## Product Features

- 50 ~ 3000 MHz
- GaAs MMIC
- 42dBm Output IP3
- 13dB Gain
- 24dBm P1dB
- Single +5V Supply

## Applications

- CDMA, W-CDMA Medium Power Amplifier
- High Linearity Drive Amplifier



Package Type : SOIC-8

## Description

AP211 is a high linearity amplifier designed with GaAs MMIC in a low cost.
AP211 is designed for applications such as GSM, CDMA, W-CDMA drive devices which require high IP3.

## Electrical Specifications @ Ta=+25℃, $V_{DD}$=+5V, Fc=900 MHz

| PARAMETER | UNIT | MIN | TYP | MAX |
|---|---|---|---|---|
| Gain | dB | 12 | 13 | - |
| Input Return Loss | dB | - | -20 | - |
| Output Return Loss | dB | - | -22 | - |
| Output IP3 | dBm | 38 | 42 | - |
| 1dB Compression Point | dBm | - | 24 | - |
| Noise Figure | dB | - | 2.5 | - |
| DC Current | mA | - | 230 | - |
| Supply Voltage | VDC | - | 5 | - |
| Thermal Resistance (Rth) | ℃/W | - | - | 33 |

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

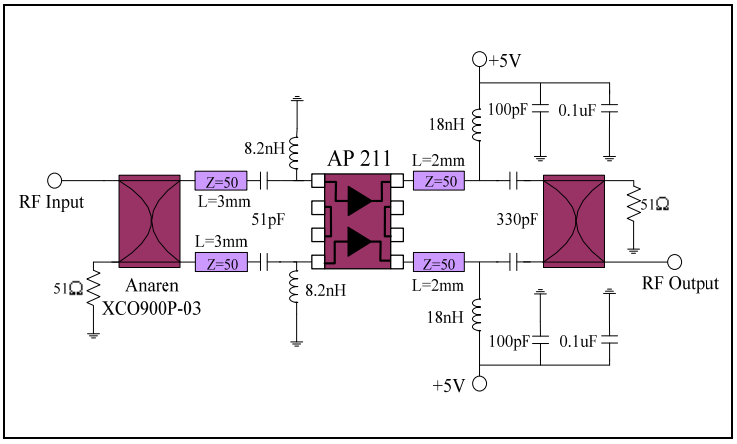
## Absolute Maximum Ratings

| PARAMETER | UNIT | MIN | MAX |
|---|---|---|---|
| Device Voltage | VDC | - | 8 |
| RF Input Power | dBm | - | 10 |
| Storage Temperature | ℃ | -40 | 150 |

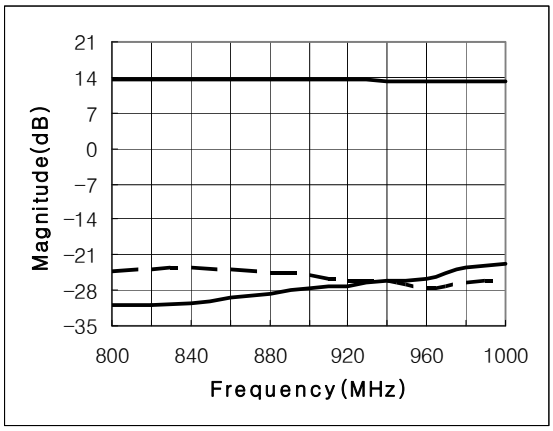
## Operating Ranges

| PARAMETER | UNIT | MIN | TYP | MAX |
|---|---|---|---|---|
| Operating Frequency | MHz | 50 | - | 3000 |
| Device Voltage | VDC | - | 5 | 6 |
| Case Temperature | ℃ | -40 | - | 85 |

