



WPA21-4555G

2.11 – 2.17 GHz 25W POWER AMPLIFIER

REV A
April 2014

Key Features



- 50 Ohm Impedance
- 2.11 ~ 2.17 GHz
- 1.9 dB noise figure
- 50% Power Added Efficiency
- 46.0 dB Gain
- 44.0 dBm P_{sat}
- 1.22:1 VSWR
- Built-in Input Limiter
- Single Power Supply
- Unconditional Stable
- Infinite Load VSWR Protection
- Over Heating Auto Shut Down

Product Description

WPA21-4555G integrates WanTcom proprietary power amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum power added efficiency, wideband, high linearity, and unconditional stable performances together in one box. 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-2 clear plated housing.

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

Applications

- Mobile Infrastructures
- GSM, 3G WCDMA
- Fixed Wireless

Ordering Information

Model No.	WPA21-4555G
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Specifications

Summary of the electrical specifications WPA21-4555G at room temperature

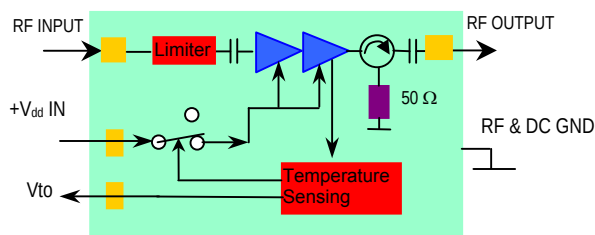
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Small Signal Gain	S_{21}	2.11 – 2.17 GHz	44	46	48	dB
2	Gain Variation	ΔG	2.11 – 2.17 GHz		+/-0.5	+/-1.0	dB
3	Input VSWR	SWR_1	2.11 – 2.17 GHz		1.35:1	1.5:1	Ratio
4	Output VSWR	SWR_2	2.11 – 2.17 GHz		1.22:1	1.5:1	Ratio
5	Reverse Isolation	S_{12}	2.11 – 2.17 GHz		70		dB
6	Noise figure	NF	2.11 – 2.17 GHz		1.9		dB
7	Output Saturated Power	P_{sat}	2.11 – 2.17 GHz	43	44		dBm
8	DC Power Added Efficiency	η	$P_o = 20\text{ W}$	45	50		%
9	Current Consumption	I_{dd}	$V_{dd} = +28\text{ V}$, 0.30 A quiescent DC bias			2.0	A
10	Power Supply Voltage	V_{dd}	2.11 – 2.17 GHz	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	-20		+70	°C
14	Over Temperature Auto Shut Down	T_{shut}	Base plate threshold temperature		85		°C
15	Maximum CW RF Input Power	$P_{IN, MAX}$	DC – 6 GHz			30	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	+30
DC Total Current	A	2.0
Total Power Dissipation	W	56
RF Input Power	dBm	30
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 150
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.
*The last stage power transistor, $V_{dd} = 28\text{ V}$, $I_d = 1.7\text{ A}$ Max.

Functional Block Diagram



Specifications and information are subject to change without notice.

