WPA25-3560C

2.4 – 2.6 GHz 35W POWER AMPLIFIER

REV B
December 2015

Key Features

- 50 Ohm Impedance
- 2.4 ~ 2.6 GHz
- 2.0 dB Noise Figure
- 60.0 dBm Output IP_3
- 42.0 dB Gain
- 45.5 dBm P_{sat}
- 1.25:1 VSWR
- Single Power Supply
- >34 years MTBF
- Unconditional Stable
- Infinite Load VSWR Protection
- RoHS Compliant

Product Description

CAUTION: ELECTROSTATIC DISCHARGE SENSITIVE

WPA25-3560C is integrated with WanTcom proprietary power 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.

Additional heat sink is required for continuous operation!

Applications

- Mobile Infrastructures
- WiMax
- Fixed Wireless

Ordering

Model	WPA25-3560C

Specifications

Summary of the electrical specifications WPA25-3560C at room temperature

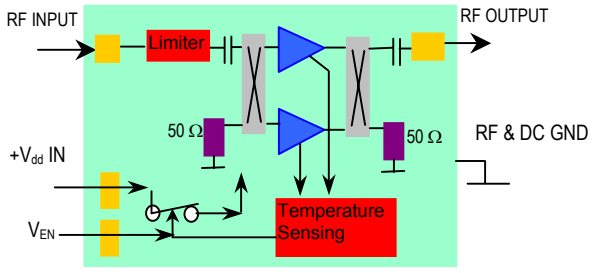
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	2.4 – 2.6 GHz		42		dB
2	Gain Variation	ΔG	2.4 – 2.6 GHz		+/- 1.0	+/-1.3	dB
3	Input VSWR	SWR_1	2.4 – 2.6 GHz		1.25:1	1.4:1	Ratio
4	Output VSWR	SWR_2	2.4 – 2.6 GHz		1.25:1	1.5:1	Ratio
5	Reverse Isolation	S_{12}	2.4 – 2.6 GHz	50	60		dB
6	Noise Figure	NF	2.4 – 2.6 GHz		2.0		dB
7	Output IP_3	IP_3	P_o = 34 dBm each tone, 1 MHz separation	56	60		dBm
8	Output Saturated Power	P_{sat}	2.4 – 2.6 GHz	25	35		W
9	Error Vector Magnitude	EVM	P_o = 37 dBm		2		%
10	Current Consumption	I_{dd}	V_{dd}= +28 V, no RF signal at input		0.75		A
11	Power Supply Voltage	V_{dd}		+26	+28	+30	V
12	Thermal Resistance	$R_{th,c}$	Last stage power transistor, junction to case			2.0	°C/W
13	Operating Temperature	T_o	Housing base temperature	-40		+85	°C
14	Maximum CW RF Input Power	$P_{IN, MAX}$	2.4 – 2.6 GHz			30	dBm
15	Output Maximum Load Mismatch	SWR, load	2.4 – 2.6 GHz			∞	Ratio
16	Enable Control Function	V_{EN}	ON	3.7	5	12	V
			OFF	0		0.2	V

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5, +32
Drain Current	A	4.5
Total Power Dissipation	W	150
CW RF Input Power	dBm	30
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 150
Operating Temperature	°C	-40 ~ +85
Thermal Resistance	°C/W	2.0 °C/W*

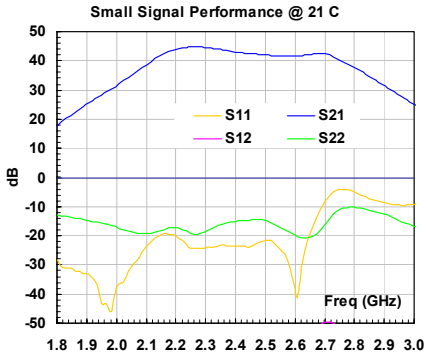
Operation of this device above any one of these parameters may cause permanent damage.
*One of the last stage power transistor, Vdd = 28V, Id=2.0A Max.