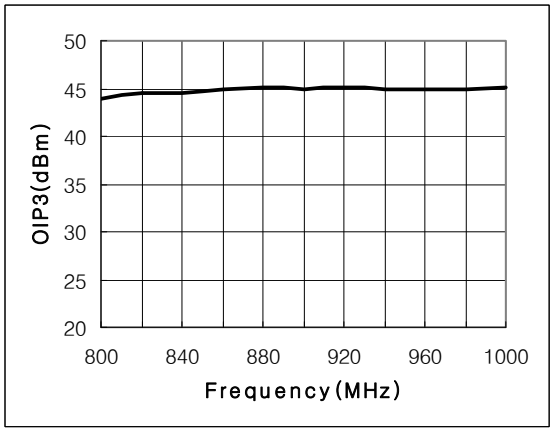
## Application Circuit @ 900MHz



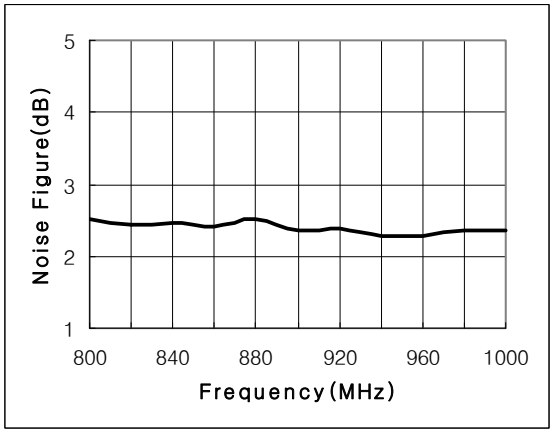

**S-Parameter vs. Frequency**



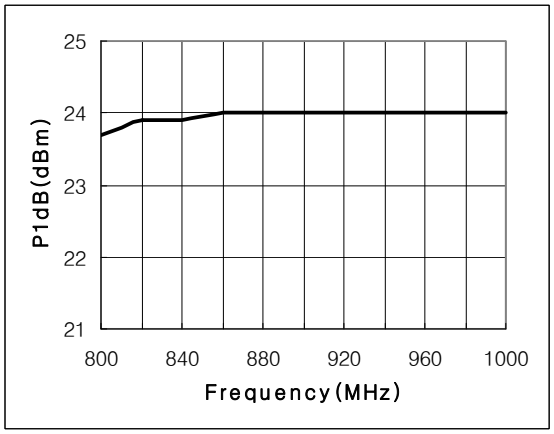

**OIP3 vs. Frequency**



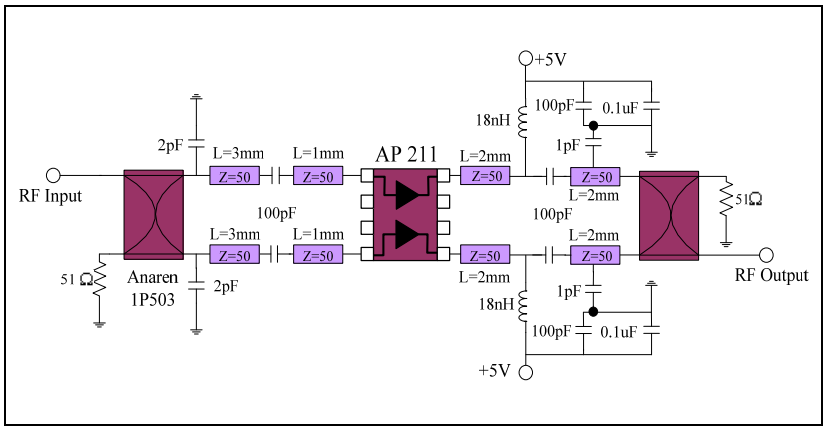

**Noise Figure vs. Frequency**



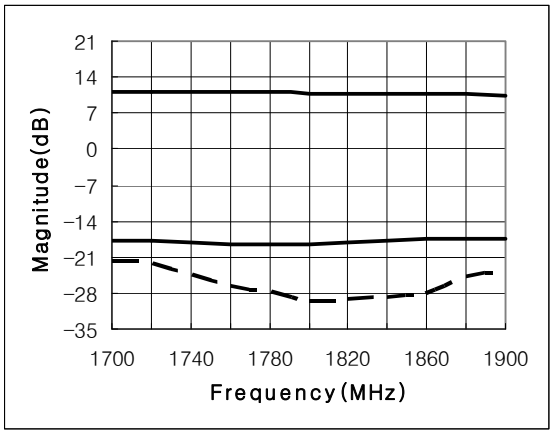

**P1dB vs. Frequency**



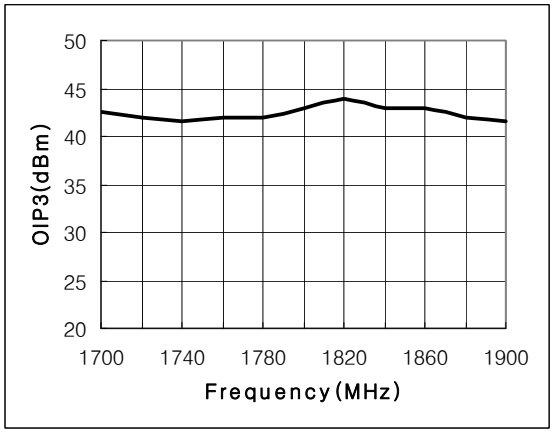
## Application Circuit @ 1800MHz



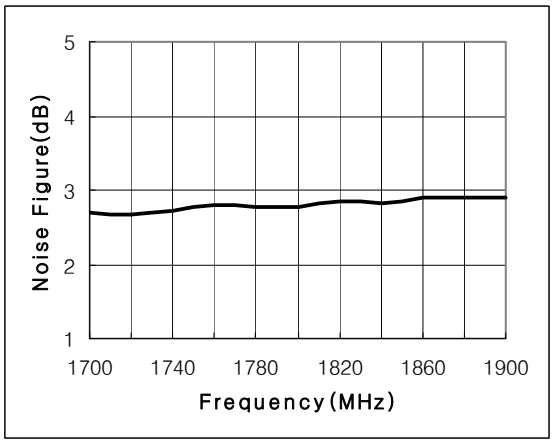

**S-Parameter vs. Frequency**



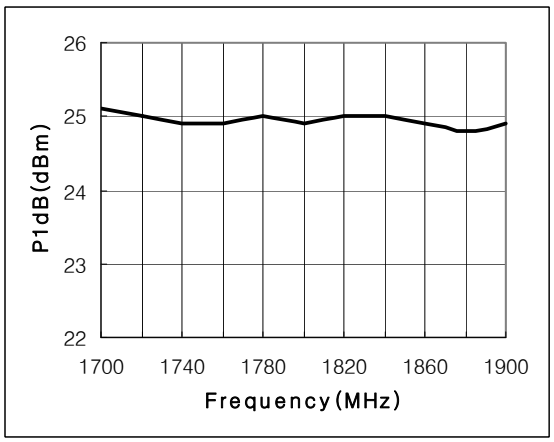

**OIP3 vs. Frequency**



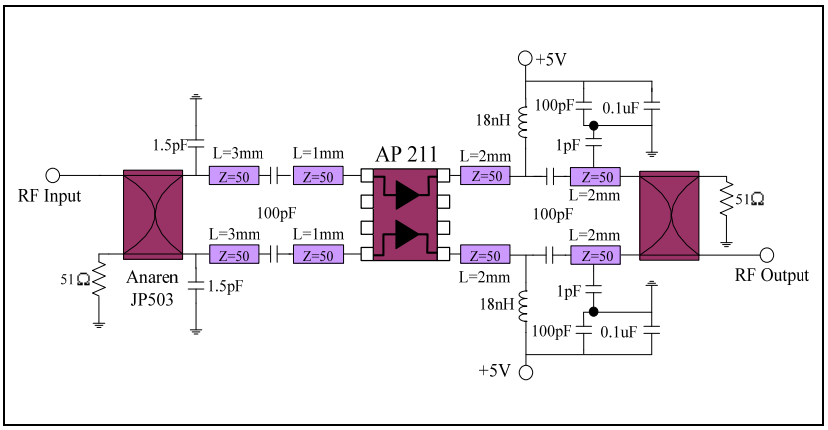

**Noise Figure vs. Frequency**



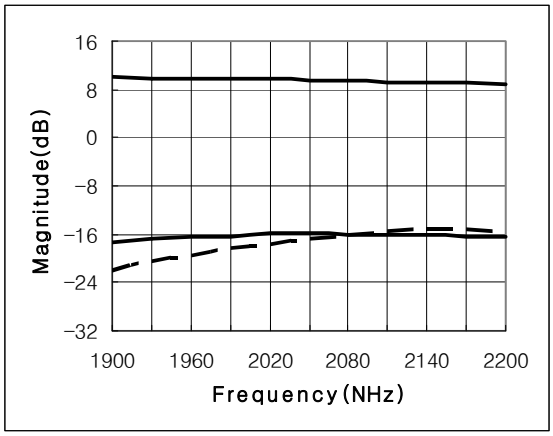

**P1dB vs. Frequency**



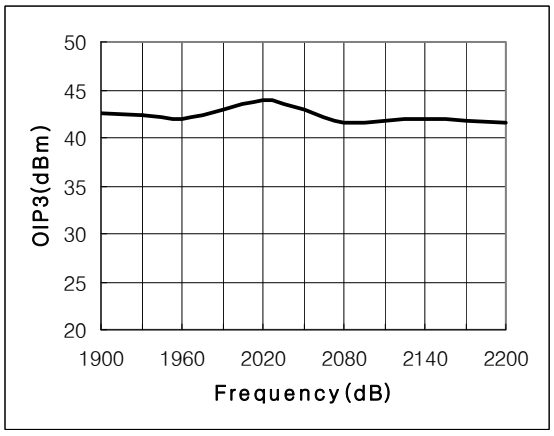
