IPA082089A

820-890 MHz 25W Power Amplifier

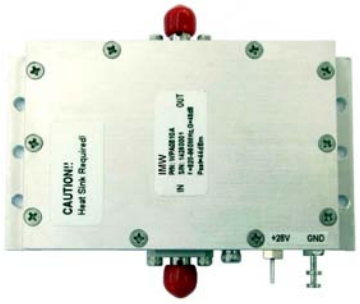
REV A
July 2014

Key Features

- 50 Ohm Impedance
- 820-890 MHz
- 49% Power Added Efficiency
- 49.0 dB Gain
- 44.0 dBm P_{sat}
- 54.0 dBm Output IP_3
- 1.3:1 VSWR
- 2.4dB Noise Figure
- Unconditional Stable
- Infinite Load VSWR Protection
- Single Power Supply
- RoHS Compliant

Applications

- Cellular, GSM
- Mobile Infrastructures
- Fixed Wireless



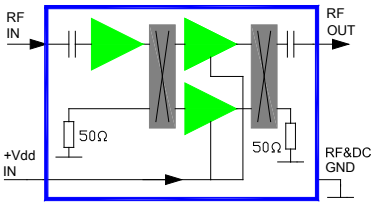
Additional heat sink is required for continuous operation!

Absolute Maximum Ratings

Parameters	Units	Rating
DC Power Supply Voltage	V	30
Drain Current, CW	A	3.0
Total Power Dissipation	W	84
RF Input Power, CW	dBm	12
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



Ordering Information

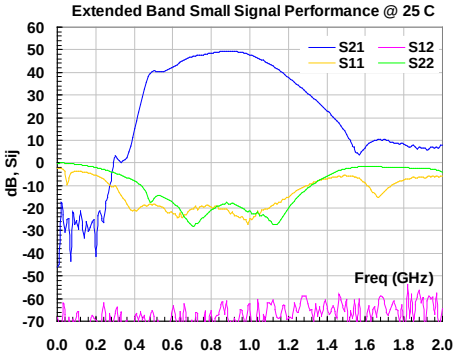
Model Number	IPA082089A

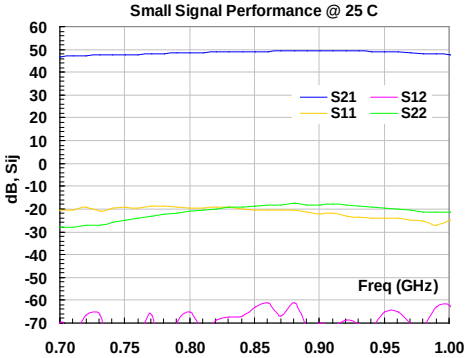
Specifications

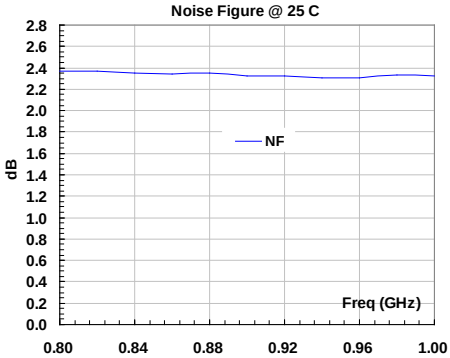
Summary of the electrical specifications IPA082089A at room temperature

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_{21}	820 – 890 MHz	47	49	51	dB
3	Gain Variation	ΔG	820 – 890 MHz		+/-0.3	+/- 0.5	dB
4	Output Saturated Power	P_{sat}	820 – 890 MHz	43	44		dBm
5	Input Return Loss	S_{11}	820 – 890 MHz	15	20		dB
6	Output Return Loss	S_{22}	820 – 890 MHz	15	19		dB
7	Reverse Isolation	S_{12}	820 – 890 MHz		70		dB
8	Noise Figure	NF	820 – 890 MHz		2.4		dB
9	Output-Third-Order Interception point	IP_3	Two-Tone, P_{out} = 33 dBm each, 1 MHz separation	52	54		dBm
10	DC Power Added Efficiency	η	Po=20W	45	49		%
11	Current Consumption	I_{dd}	V_{dd}= +28 V, 0.404 A quiescent DC bias			3.0	A
12	Power Supply Voltage	V_{dd}		26	28	30	V
13	Operating Temperature	T_o		-20		+70	°C
14	Thermal Resistance	$R_{th,c}$				1.3	°C/W
15	Maximum Average RF Input Power	$P_{IN, MAX}$	DC – 6 GHz			12	dBm

Typical Performance







Specifications and information are subject to change without notice.

