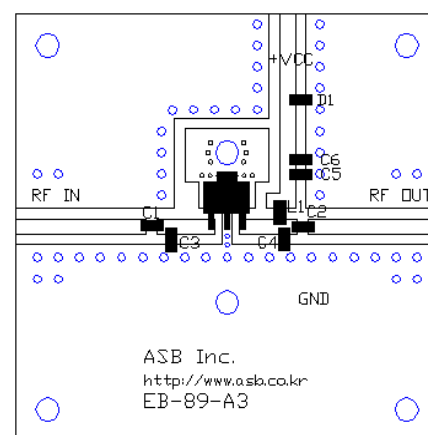
Frequency (MHz)	1680
Magnitude S21 (dB)	14.5
Magnitude S11 (dB)	-20
Magnitude S22 (dB)	-12
Output P1dB (dBm)	27
Output IP3 ¹⁾ (dBm)	34
Noise Figure (dB)	2.6
Device Voltage (V)	+3.9
Current (mA)	100

1) OIP3 is measured with two tones at an output power of +0 dBm/tone separated by 1 MHz.

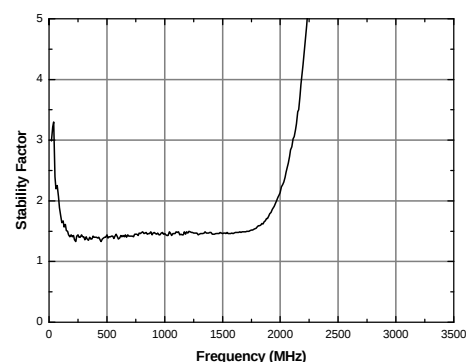
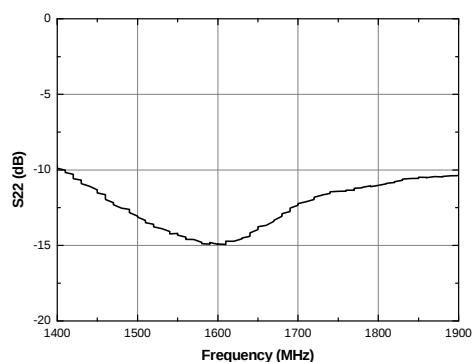
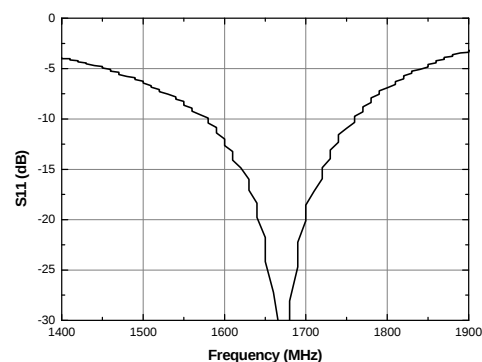
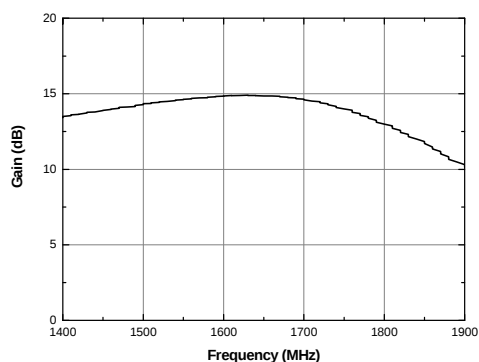
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

