



# IPA082089B

## 820-890 MHz 25W Power Amplifier

REV A  
July 2014

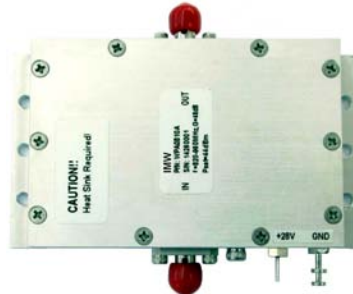
### Key Features

- 50 Ohm Impedance
- 820-890 MHz
- 55% Power Added Efficiency
- 34.5 dB Gain
- 44.0 dBm P<sub>sat</sub>
- 53.0 dBm Output IP<sub>3</sub>
- 1.2:1 VSWR
- 5.5dB Noise Figure
- Unconditional Stable
- Infinite Load VSWR Protection
- Single Power Supply
- RoHS Compliant



### Applications

- Cellular, GSM
- Mobile Infrastructures
- Fixed Wireless



### Ordering Information

Model Number	IPA082089B
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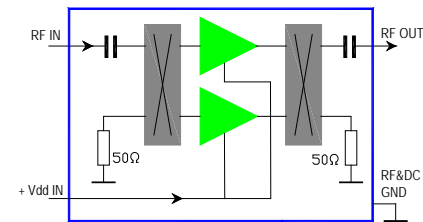
Additional heat sink is required for continuous operation!

### Absolute Maximum Ratings

Parameters	Units	Rating
DC Power Supply Voltage	V	30
Drain Current, CW	A	2.5
Total Power Dissipation	W	70
RF Input Power, CW	dBm	17
Storage Temperature	°C	-40 ~ +85
Operating Temperature	°C	-20 ~ +85
Thermal Resistance	°C/W	1.3

Operation of this device above any one of these parameters may cause permanent damage.

### Functional Block Diagram

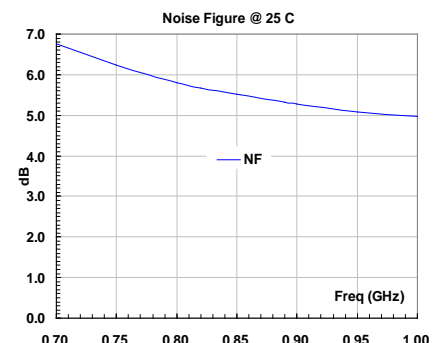
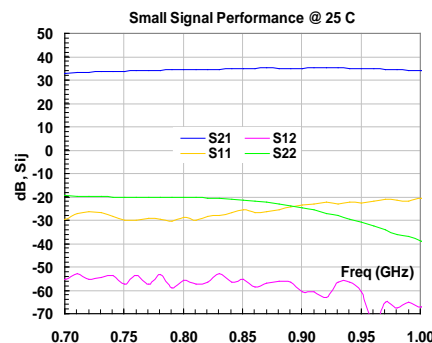
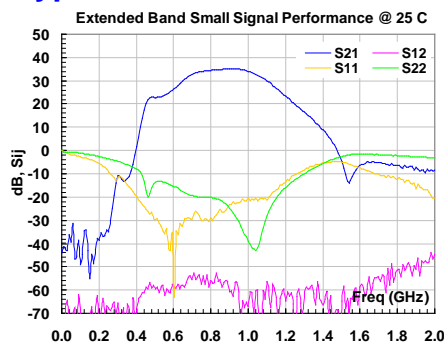


### Specifications

Summary of the electrical specifications IPA082089B at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Normal	Max	Unit
1	Frequency Range	BW	50 Ohm Impedance	820		890	MHz
2	Small Signal Gain	S <sub>21</sub>	820 – 890 MHz	33.5	34.5	36.0	dB
3	Gain Variation	ΔG	820 – 890 MHz		+/-0.3	+/- 0.6	dB
4	Output Saturated Power	P <sub>sat</sub>	820 – 890 MHz	43	44		dBm
5	Input Return Loss	S <sub>11</sub>	820 – 890 MHz	16	20		dB
6	Output Return Loss	S <sub>22</sub>	820 – 890 MHz	16	20		dB
7	Reverse Isolation	S <sub>12</sub>	820 – 890 MHz		55		dB
8	Noise Figure	NF	820 – 890 MHz		5.5		dB
9	Output-Third-Order Interception point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> = 33 dBm each, 1 MHz separation	51	53		dBm
10	DC Power Added Efficiency	η	P <sub>o</sub> =20W	50	55		%
11	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub> = +28 V, 0.325 A quiescent DC bias			2.5	A
12	Power Supply Voltage	V <sub>dd</sub>		26	28	30	V
13	Operating Temperature	T <sub>o</sub>		-20		+70	°C
14	Thermal Resistance	R <sub>th,c</sub>				1.3	°C/W
15	Maximum Average RF Input Power	P <sub>IN, MAX</sub>	DC – 6 GHz			17	dBm

