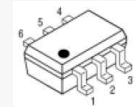


Features

- 19.5 dB Gain at 2 GHz
- 18 dBm P1dB at 2 GHz
- 30.5 dBm Output IP3 at 2 GHz
- 3.5 dB NF at 2 GHz
- MTTF > 100 Years
- Single Supply

Description

The ASW235, 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 6 GHz. The amplifier is available in an SOT-363 package and passes through the stringent DC, RF, and reliability tests.



Package Style: SOT-363

Typical Performance

Parameters	Units	Typical		
		900	2000	2700
Frequency	MHz	900	2000	2700
Gain	dB	23	19.5	17.5
S11	dB	-13	-15	-18
S22	dB	-10	-12	-12
Output IP3 ¹⁾	dBm	29	30.5	30
Noise Figure	dB	3.3	3.5	3.9
Output P1dB	dBm	16	18	17
Current	mA	46	46	46
Device Voltage	V	4.65	4.65	4.65

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

Application Circuit

- 5 ~ 140 MHz
- 500 ~ 2700 MHz
- IF

Product Specifications

Parameters	Units	Min	Typ	Max
Testing Frequency	MHz		2000	
Gain	dB		19.5	
S11	dB		-15	
S22	dB		-12	
Output IP3	dBm		30.5	
Noise Figure	dB		3.5	
Output P1dB	dBm		18	
Current	mA		46	
Device Voltage	V		4.65	

Absolute Maximum Ratings

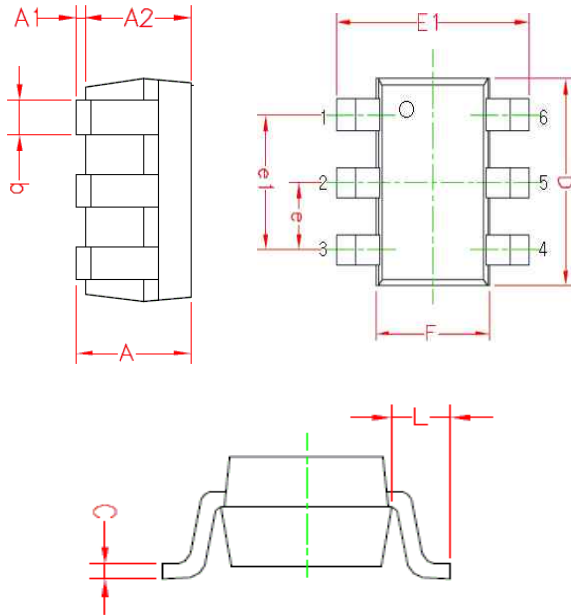
Parameters	Rating
Operating Case Temperature	-40 to +85°C
Storage Temperature	-40 to +150°C
Device Voltage	+5.5 V
Operating Junction Temperature	+150°C
Input RF Power (Continuous)	22 dBm

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

Pin Configuration

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

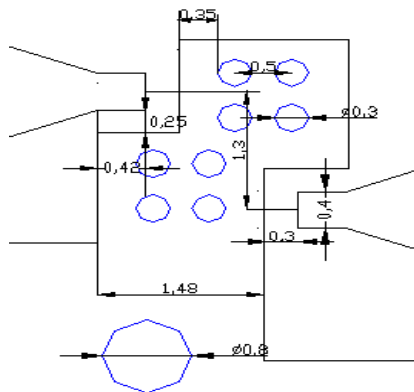
Outline Drawing



Symbols	Dimensions (In mm)		
	MIN	NOM	MAX
A	0.90	1.00	1.10
A1	0.025	0.062	0.10
A2	0.875	0.937	1.00
b	0.20	0.30	0.40
C	0.10	0.125	0.15
D	1.90	2.00	2.10
F	1.15	1.25	1.35
E1	2.00	2.10	2.20
e	--	0.65BSC	--
e1	--	1.30BSC	--
L	--	0.425REF	--

Pin NO.	Function	Pin NO.	Function.
1	RF OUT / Bias	4	RF IN
2	GND	5	GND
3	GND	6	GND

Mounting Recommendation



- 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 lead pin 2 for better RF and thermal performance, as shown in the drawing at the left side.