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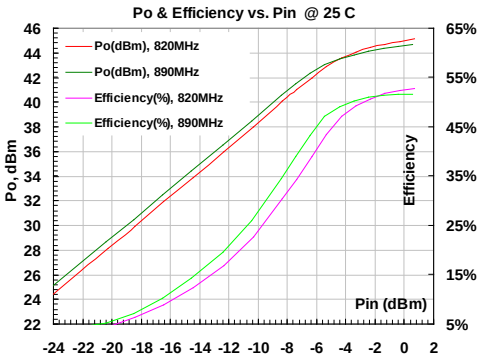

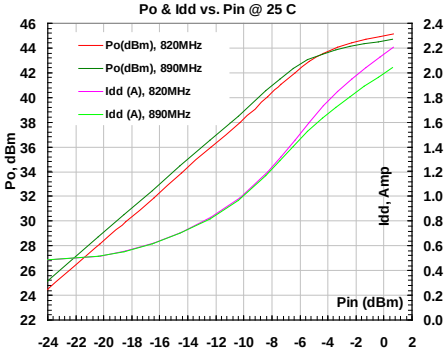

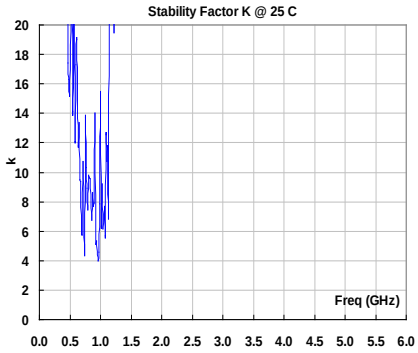

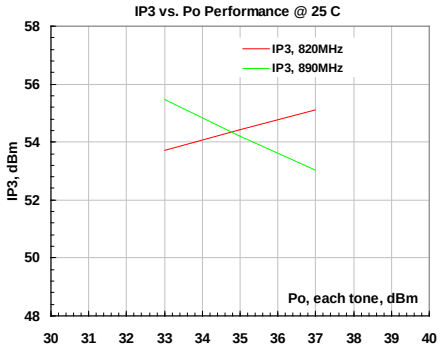

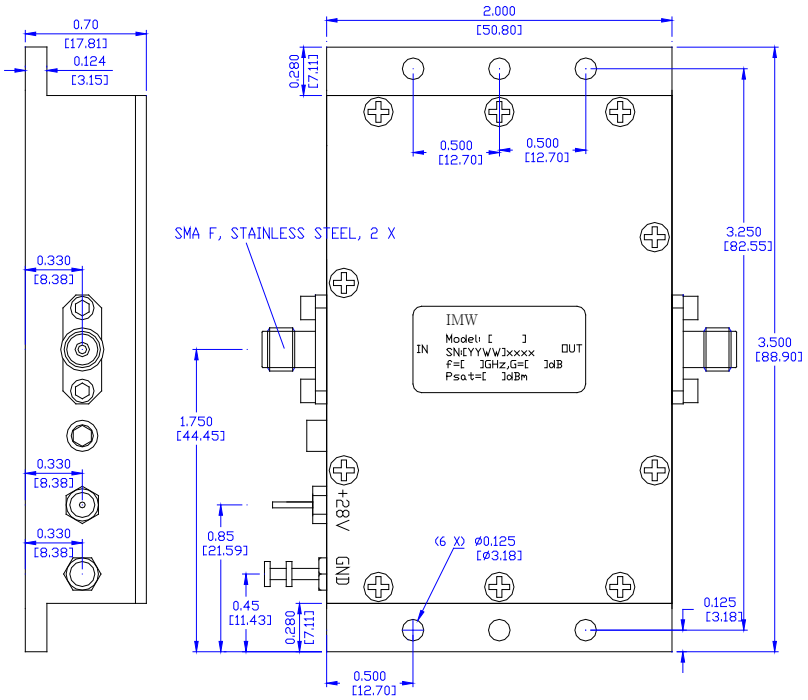

Outline, WP-1M Housing

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.