

Features

- 24.7 dB Gain at 100 MHz
- 23.5 dBm P1dB at 100 MHz
- 41 dBm Output IP3 at 100 MHz
- MTTF > 100 Years
- Single Supply

Description

The ASW350, 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 4 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	
Frequency	MHz	100	250
Gain	dB	24.7	23.0
S11	dB	-15	-15
S22	dB	-18.0	-14.5
Output IP3	dBm	41 ¹⁾	40 ²⁾
Noise Figure	dB	8.0	7.1
Output P1dB	dBm	23.5	23.0
Current	mA	150	150
Device Voltage	V	+5	+5

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

2) OIP3 is measured with two tones at an output power of +7 dBm/tone separated by 1 MHz.

Product Specifications

Parameters	Units	Min	Typ.	Max
Testing Frequency	MHz		100	
Gain	dB	23.0	24.7	
S11	dB		-15	
S22	dB		-18	
Output IP3	dBm	39	41	
Noise Figure	dB		8.0	8.3
Output P1dB	dBm	22.0	23.5	
Current	mA	135	150	165
Device Voltage	V		+5	

Absolute Maximum Ratings

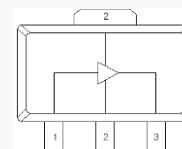
Parameters	Rating
Operating Case Temperature	-40 to +85 °C
Storage Temperature	-40 to +150 °C
Device Voltage	+6 V
Operating Junction Temperature	+150 °C
Input RF Power (CW, 50 Ω matched)*	25 dBm

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

Application Circuit

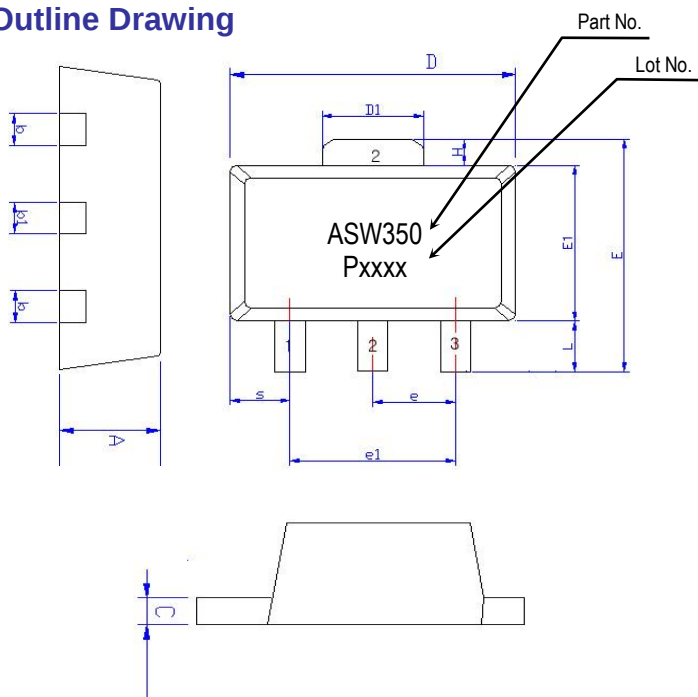
- IF
- IF (250 MHz)

Pin Configuration



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

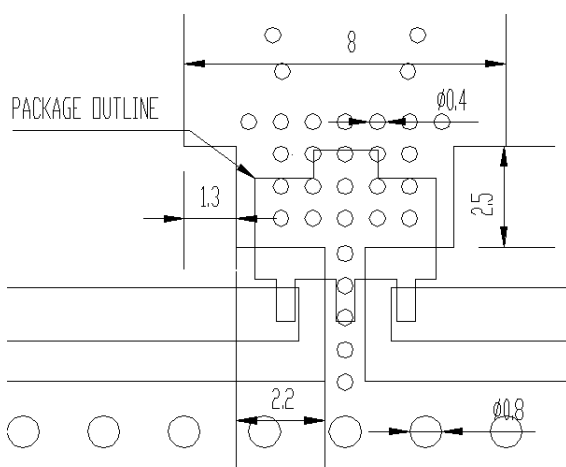
Outline Drawing



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.

Ordering Information

Part Number	Description
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APPLICATION CIRCUIT