ESD Classification & Moisture Sensitivity Level

ESD Classification

HBM	Class 1A
	Voltage Level: 400 V
MM	Class A
	Voltage Level: 50 V

CAUTION: ESD-sensitive device!

Moisture Sensitivity Level (MSL)

Level 3 at 260°C reflow

APPLICATION CIRCUIT

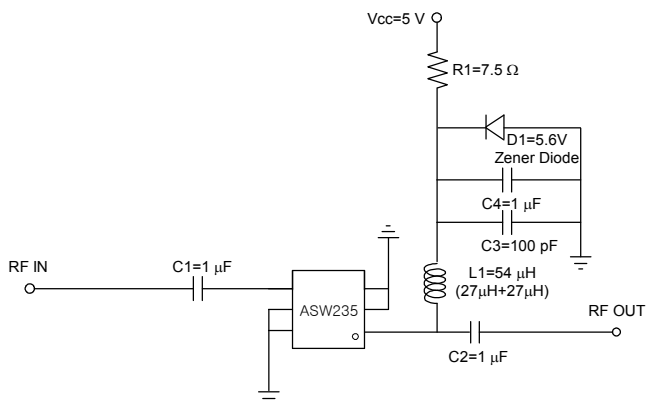
5 ~ 140 MHz

+5 V

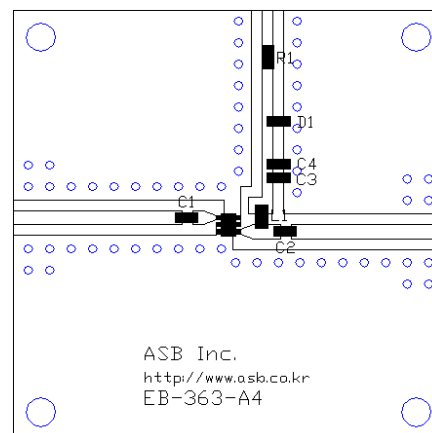
Frequency (MHz)	5	140
Magnitude S21 (dB)	24.5	24.5
Magnitude S11 (dB)	-17	-17
Magnitude S22 (dB)	-8	-8
Output P1dB (dBm)	14	14
Output IP3 ¹⁾ (dBm)	25.5	25.5
Noise Figure (dB)	3.3	3.3
Device Voltage (V)	4.65	4.65
Current (mA)	46	46

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

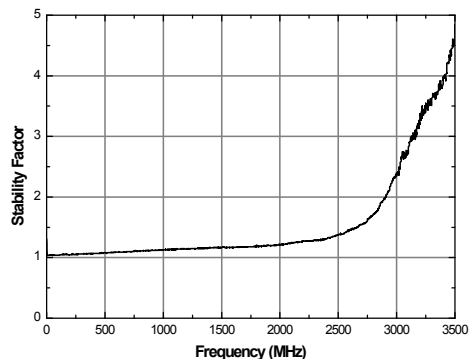
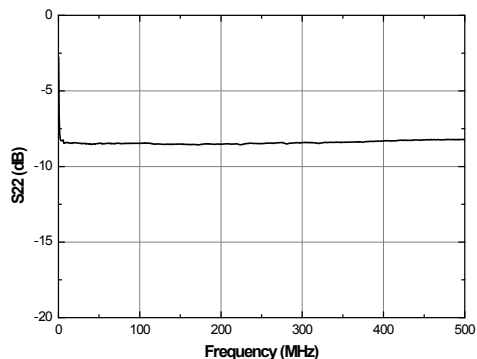
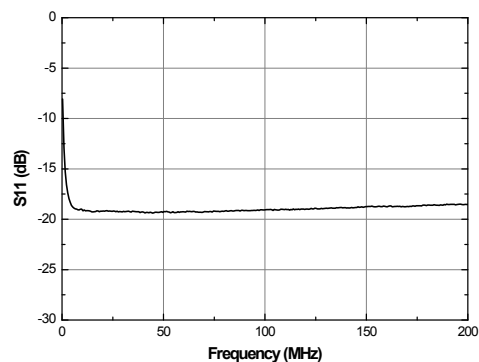
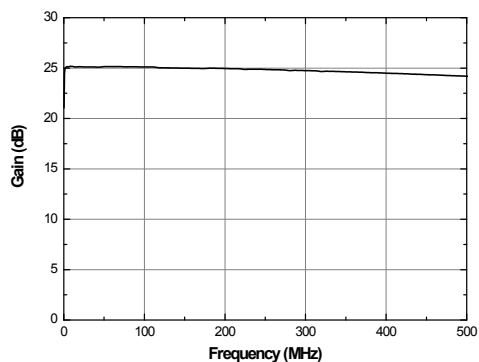
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

