WPA09-49A

925 – 960 MHz, 20 Watt Power Amplifier

July 2014, REV B

Key Features

- 925 ~ 960 MHz, 50 Ohm Impedance
- 43.5 dBm P_{1dB}
- 49.0 dB Gain
- 1.27:1 VSWR
- 2.4 dB Noise Figure
- 54.0 dBm Output IP_3
- 50% Power Added Efficiency
- Unconditional Stable
- Infinite Load VSWR Protection
- Single DC Power Supply
- Precision Machined Housing
- RoHS Compliant

Applications

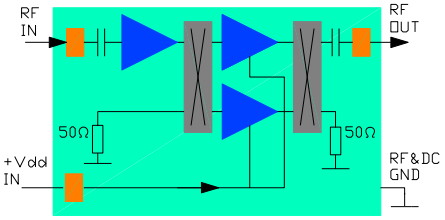
- Cellular,GSM
- Mobile Infrastructures
- Fixed Wireless Communication

Additional heat sink is required for continuous operation!

Absolute Maximum Ratings

DC Power Supply Voltage	30 V
Drain Current, CW	2.8 A
Total Power Dissipation	79 W
RF Input Power, CW	12 dBm
Operating Temperature	-20 ~ +85 °C
Storage Temperature	-40 ~ +85 °C

Functional Block Diagram



Ordering Information

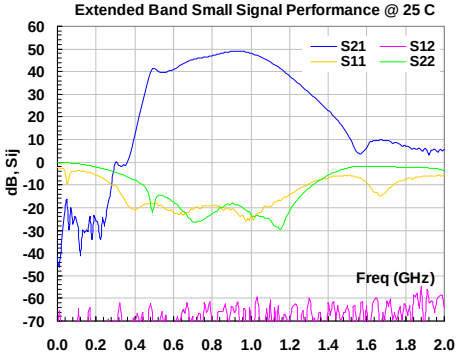
Model	Connectors
WPA09-49A	SMA Female

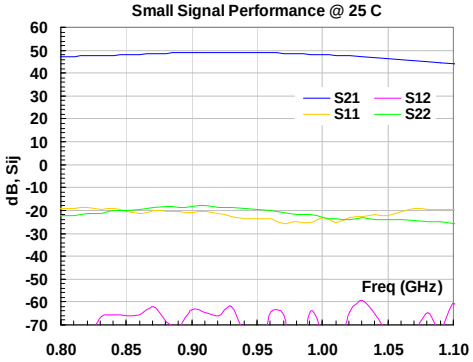
Marking: **WPA09-49A**

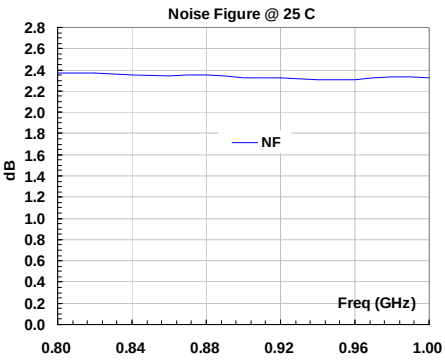
Specifications (Tested at +25°C)

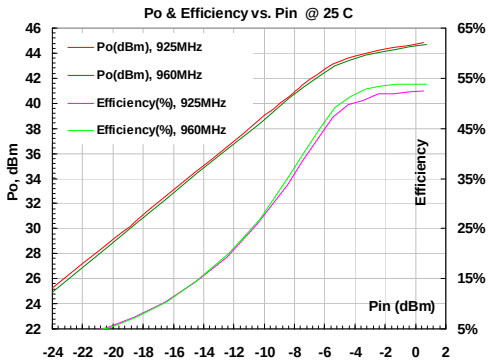
Item	Symbol	Test Constraints	Min	Nom	Max	Unit
Frequency Range	BW	50 Ohm Impedance	925		960	MHz
Small Signal Gain	S_{21}	925 – 960 MHz	47	49	52	dB
Input VSWR	SWR_1	925 – 960 MHz		1.20:1	1.5:1	Ratio
Output VSWR	SWR_2	925 – 960 MHz		1.27:1	1.5:1	Ratio
Gain Flatness	ΔG	925 – 960 MHz		+/- 0.2	+/- 0.4	dB
Reverse Isolation	S_{12}	925 – 960 MHz		70		dB
Noise Figure	NF	925 – 960 MHz		2.4		dB
Output Power 1dB Compression Point	P_{1dB}	925 – 960 MHz	42.5	43.5		dBm
Output-Third-Order Interception point	IP_3	Two-Tone, P_{out} = 33 dBm each, 1 MHz separation	52	54		dBm
DC Power Added Efficiency	η	Po = 20W	45	50		%
Current Consumption	I_{dd}	V_{dd} = +28 V, 0.422 A quiescent DC bias			2.8	A
Power Supply Operating Voltage	V_{dd}		+26		+30	V
Operating Temperature	T_o	Base plate	-20		+70	°C
Thermal Resistance	$R_{th,c}$	Junction to case			1.3	°C/W
Maximum CW RF Input Power	$P_{IN, MAX}$	DC – 6 GHz			12	dBm

