WPA21- 41A

2110 – 2170 MHz, 16 Watt Power Amplifier

July 2014, REV C

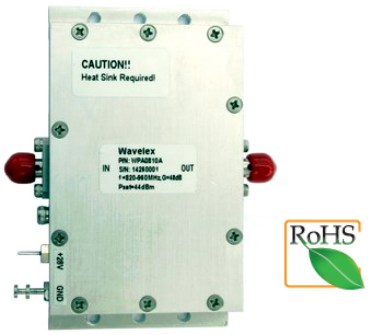
Key Features

- 2.11 ~ 2.17 GHz, 50 Ohm Impedance
- 42.0 dBm P_{sat}
- 41.5 dB Gain
- 1.22:1 VSWR
- 2.0 dB Noise Figure
- 56.0 dBm Output IP_3
- 40% Power Added Efficiency
- Unconditional Stable
- Infinite Load VSWR Protection
- Single DC Power Supply
- Precision Machined Housing
- RoHS Compliant

Applications

- WCDMA
- Mobile Infrastructures
- Fixed Wireless Communication

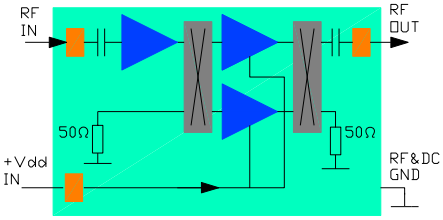
Additional heat sink is required for continuous operation!



Absolute Maximum Ratings

DC Power Supply Voltage	30 V
Drain Current, CW	2 A
Total Power Dissipation	56 W
RF Input Power, CW	17 dBm
Operating Temperature	-20 ~ +85 °C
Storage Temperature	-40 ~ +85 °C

Functional Block Diagram



Ordering Information

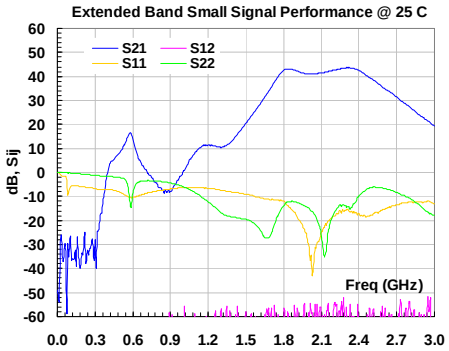
Model	Connectors
WPA21-41A	SMA Female

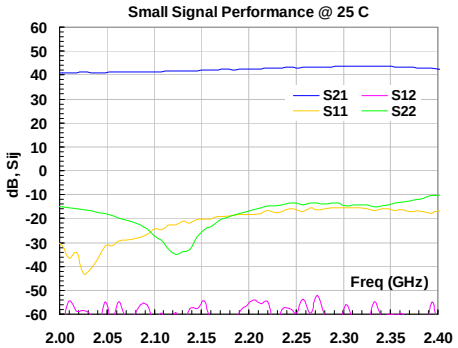
Marking: **WPA21-41A**

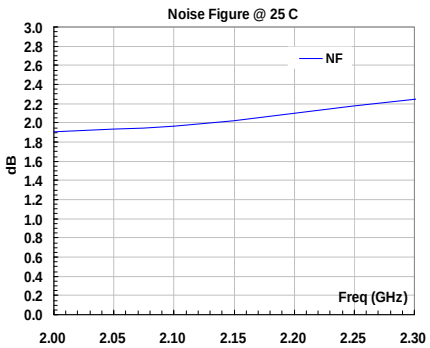
Specifications (Tested at +25°C)

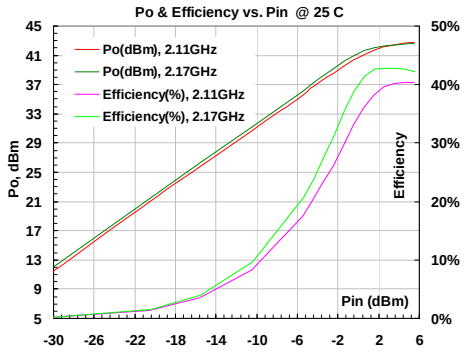
Item	Symbol	Test Constraints	Min	Nom	Max	Unit
Frequency Range	BW	50 Ohm Impedance	2110		2170	MHz
Small Signal Gain	S_{21}	2110 – 2170 MHz	40.0	41.5	43.0	dB
Input VSWR	SWR_1	2110 – 2170 MHz		1.22:1	1.5:1	Ratio
Output VSWR	SWR_2	2110 – 2170 MHz		1.22:1	1.5:1	Ratio
Gain Flatness	ΔG	2110 – 2170 MHz		+/- 0.5	+/- 1.0	dB
Reverse Isolation	S_{12}	2110 – 2170 MHz		60		dB
Noise Figure	NF	2110 – 2170 MHz		2.0		dB
Output-Third-Order Interception point	IP_3	Two-Tone, P_{out} = 32 dBm each, 1 MHz separation	54	56		dBm
Output Saturated Power	P_{sat}	2110 – 2170 MHz	41.5	42.5		dBm
DC Power Added Efficiency	η	Po = 16W	38	41		%
Current Consumption	I_{dd}	V_{dd} = +28 V, 0.315 A quiescent DC bias			2.0	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			17	dBm