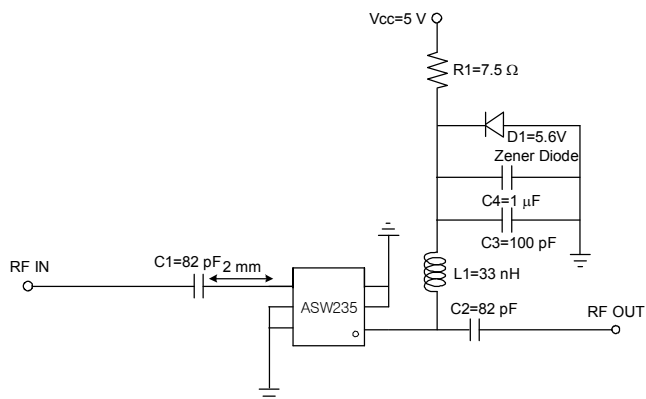
500 ~ 2700 MHz

+5 V

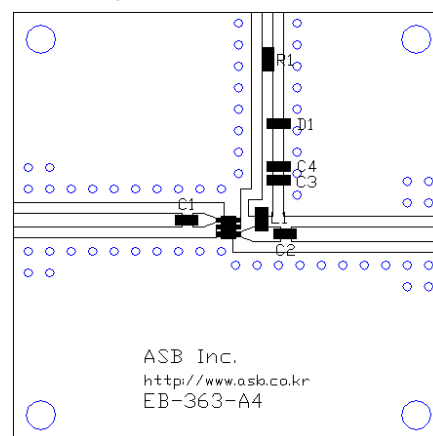
Frequency (MHz)	900	2000	2700
Magnitude S21 (dB)	23	19.5	17.5
Magnitude S11 (dB)	-13	-15	-18
Magnitude S22 (dB)	-10	-12	-12
Output P1dB (dBm)	16	18	17
Output IP3 ¹⁾ (dBm)	29	30.5	30
Noise Figure (dB)	3.3	3.5	3.9
Device Voltage (V)	4.65	4.65	4.65
Current (mA)	46	46	46

