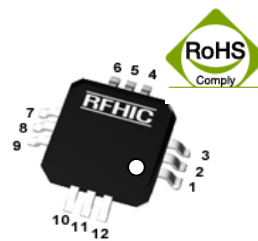


## Product Features

- Small size
- SMD Type Package
- NO matching circuit needed
- High efficiency
- Dual supply voltage
- Higher linearity
- 12 pin Air cavity package
- Higher productivity
- Lower manufacturing cost
- GaAs MMIC
- 3 – 2000MHz
- -63dBc CSO 135 Channels@ output Level +37dBmV
- -60dBc CTB 135 Channels@ output Level +37dBmV

## Application

- Satellite
- Converter
- CATV
- Optical node



Package : SP12

## Description

The power amplifier is designed for base stations and repeater systems.

GaAs MMIC is used and attached on a copper carrier of 12 pin air cavity package with dual supply voltage.

\*The data in this spec sheet is valid only for 75 ohm application. 50 ohm data is in a separate spec sheet.

## Operating Ranges

PARAMETER	UNIT	MIN	TYP	MAX
Device Voltage	VDC		+5	+5.3
Case Temperature	°C	-40	-	+85

## Absolute Minimum and Maximum Ratings

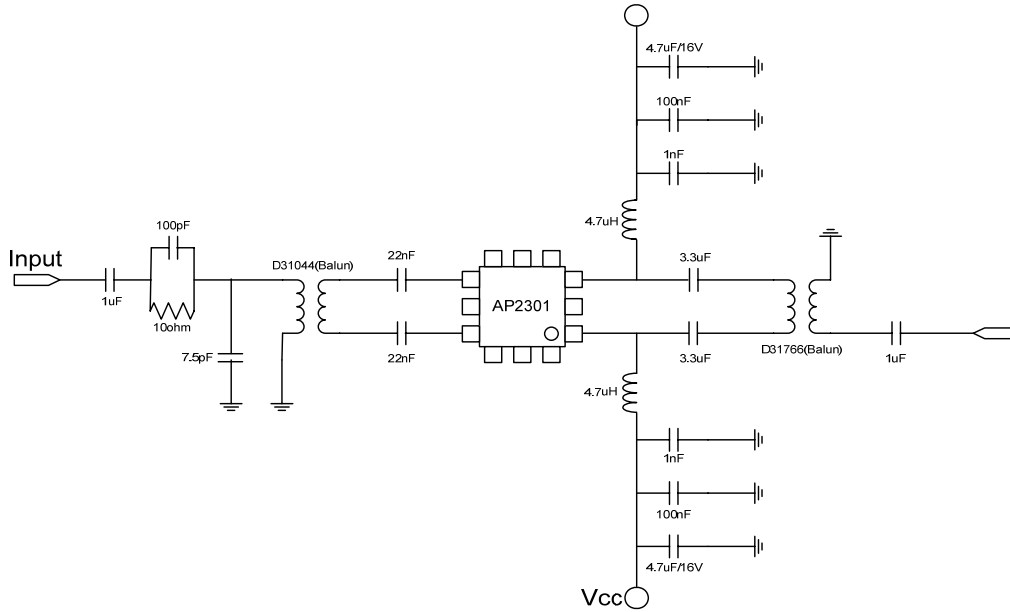
PARAMETER	UNIT	MIN	MAX
Device Voltage	VDC		+5.5
Device Current	mA		+320
RF Input Power	dBm		+10
Storage Temperature	°C	-40	+150