Others

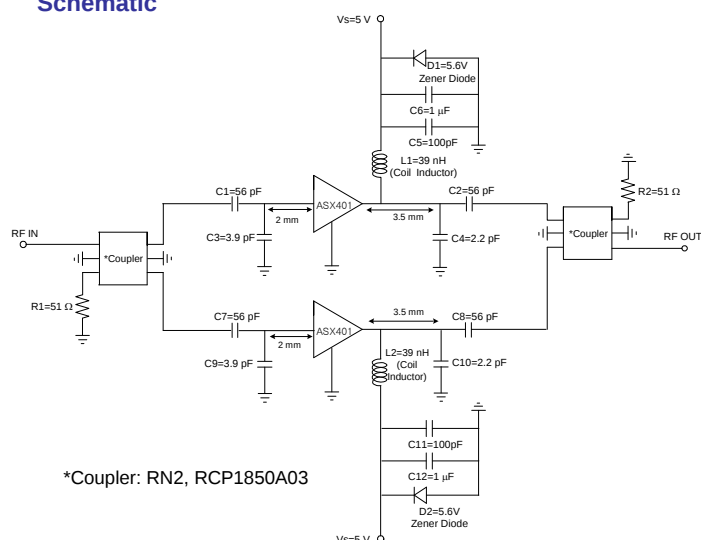
1710 ~ 1785 MHz

+5 V

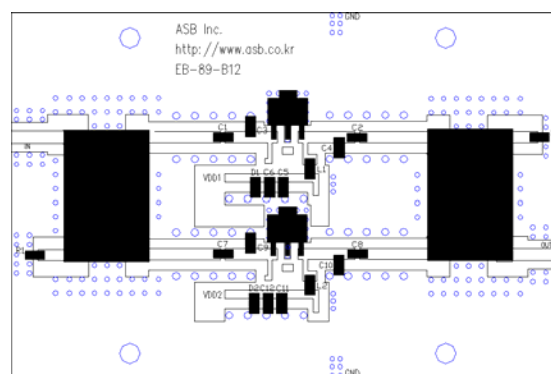
Frequency (MHz)	1710 ~ 1785
Magnitude S21 (dB)	14.0
Magnitude S11 (dB)	-20
Magnitude S22 (dB)	-20
Output P1dB (dBm)	32
Output IP3 ¹⁾ (dBm)	45.5
Noise Figure (dB)	5.2
Device Voltage (V)	+5
Current (mA)	560

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

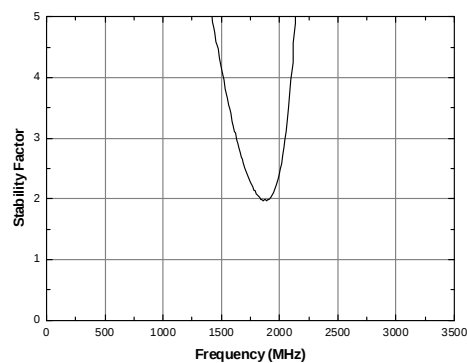
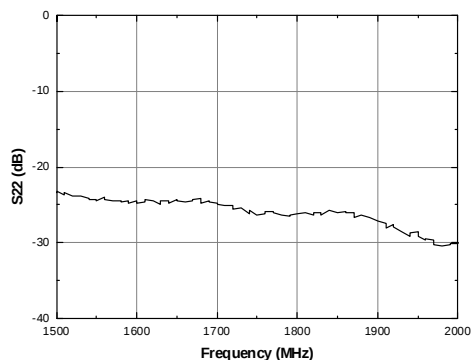
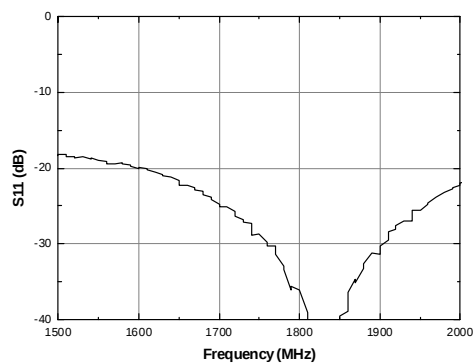
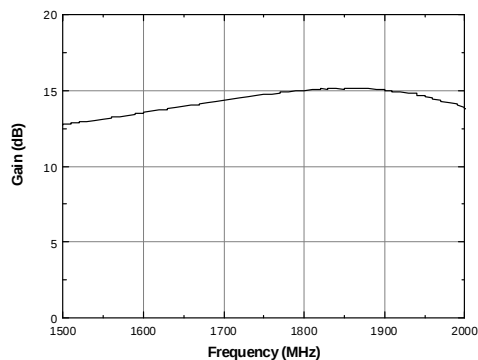
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