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

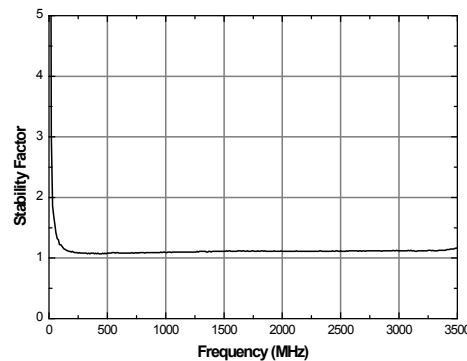
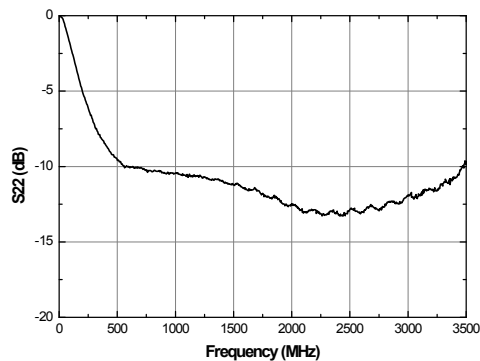
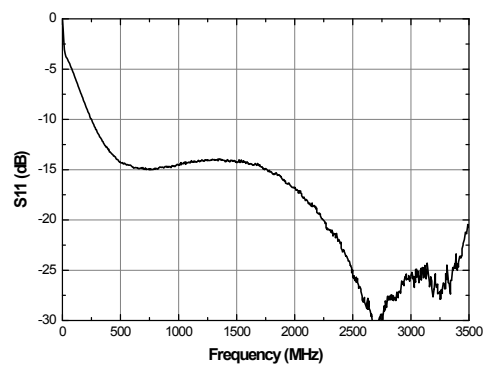
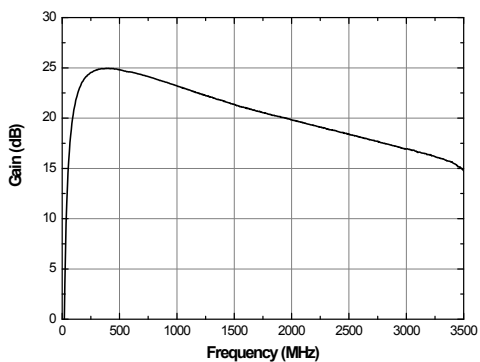
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



APPLICATION CIRCUIT

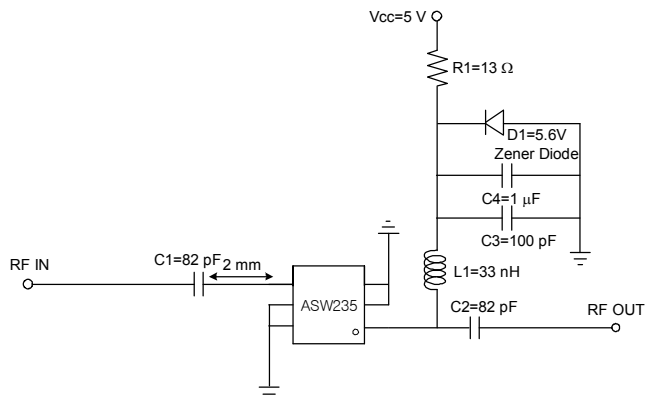
500 ~ 2700 MHz

+5 V / 36 mA

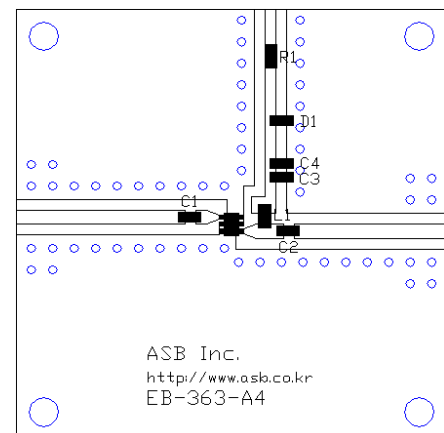
Frequency (MHz)	900	2000	2700
Magnitude S21 (dB)	22.5	19	17
Magnitude S11 (dB)	-13	-15	-18
Magnitude S22 (dB)	-9	-12	-11
Output P1dB (dBm)	13	16	16
Output IP3 ¹⁾ (dBm)	25.5	28	29
Noise Figure (dB)	3.2	3.4	3.8
Device Voltage (V)	4.3	4.3	4.3
Current (mA)	36	36	36