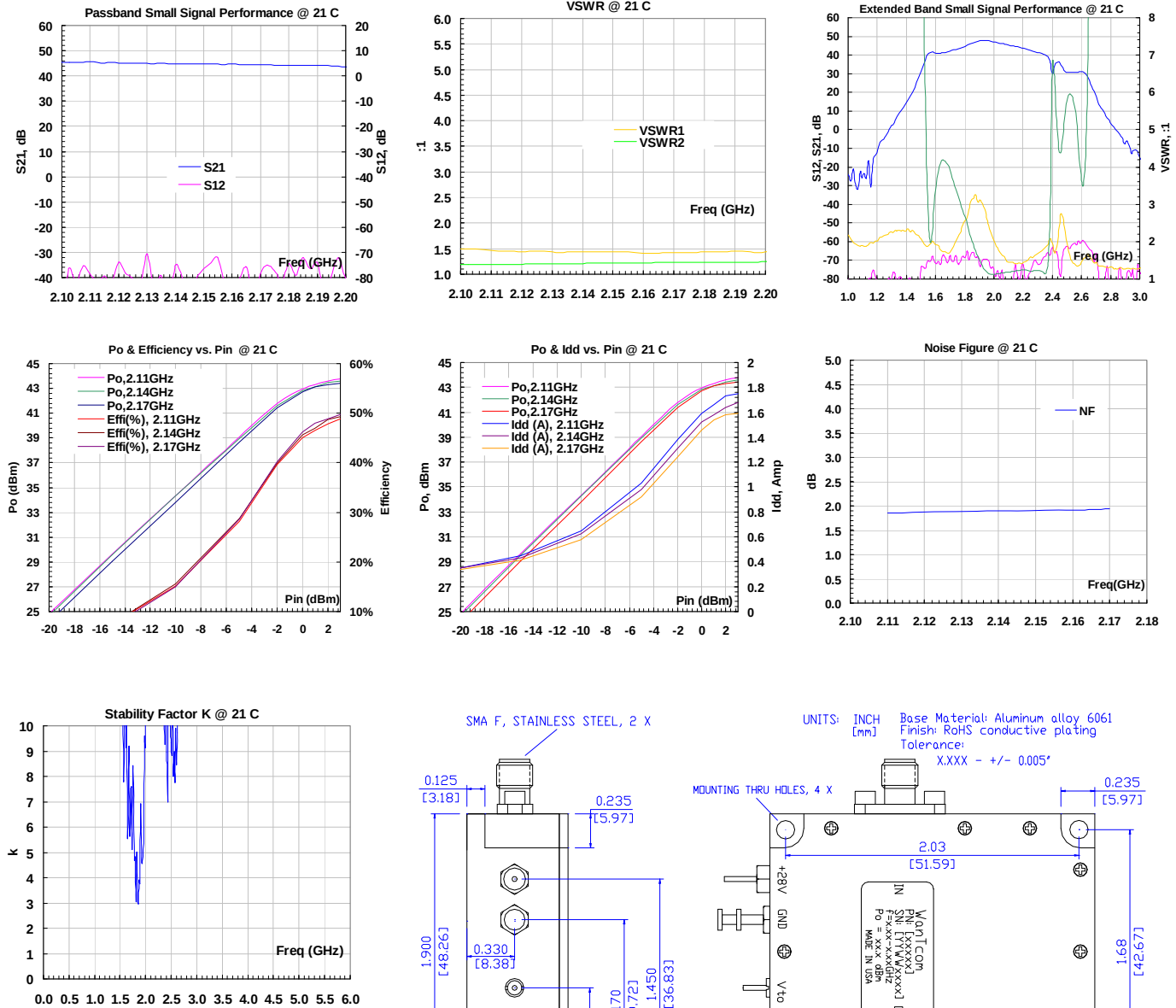


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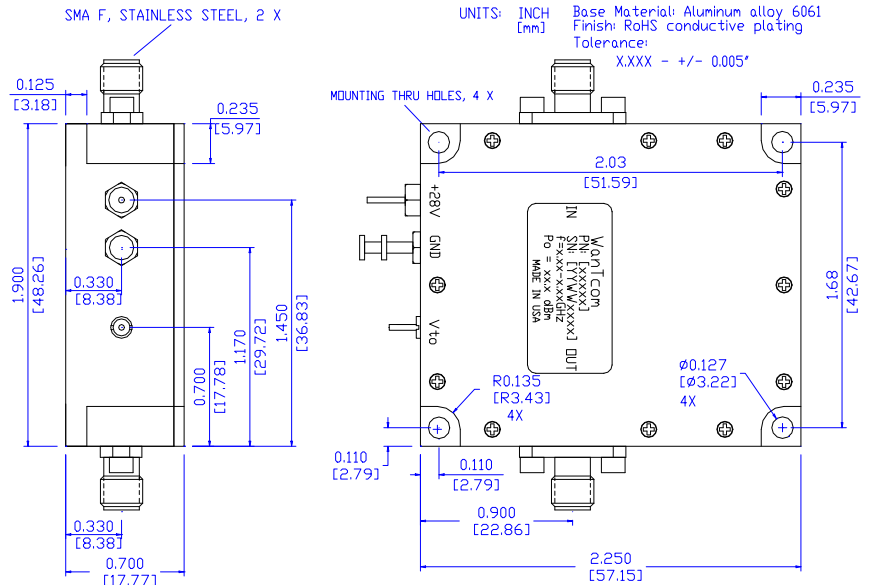
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Typical Data



Outline, WP-2 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. Be careful of the 25 Watts output power!

Be very careful of the 25 Watts output power of the amplifier! Always check the power settings to the input of the amplifier so that the output power is well below the maximum allowed power level of test equipment. Otherwise, the test equipment would be permanently damaged!

B. 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.

C. Mounting the Amplifier

Use 4 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.