Others

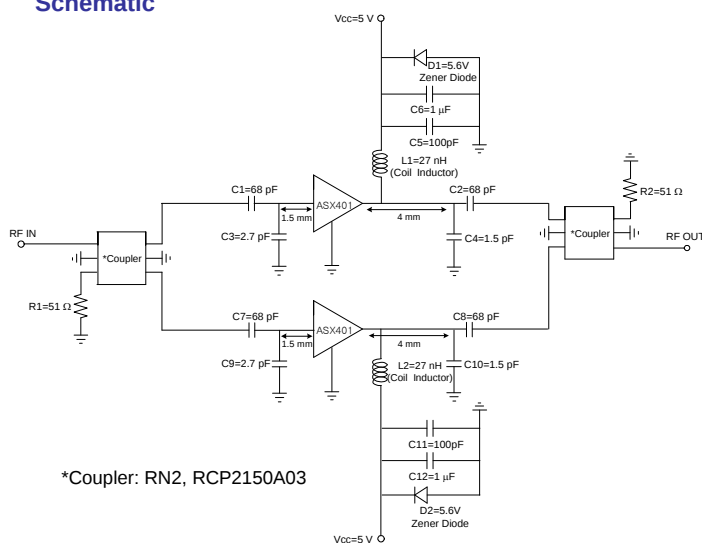
2050 ~ 2350 MHz

+5 V

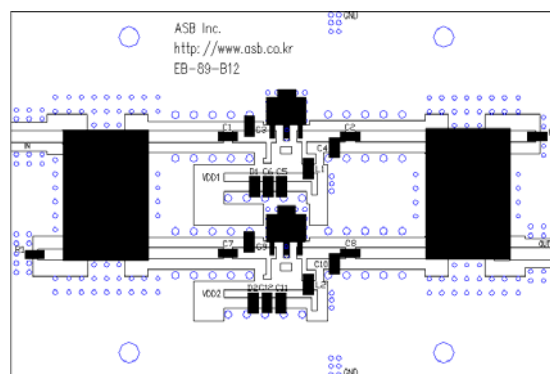
Frequency (MHz)	2050	2200	2350
Magnitude S21 (dB)	12.5	13.0	12.0
Magnitude S11 (dB)	-18	-20	-18
Magnitude S22 (dB)	-18	-18	-16
Output P1dB (dBm)	31.5	32.0	32.0
Output IP3 ¹⁾ (dBm)	45.5	45.5	45.0
Noise Figure (dB)	4.9	4.4	5.1
Device Voltage (V)	+5	+5	+5
Current (mA)	560	560	560

1) OIP3 is measured with two tones at an output power of +12 dBm/tone separated by 1 MHz.

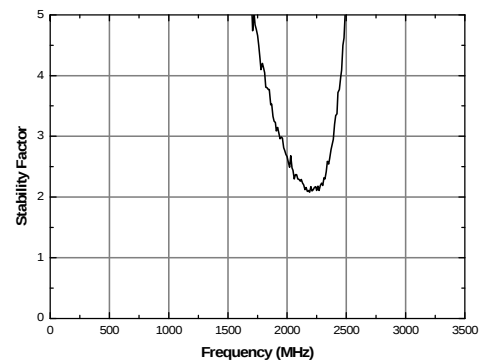
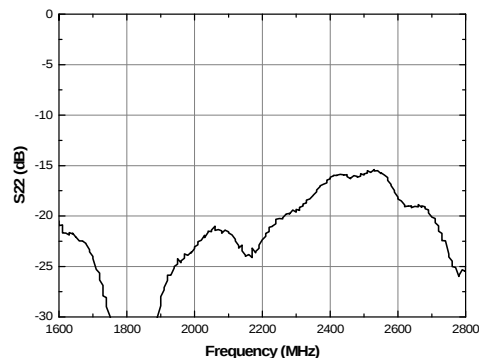
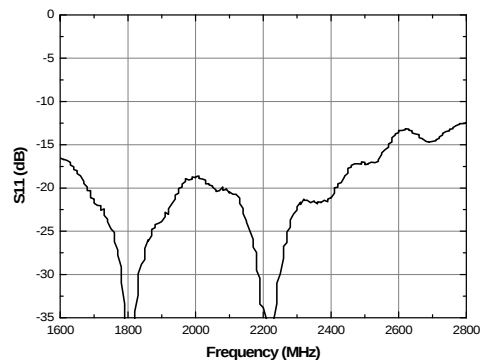
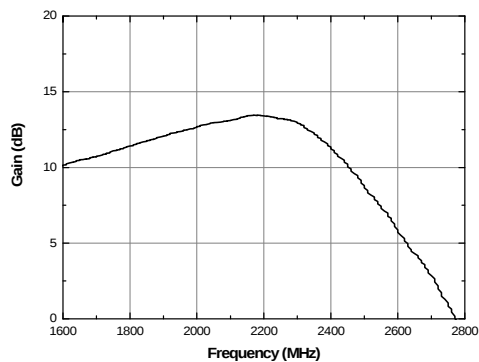
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



Recommended Soldering Reflow Profile