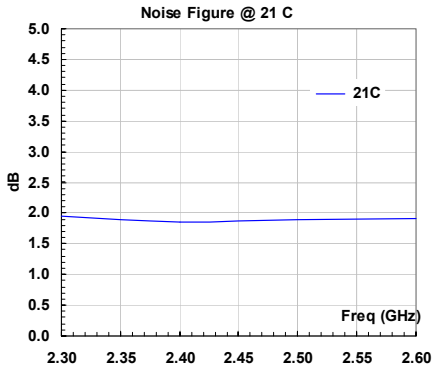
Functional Block Diagram

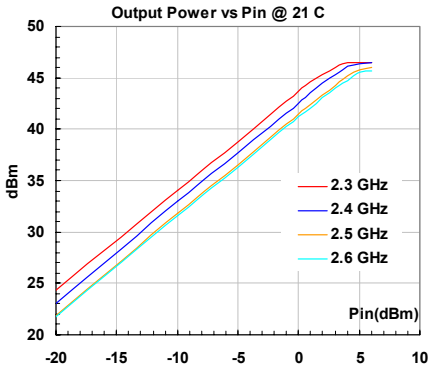


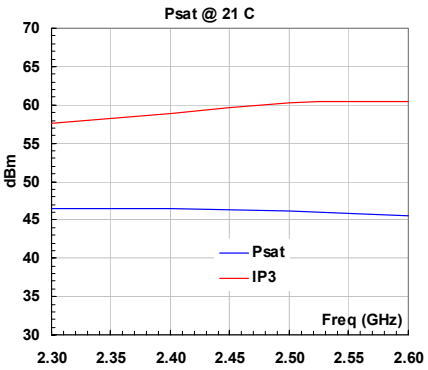
WanTcom, Inc ∗ Phone 01 952 448 6088 ∗ FAX: 01 952 448 7188 ∗ e-mail: sales@wantcominc.com ∗ Web site: www.wantcominc.com

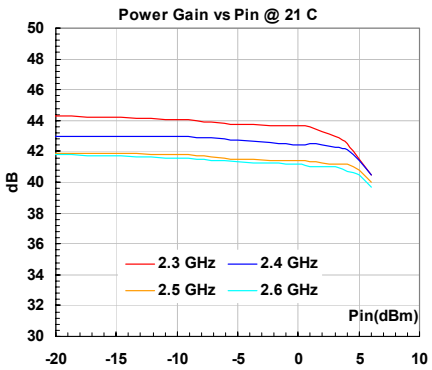
Typical Data

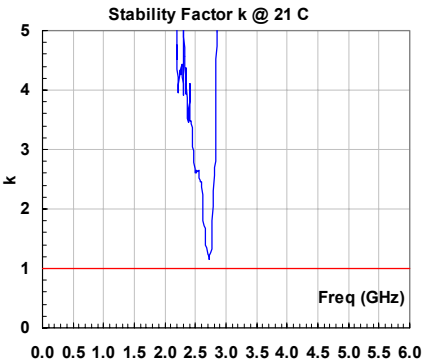






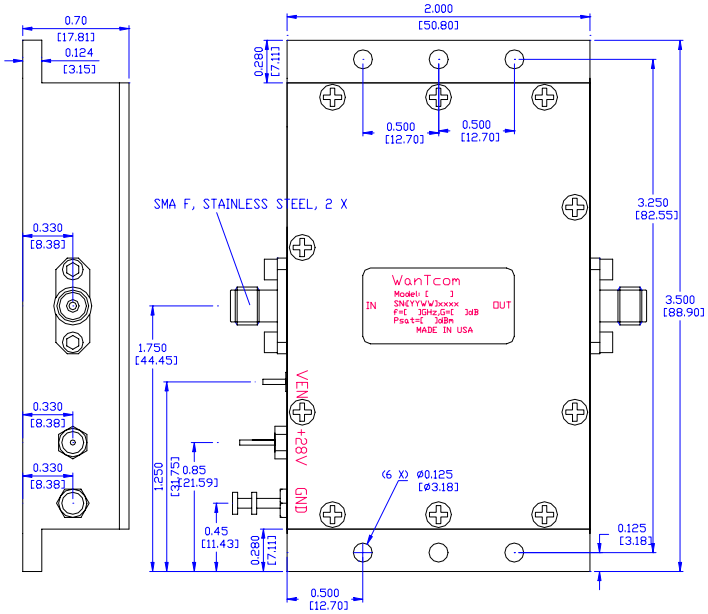






Outline, WP-1M Housing

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. T-gon thermal film or other thermal compound is required between the bottom of the PA and heat sink for better heat transference.

C. Testing

Due to high output RF power of more than 30W and high gain, damage can occur to a test equipment if the input power level to the PA is set too high with no high power attenuator between the output of the PA and input of the test equipment. For example, A Keysight/Agilent VNA has default 0 dBm power output at Port 1, which will generate more than 10W RF power at the output of PA.

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