



# IPA009011A

## 88 - 110 MHz, 1 W POWER AMPLIFIER

REV A  
March 2014

### Key Features



- 88 ~ 110 MHz, 50 Ohm Impedance
- 30 dBm P<sub>1dB</sub>
- 17 dB Gain
- 1.5:1 VSWR
- 43 dBm IP<sub>3</sub>
- Precision Machined Housing
- Single DC Power Supply
- Meet MIL-STD-202g

### Applications

- FM Broadcast
- PA Driver Amplifiers
- RF Bench Tests
- Fixed Wireless Applications



### Absolute Maximum Ratings

| Parameters              | Units | Ratings   |
|-------------------------|-------|-----------|
| DC Power Supply Voltage | V     | -0.5,16   |
| RF Input CW Power       | dBm   | 24        |
| Storage Temperature     | °C    | -40 ~ +85 |
| Operating Temperature   | °C    | -40 ~ +85 |

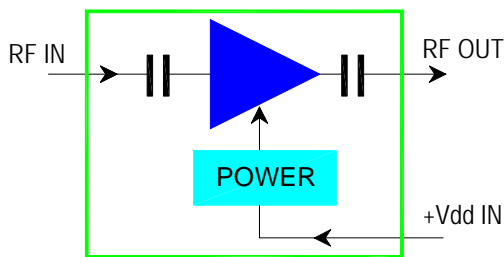
**Additional heat sink is required for continuous operation!**

### Specifications

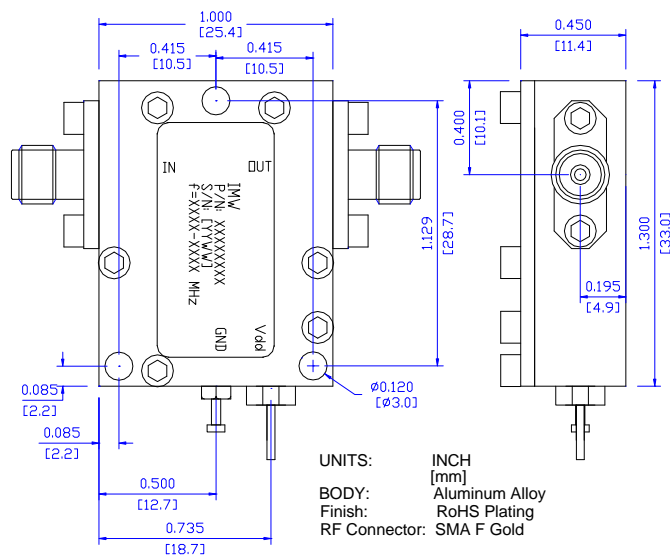
Summary of the key electrical specifications at 25°C

| Index | Testing Item                          | Symbol            | Test Constraints   | Min | Nom     | Max | Unit  |
|-------|---------------------------------------|-------------------|--|-----|---------|-----|-------|
| 1     | Frequency Range                       | BW                | 50 Ohm Impedance   | 88  |         | 110 | MHz   |
| 2     | Gain                                  | S <sub>21</sub>   | 88 – 110 MHz   | 16  | 17      | 18  | dB    |
| 3     | Gain Variation                        | ΔG                | 88 – 110 MHz   |     | +/- 0.1 |     | dB    |
| 4     | VSWR                                  | SWR <sub>i</sub>  | 88 – 110 MHz all RF ports                                  |     | 1.5:1   | 2:1 | Ratio |
| 5     | Reverse Isolation                     | S <sub>12</sub>   | 88 – 110 MHz   |     | 25      |     | dB    |
| 6     | Noise Figure                          | NF                | 88 – 110 MHz   |     | 2.5     |     | dB    |
| 7     | Output Power 1dB Compression Point    | P <sub>1dB</sub>  | 88 – 110 MHz   | 28  | 30      |     | dBm   |
| 8     | Output-Third-Order Interception Point | IP <sub>3</sub>   | Two-Tone, P <sub>out</sub> = 10 dBm each, 1 MHz Separation | 40  | 43      |     | dBm   |
| 9     | Current Consumption                   | I <sub>dd</sub>   | V <sub>dd</sub> = +12.0 V                                  |     | 220     |     | mA    |
| 10    | Power Supply Operating Voltage        | V <sub>dd</sub>   |  | +12 |         | +16 | V     |
| 11    | Operating Temperature                 | T <sub>o</sub>    |  | -40 |         | +85 | °C    |
| 12    | Thermal Resistance                    | R <sub>th,c</sub> | Junction to case   |     |         | 32  | °C/W  |

### Functional Block Diagram



### Outline, IP-3 Housing



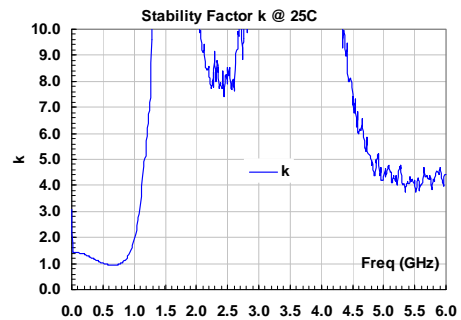
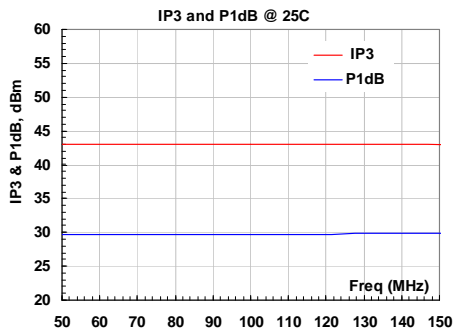
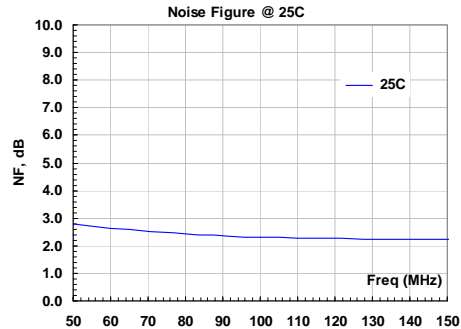
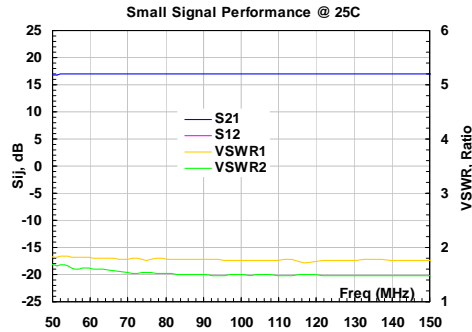
### Ordering Information

| Model Number | Connectors |            |
|--------------|------------|------------|
|              | IN         | OUT        |
| IPA009110A   | SMA Female | SMA Female |

Specifications and information are subject to change without notice.



### Typical Data



### Application Notes:

#### A. SMA Torque Wrench Selection

Always use a torque wrench with 5 ~ 6 inch-lb coupling torque setting for mating the SMA cables to the amplifier. Never use torque more than 8 inch-lb wrench for tightening the mating cable to the connector. Otherwise, the permanent damage will occur to the SMA connectors of the amplifier. 8710-1582 (5 inch-lb) is one of the ideal torque wrench choice from Agilent Technology.

#### B. Mounting the Amplifier

Use three pieces of #2-56 with longer than 9/16" screws for mounting the amplifier on a metal-based chase. Flat and spring washers are needed to prevent the screw loosening during the shock and vibration. Always use the appropriate torque setting of the power screwdriver to mount them.

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