### Typical Performance



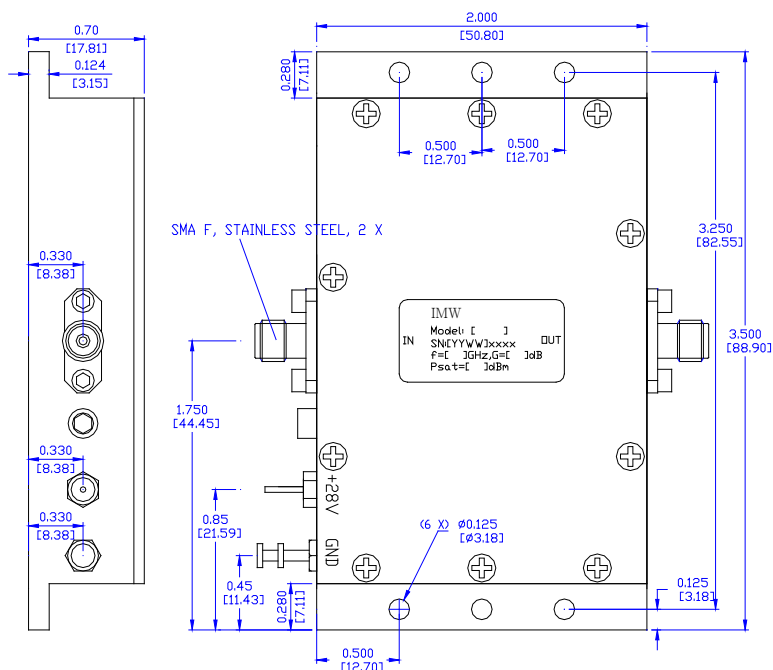
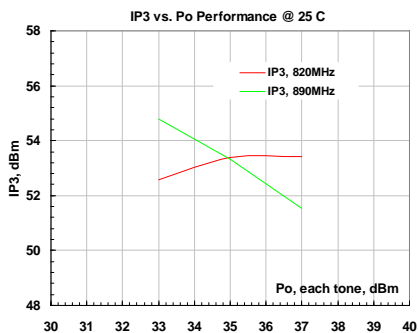
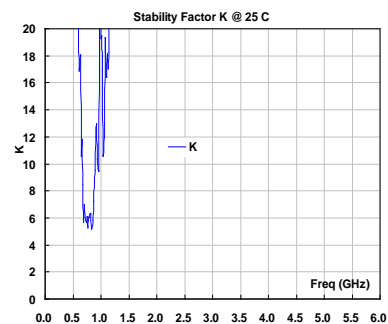
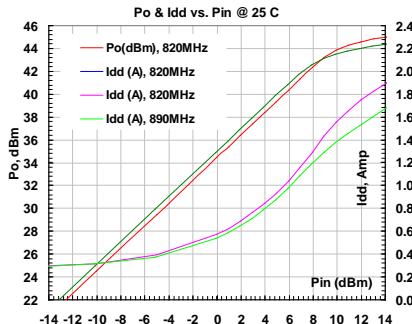
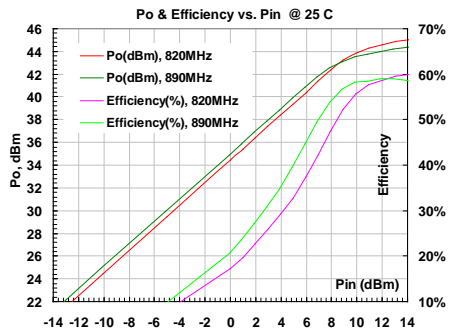
Specifications and information are subject to change without notice.



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### Outline, WP-1M Housing

Units: INCH  
[mm]

Body: Aluminum Alloy

Finish: Clear Plating

RF Connector: SMA F Stainless

+28V DC I/O: Feedthru

### 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 six pieces of #4-40 with longer than 3/8" 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. Proper heat sink is required for continuous operation.