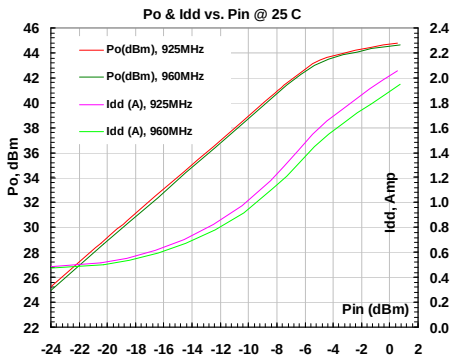
Typical Performance

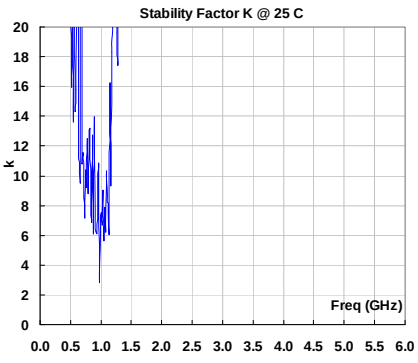


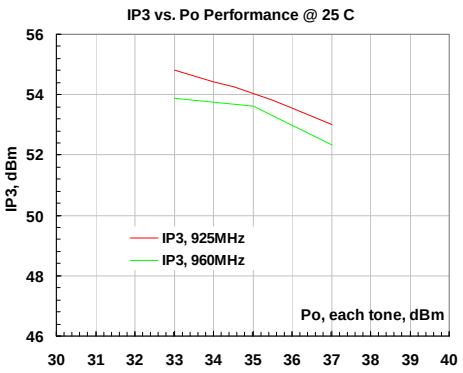






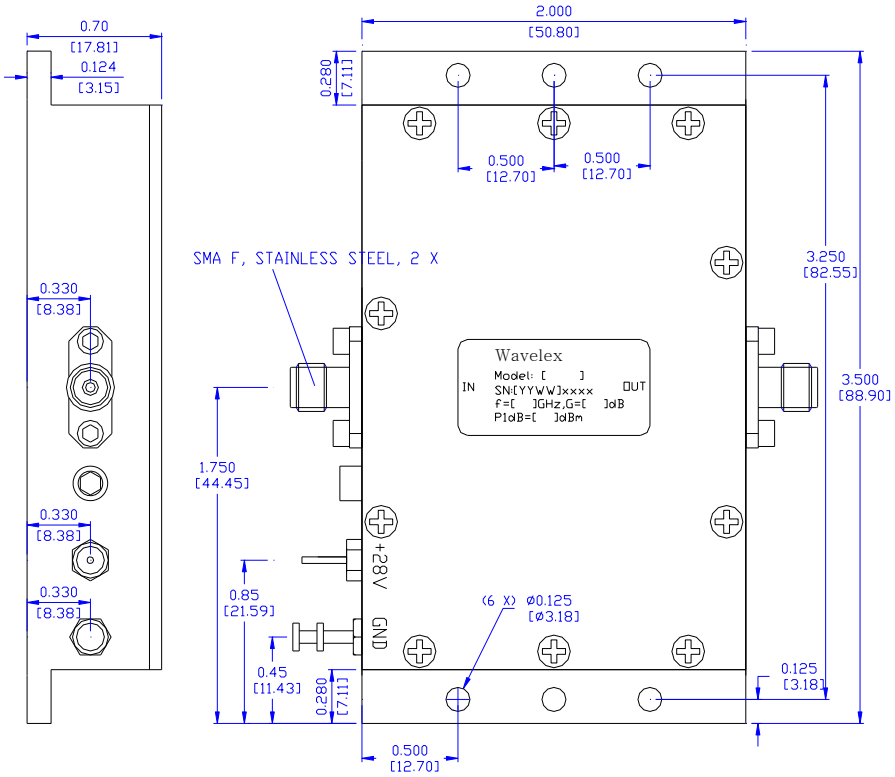






Outline, WP-1M Housing

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.