IF

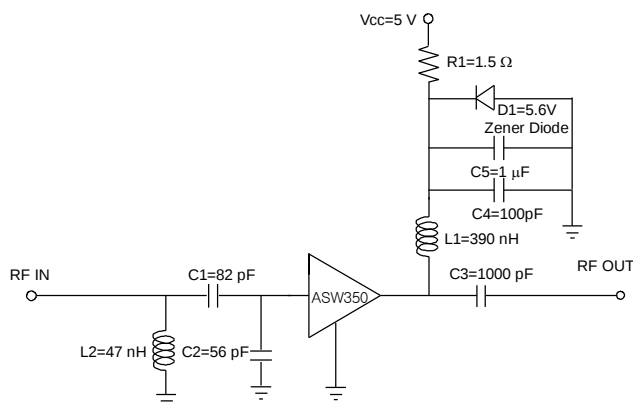
80 ~ 120 MHz

+5 V

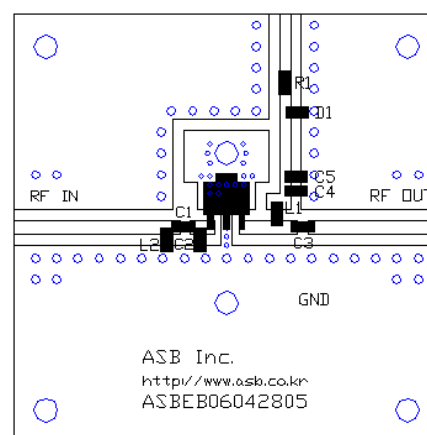
Frequency (MHz)	80	120
Magnitude S21 (dB)	24.5	24.3
Magnitude S11 (dB)	-13	-11
Magnitude S22 (dB)	-18	-16
Output P1dB (dBm)	23.5	
Output IP3 ¹⁾ (dBm)	41	
Noise Figure (dB)	8.0	
Device Voltage (V)	+5	
Current (mA)	150	

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

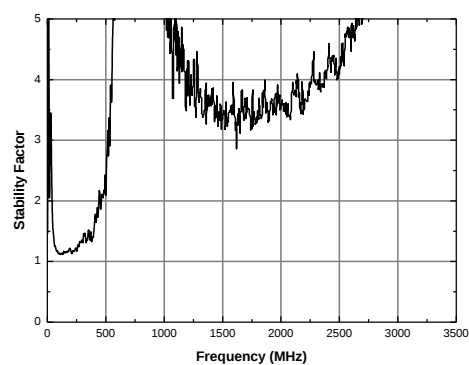
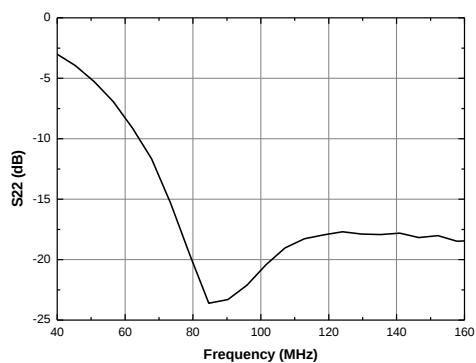
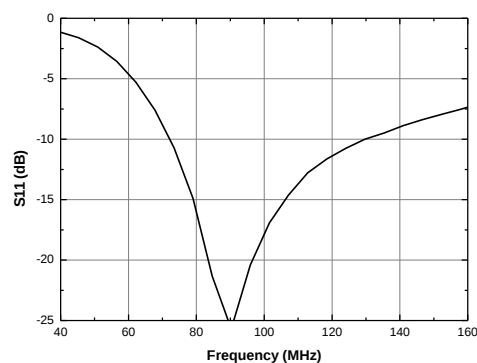
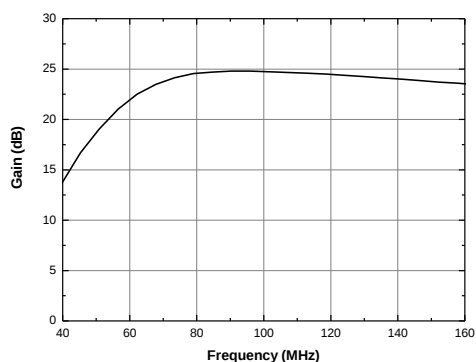
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



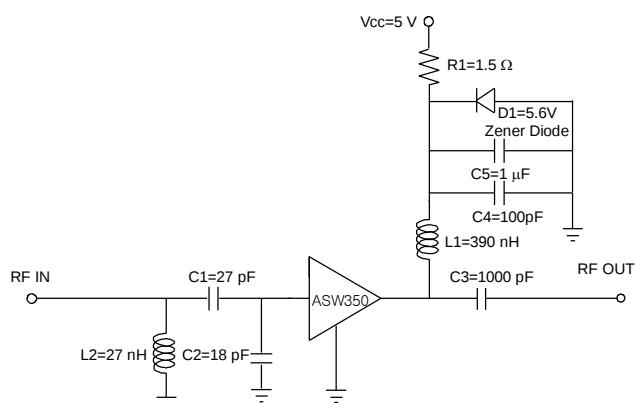
APPLICATION CIRCUIT

IF
250 MHz
+5 V

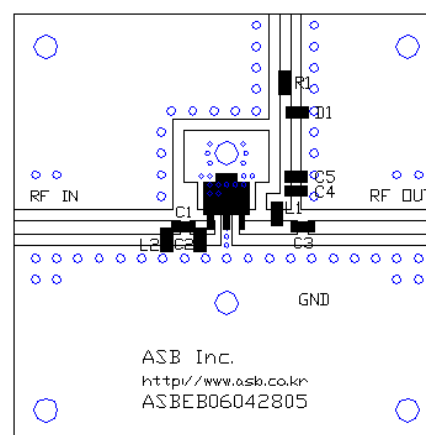
Frequency (MHz)	250
Magnitude S21 (dB)	23
Magnitude S11 (dB)	-15
Magnitude S22 (dB)	-14.5
Output P1dB (dBm)	23
Output IP3 ¹⁾ (dBm)	40
Noise Figure (dB)	7.1
Device Voltage (V)	+5
Current (mA)	150

1) OIP3 is measured with two tones at an output power of +7 dBm/tone separated by 1 MHz.

Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor