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

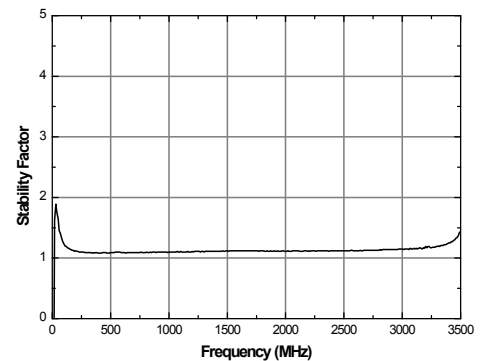
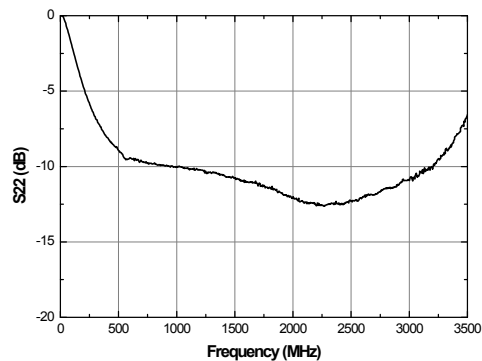
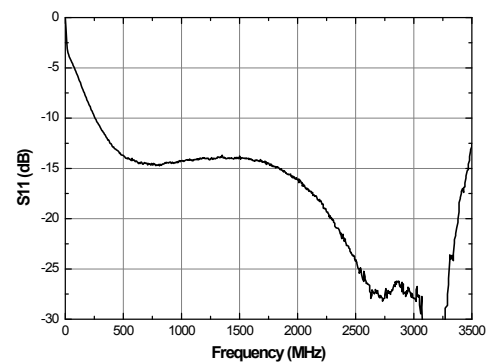
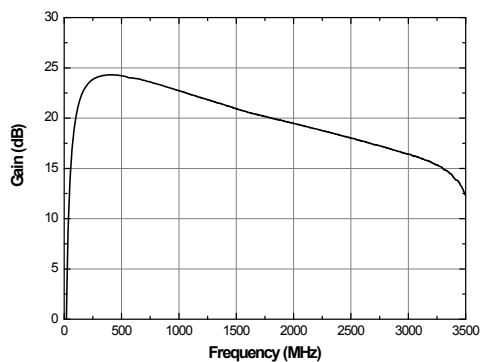
Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor



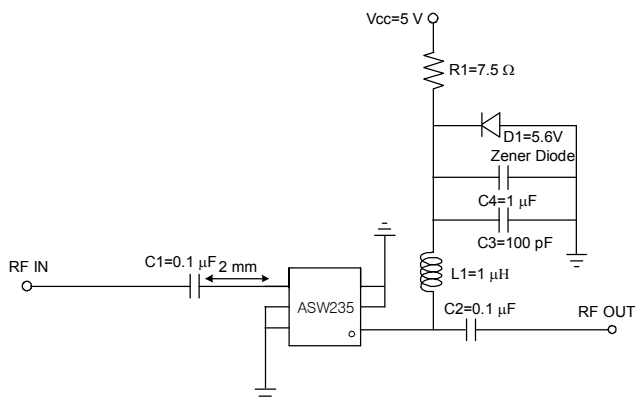
APPLICATION CIRCUIT

IF
50 ~ 450 MHz
+5 V

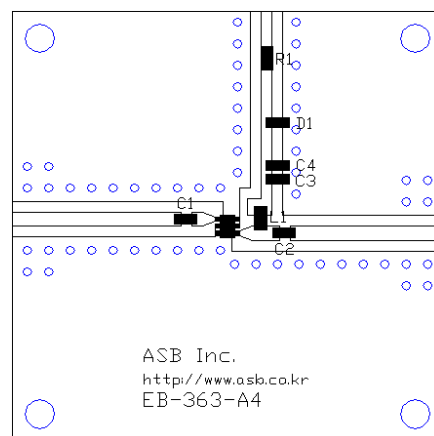
Frequency (MHz)	70	150	300
Magnitude S21 (dB)	24	24	24
Magnitude S11 (dB)	-12	-12	-12
Magnitude S22 (dB)	-8	-8	-8
Output P1dB (dBm)	15	15	16
Output IP3 ¹⁾ (dBm)	27	28	29
Noise Figure (dB)	3.3	3.3	3.4
Device Voltage (V)	4.65	4.65	4.65
Current (mA)	46	46	46

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

Schematic



Board Layout (FR4, 40x40 mm², 0.8T)



S-parameters & K-factor