## Application Circuit @ 2100MHz



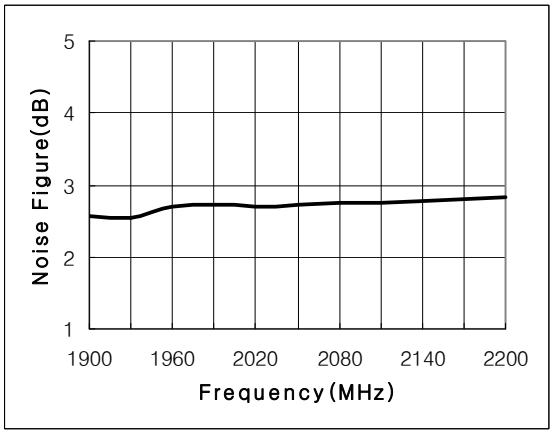

**S-Parameter vs. Frequency**



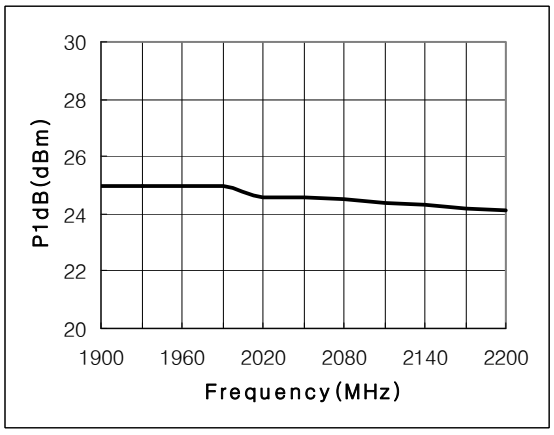

**OIP3 vs. Frequency**




**Noise Figure vs. Frequency**

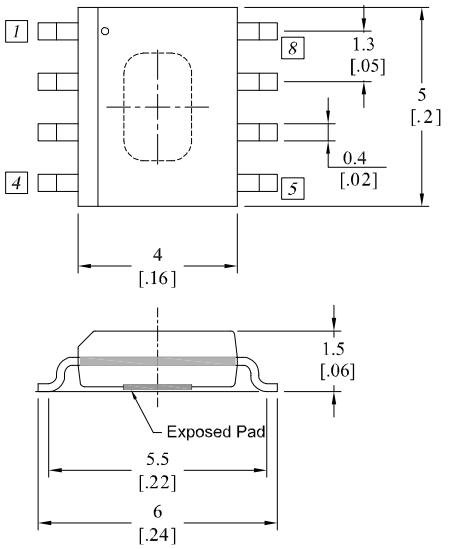



**P1dB vs. Frequency**



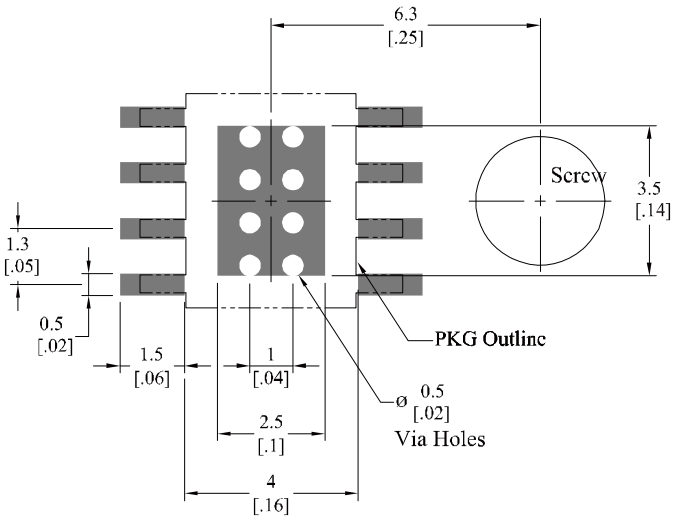
## Package Dimensions (Type: SOIC-8)

* Unit: mm[inch] | Tolerance ±0.2[.008]




| Pin Description | | | |
|---|---|---|---|
| **Pin No** | **Function** | **Pin No** | **Function** |
| 1 | RF IN(2) | 5 | RF OUT(1) |
| 2 | GND | 6 | GND |
| 3 | GND | 7 | GND |
| 4 | RF IN(1) | 8 | RF OUT(2) |

## Recommended Pattern




**Mounting Configuration Notes**

1. Ground / thermal via holes are critical for the proper performance of this device.
2. Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.
3. Mounting screws can be added near the part to fasten the board to a heat sink. Ensure that the ground / thermal via hole region contacts the heat sink.
4. Do not put solder mask on the backside of the PCB in the region where the board contacts the heat sink.
5. RF trace width depends upon the PCB material and construction.
6. Use 1 oz. Copper minimum.

## Revision History

| Part Number | Release Date | Version | Modification | Data Sheet Status |
|---|---|---|---|---|
| AP211 | 2012.10.15 | 5.4 | Change by a new document form | - |
| | | | | |
| | | | | |

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