## Specifications

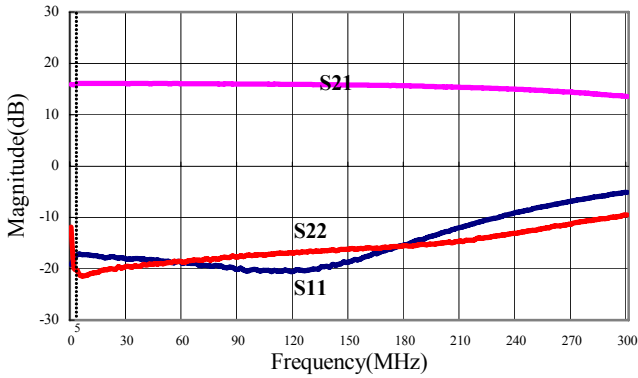
T=25°C, Vcc=5.0V, 75Ω system

Parameter	Units	Minimum	Typical	Maximum	Condition
Frequency Range	MHz		3MHz~2.0GHz		
Supply Voltage	V		5		Vcc=5V
Single Ended CATV Evaluation Circuit					
Current	mA	200	220	250	
S21-Gain	dB		16		3MHz
S21-Gain	dB	14.5	15		50MHz
S21-Gain	dB	14.5	15		2000MHz
Reverse ( 3 ~ 200MHz )					
S11-Input Return Loss	dB		-16	-13	
S22-Output Return Loss	dB		-16	-13	
Noise Figure					
OIP3	dBm	41	43		+10dBm/2 tone separated by 1MHz
OIP1	dBm	20	22		At 100MHz
Forward ( 50 ~ 870MHz )					
S11-Input Return Loss	dB		-11	-8	
S22-Output Return Loss	dB		-11	-8	
OIP3	dBm	36	38		+10dBm/2 tone separated by 1MHz
OIP1	dBm	20	22		At 800MHz
Noise Figure					
CSO	50 - 870MHz	dBc	-63	-55	135 channels,+37dBmV/ch,Single
CTB		dBc	-60	-60	135 channels,+37dBmV/ch,Single
XMD		dBc	-60	-55	135 channels,+37dBmV/ch,Single
CSO	3 - 150MHz	dBc	-70		8 channels,+45dBmV/ch,Single
CTB		dBc	-73		8 channels,+45dBmV/ch,Single
XMD		dBc	-70		8 channels,+45dBmV/ch,Single

