



WPA0810-45A

820 - 960 MHz 50W POWER AMPLIFIER

REV C
June 2014

Key Features



- 50 Ohm Impedance
- 820 ~ 960 MHz
- 2.5 dB Noise Figure
- 54.0 dBm Output IP_3
- 43.0 dB Gain
- 47.0 dBm P_{1dB}
- 1.22:1 VSWR
- Single Power Supply
- >34 years MTBF
- Unconditional Stable
- Infinite Load VSWR Protection
- RoHS Compliant

Product Description

WPA0810-45A integrates WanTcom proprietary low noise amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum low noise figure, wideband, high linearity, and unconditional stable performances together. With single +28V operation, the amplifier has optimal input and output matching in the specified frequency range at 50-Ohm impedance system. The amplifier has standard SMA connectorized WP-1M clear plated housing.

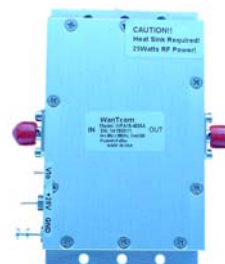
The amplifier is designed to meet the rugged standard of MIL-STD-202g.

Applications

- Mobile Infrastructures
- Cellular, GSM
- Fixed Wireless

Ordering Information

Model No.	WPA0810-45A
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Specifications

Summary of the electrical specifications WPA0810-45A at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	820 – 960 MHz	41	43		dB
2	Gain Variation	ΔG	820 – 960 MHz		+/-0.5	+/- 1	dB
3	Input Return Loss	S_{11}	820 – 960 MHz	16	20		dB
4	Output Return Loss	S_{22}	820 – 960 MHz	16	20		dB
5	Reverse Isolation	S_{12}	820 – 960 MHz		70		dB
6	Noise Figure	NF	820 – 960 MHz		2.5	3.0	dB
7	Output Power 1dB Compression Point	P_{1dB}	820 – 960 MHz	45	47		dBm
8	Output-Third-Order Interception Point	IP_3	Two-Tone, P_{out} +37 dBm each, 1 MHz separation	53	55		dBm
9	DC Current Consumption	I_{dd}	V_{dd} = +28 V, 0.65 A quiescent DC bias			4.5	A
10	DC Power Supply Voltage	V_{dd}	820 – 960 MHz	26	28	30	V
11	Base Temperature Monitoring Output	V_{to}	0.50 V at 0 °C, 10 mV per °C		10		mV/°C
12	Thermal Resistance	$R_{th,c}$	Junction to case			1.3	°C/W
13	Operating Temperature	T_o	Base Plate	0		+70	°C
14	Maximum CW RF Input Power	$P_{IN, MAX}$	DC – 6 GHz			30	dBm

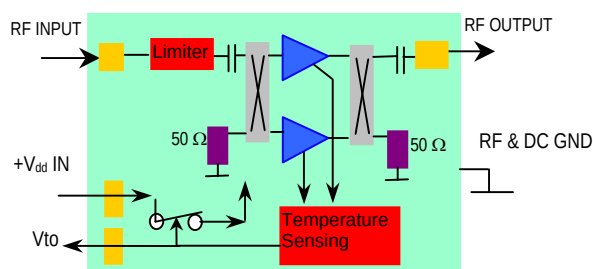
Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	+30V
Drain Current	mA	5A
Total Power Dissipation	W	170
RF Input Power	dBm	10
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 150
Operating Temperature	°C	-40 ~ +85
Thermal Resistance	°C/W	1.2 °C/W*

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

*One of the last stage power transistor, V_{dd} = 28V, I_d = 2.5A Max.

Functional Block Diagram



Specifications and information are subject to change without notice.