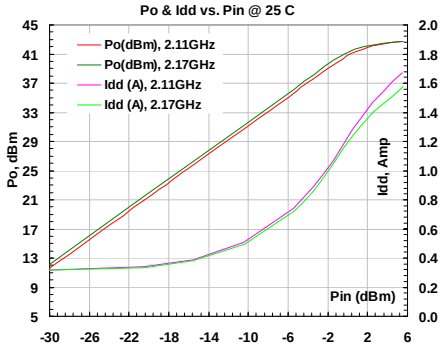
Typical Performance

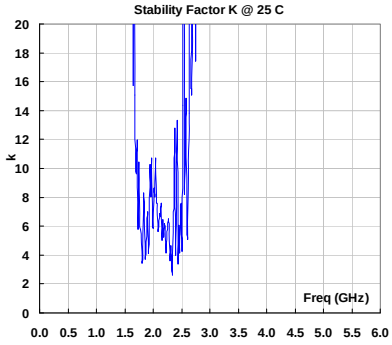


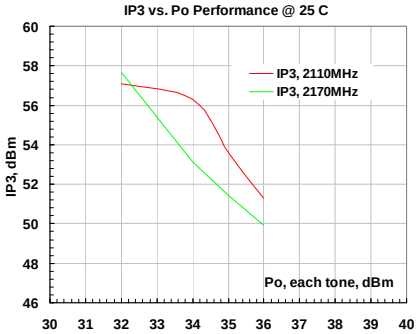






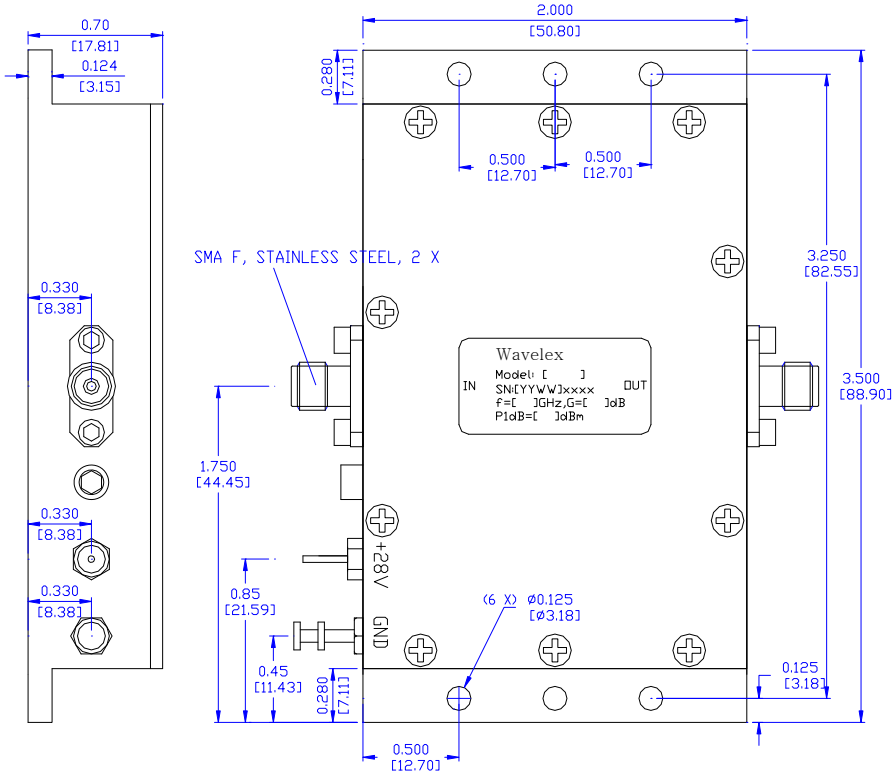






Outline, WP-1M Housing

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.