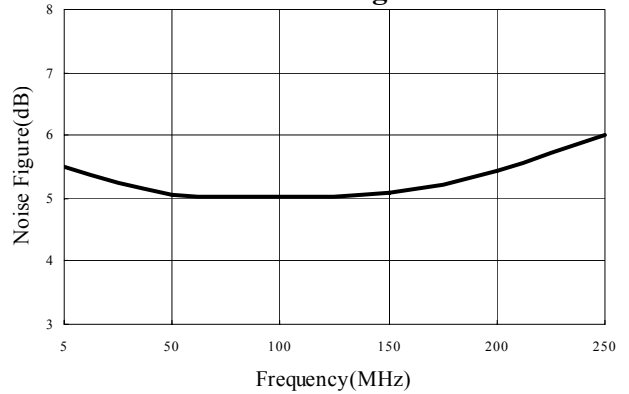
Application Circuit: 3MHz ~ 200MHz



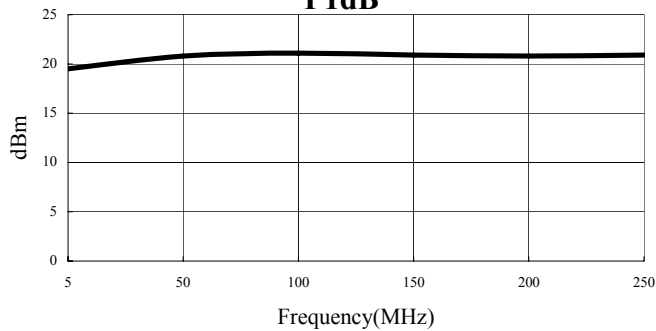
S-Parameters



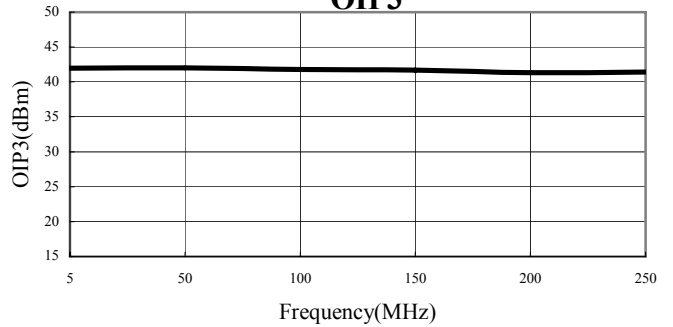
Noise Figure



P1dB

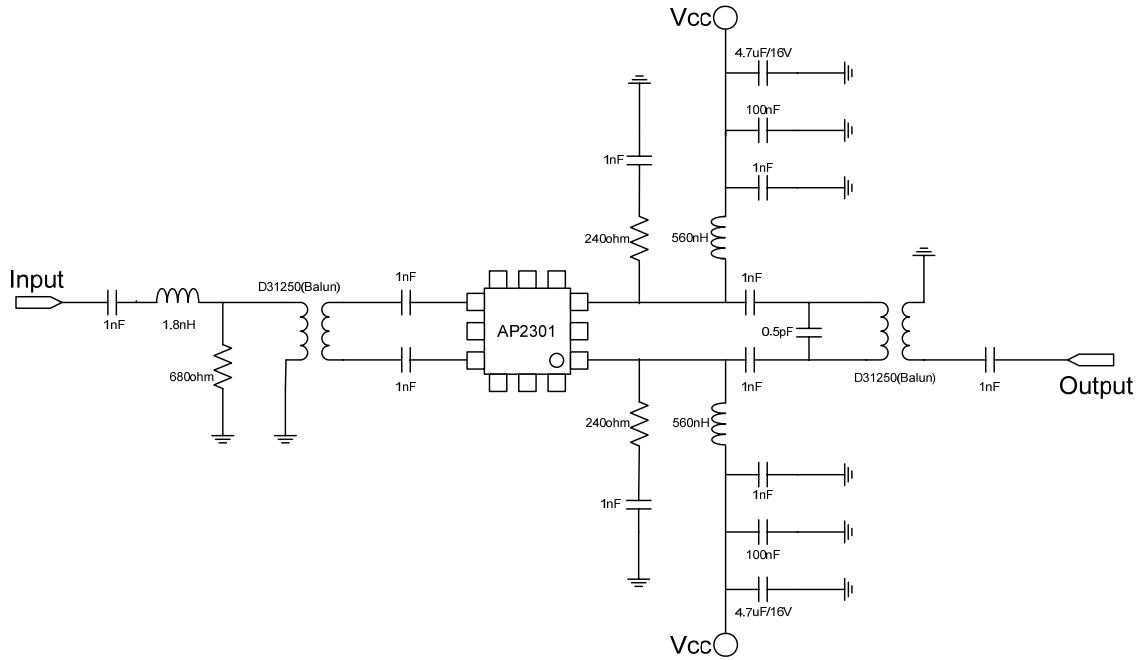


OIP3

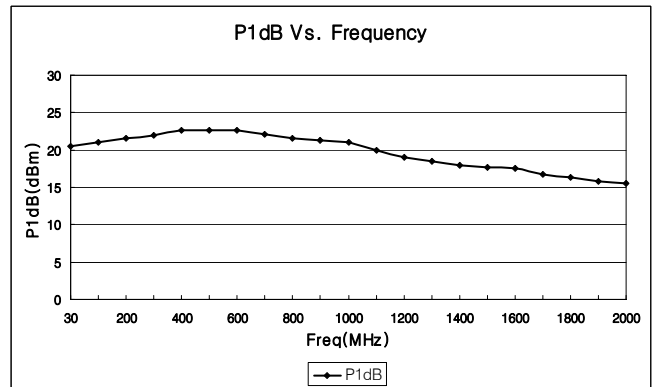
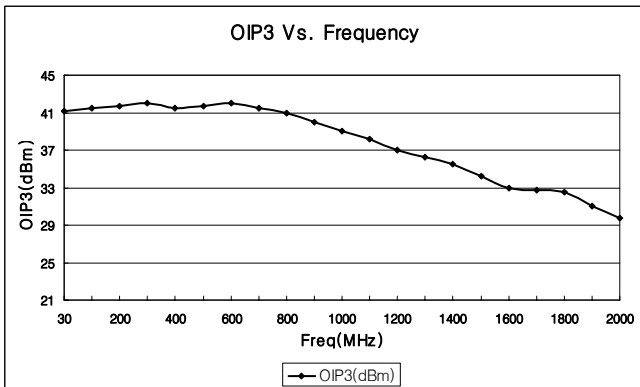
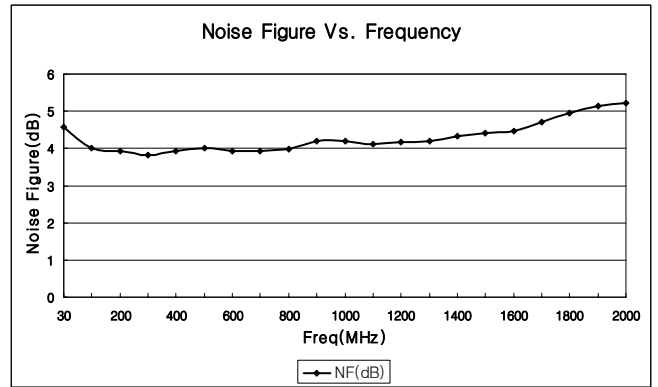
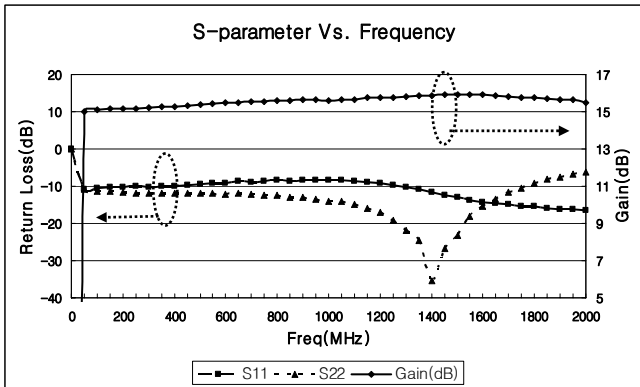