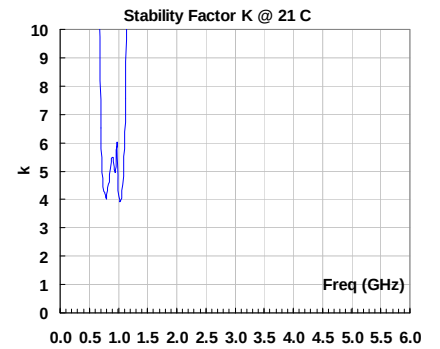
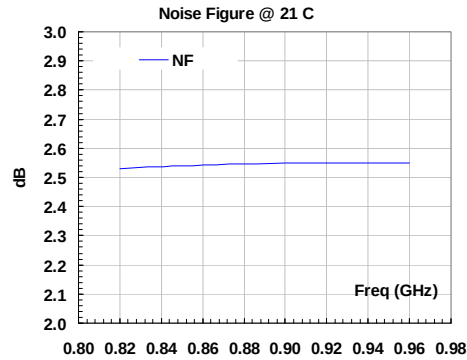
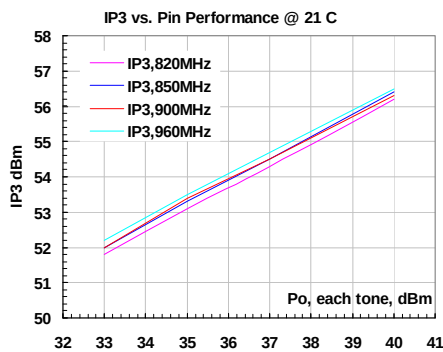
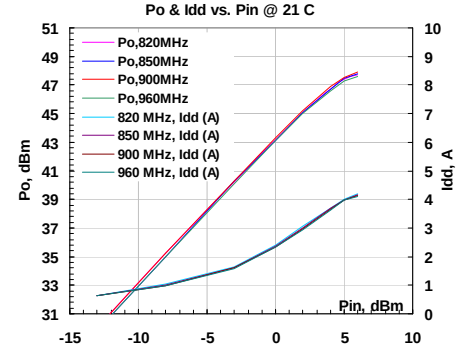
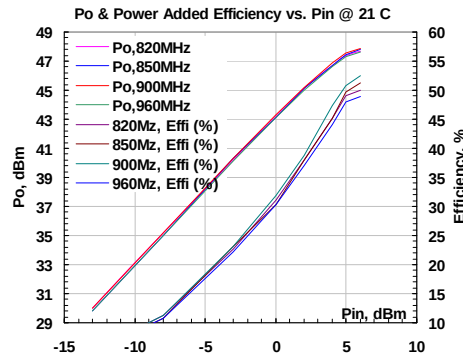
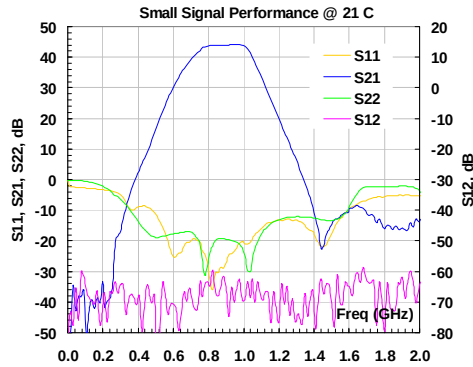


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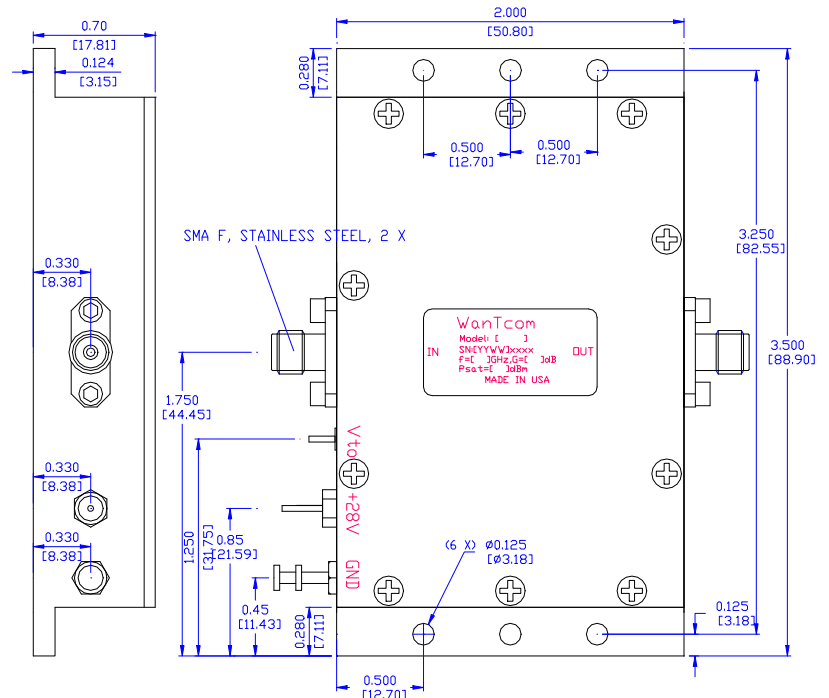
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Typical Data



Outline, WP-1M Housing

UNITS: INCH
[mm]
BODY: Aluminum Alloy
Finish: Clear Plating
RF Connector: SMA F Stainless
+28V DC I/O: Feedthru



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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 heat sink. 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.