Level: +45dBmV		Tilt: 8CH FLAT									
FRQ	XMD(NCTA)	CTB_RAW	CTB_COR	N-FLR	CSU_RAW	CSU_COR	CSU_FRQ	CSL_RAW	CSL_COR	CSL_FRQ	
7	72.2	79.9	80.1	93.6	92.4	96.7	7.63	71.7	71.7	5.99	
31	72.8	78.6	78.8	92.1	78.1	78.4	32	76.6	76.8	29.99	
49	72.1	79.8	80.1	91.8	78.2	78.4	49.99	90.5	94.8	48.31	

Application Circuit: 30MHz ~ 2000MHz



Performance Charts ( $V_{dc}=5V, I_d=220mA, T_c=25^\circ C$ )



Multi-Tone Test 135ch@+30dBmV (V<sub>cc</sub> +5V)

Level: +30dBm		Tilt: FLAT_CH135								
FRQ	XMD(NCTA)	CTB_RAW	CTB_COR	N-FLR	CSU_RAW	CSU_COR	CSU_FRQ	CSL_RAW	CSL_COR	CSL_FRQ
55.25	74.2	75.5	79.8	76.9	76.6	80.9	55.93	76	80.3	54
77.25	75	76.1	80.4	77.1	76.1	80.4	77.99	76.9	81.2	76.25
109.25	74.9	76.1	80.4	77.6	77.5	81.8	109.96	77.1	81.4	107.99
211.25	74.8	76.1	80.4	77.7	77.4	81.8	212.31	77.1	81.4	209.99
331.25	75.7	74.9	79.2	76.3	76	80.4	331.88	75.9	80.2	329.98
445.25	76.3	75.6	79.9	77	76.7	81.1	446.48	76.6	81	443.98
547.25	77.7	74.3	78.7	75.3	74.9	79.2	548.42	74.9	79.2	545.99
637.25	77.4	74.5	78.8	75.8	75	79.3	638.49	75.4	79.7	635.99
745.25	77.4	73.9	78.3	75.2	74.2	78.6	746.48	74.8	79.2	743.92
859.25	77.8	72.6	76.9	73.6	72.6	77	860.48	73.2	77.5	858.49
Min	74.2	72.6	76.9	73.6	72.6	77	55.93	73.2	77.5	54
Max	77.8	76.1	80.4	77.7	77.5	81.8	860.48	77.1	81.4	858.49

Multi-Tone Test 135ch@+37dBmV (V<sub>cc</sub> +5V)

Level: +37dBmV		Tilt: 135CH FLAT								
FRQ	XMD(NCTA)	CTB_RAW	CTB_COR	N-FLR	CSU_RAW	CSU_COR	CSU_FRQ	CSL_RAW	CSL_COR	CSL_FRQ
55.25	60.4	66.7	66.9	82.9	80.2	83.2	55.99	67.4	67.5	53.99
77.25	60.9	68.3	68.4	83.2	68.5	68.7	78	82.9	87.2	76.22
109.25	61	66.4	66.4	84.1	80.3	82.9	110	70.4	70.6	108
211.25	60.4	66.9	67	83.6	76.1	77	212.5	71.5	71.8	209.99
331.25	61.6	65.7	65.7	82.5	73.3	73.9	332.5	72.3	72.8	329.99
445.25	61.5	66.2	66.3	82.9	73.2	73.7	446.49	73.8	74.4	443.99
547.25	62.7	66.3	66.4	81.4	72.4	73	548.5	74.1	75.1	545.99
637.25	62.5	66.1	66.3	81.6	73.2	73.9	638.49	75.9	77.2	635.98
745.25	62.8	66.6	66.8	81.5	73.9	74.7	746.5	78.1	80.6	743.99
859.25	63.3	67	67.2	79.7	74.4	76.1	860.49	78.8	83.1	858.49
Min	60.4	65.7	65.7	79.7	68.5	68.7	55.99	67.4	67.5	53.99
Max	63.3	68.3	68.4	84.1	80.3	83.2	860.49	82.9	87.2	858.49

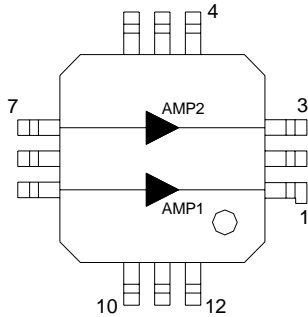
**ESD PROTECTION**

For a safe use in all situations, it is recommended to have proper ESD control techniques while the device is being handled. Here are some recommended precautions;

- Person at a workbench should be earthed via a wrist strap and a resistor.
- All mains-powered equipment should be connected to the mains via an earth-leakage switch.
- Equipment cases should be grounded.
- Relative humidity should be maintained between 40% and 50%.
- An ionizer is recommended.
- Keep static materials, such as plastic envelopes and plastic trays etc. away from the workbench

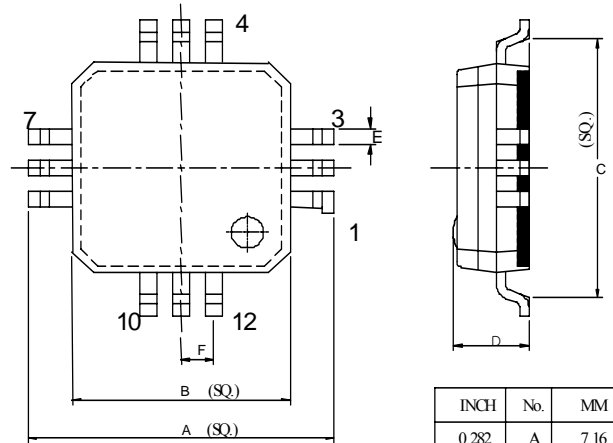
**Dimension : PMBG-SQFP-12**

Block Diagram

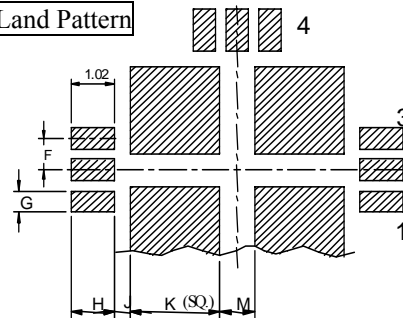


Function	Pin No.
Input	7, 9
Output , Bias	1, 3
Ground	2,4, 5, 6,8, 10, 11, 12 Backside Copper

Outline Drawing



Land Pattern



INCH	No.	MM
0.282	A	7.16
0.2	B	5.08
0.246	C	6.25
0.069	D	1.75
0.015	E	0.38
0.03	F	0.76
0.2	G	0.51
0.4	H	1.02
0.14	J	0.36
0.83	K	2.1
0.32	M	0.8

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