Wideband Power Amplifier RWS05020-10

Product Features

- GaN Broadband Power Amplifier
- 20 ~ 1000MHz Operation Bandwidth
- Small Signal Gain 34dB min.
- 20W Typical. P3dB

Applications

- Broadcasting
- Medical equipment
- General Purpose

Description

The power amplifier module is designed for Broadcasting, Telecommunication, Medical and Other markets.
The operating frequency range is from 20 ~ 1000MHz.
Gallium Nitride on SiC technology is used and attached o an aluminum sub carrier. Full in/out matching for broadband performance is already applied.
Improved thermal handling by patented technology.

Electrical Specifications @ V_{CC} = 28V; T = 25°C; $Z_S = Z_L$ = 50Ω

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	20	-	1000	-
Small Signal Gain	dB	34	36	38	-
Gain Variation vs Temperature	dB	-2	-	2	-20 ~ 60°C
Gain Variation vs Frequency	dBpp	-	±1	±1.5	-
P_3dB	dBm	42	44	-	20 ~ 500 MHz
		41	43	-	500 ~ 1000 MHz
OIP3 @ Po = +33dBm (1MHz Tone spacing, CW 2-Tone)	dBm	48	51	-	20 ~ 500 MHz
		45	48	-	500 ~ 1000 MHz
Input Return Loss	dB	-	-10	-6	-
N^{TH} Harmonic suppression	dBc	15	25	-	CW 1-tone @Po = +40dBm
Supply Voltage	V	27.5	28	30	Vcc(=Vds)
Quiescent Current consumption	mA	-	1.7	1.9	-
Current Consumption @ P_3dB	A	-	2.3	3	CW 1-tone

Absolute Maximum Ratings

PARAMETER	UNIT	RATING
Operating Case Temperature	°C	80
Input RF Power	dBm	14
Supply Voltage	V	30
Load Mismatch Value	-	3 : 1 @all load phase

Note
Input Signal Condition : CW 1-tone.
For more information, please contact RFHIC.

Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX
Operating Temperature	°C	-20	-	60
Storage Temperature	°C	-40	-	105
Vibration	MIL-STD-810G Method 514.6 ANNEX C			

Typical Performance @ 25°C

Frequency	P1dB	P3dB	Current@P1dB	Current@P3dB	N^{TH} Harmonic @ 40dBm		OIP3 @30dBm/Tone
					2^{nd} Harm	3^{rd} Harm	
(MHz)	(dBm)	(dBm)	(A)	(A)	(dBc)		(dBm)
20	41.0	43.1	1.8	2.0	35.4	26.9	53.0
100	41.8	44.3	1.9	2.3	45.8	25.8	53.2
200	40.8	44.2	1.9	2.5	43.1	22.5	52.0
300	40.1	43.8	1.9	2.4	41.7	20.1	50.7
400	41.2	44.4	1.8	2.4	44.8	26.8	51.0
500	41.7	44.2	1.8	2.3	34.7	29.6	50.8
600	41.3	43.3	1.7	2.0	33.3	27.7	49.4
700	41.0	42.9	1.6	1.9	35.1	28.2	48.6
800	40.7	42.4	1.7	1.9	36.3	40.4	48.0
900	40.2	42.4	1.7	2.0	36.9	47.5	47.6
1000	39.3	41.6	1.7	2.0	35.9	52.1	46.3

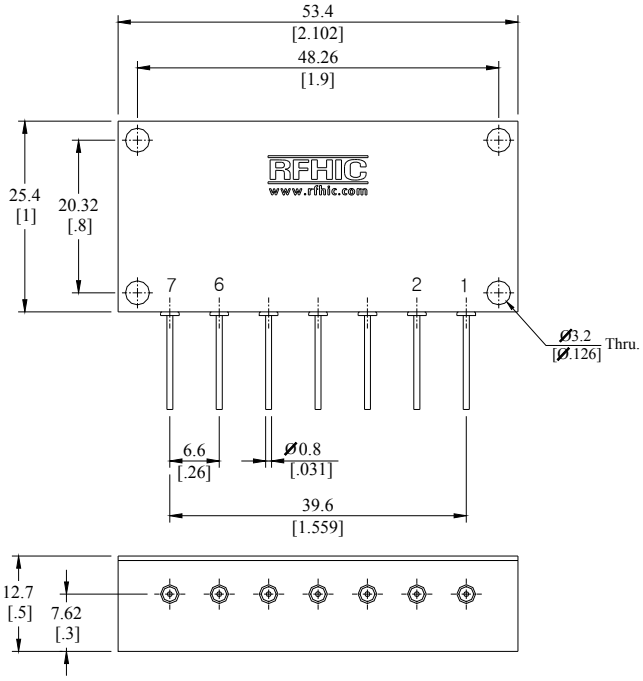
Precautions

1. This product is designed to be used for broadband amplification.
Heat generation is higher when there is no RF signal in the device.
Therefore, the worst case scenario is when there is no RF signal, and the amplifier is “on” with current draw.
The temperature must be calculated properly.
Case temperature must be maintained below 80°C.

2. Thermal Grease or Metal Thermal Interface Materials are recommended for heat dissipation.
An example would be spreading thermal grease on the bottom of the device.

Package Dimensions

* Unit: mm[inch] | Tolerance: ±0.15[.006]



Pin Description			
Pin No	**Function**	**Pin No**	**Function**
1	GND	5	Vcc
2	RF IN	6	RF OUT
3	NC(Not Connection)	7	GND
4	GND	-	-

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RWS05020-10	2012.11.9	1.2	Electrical Specifications modification.	-
RWS05020-10	2012.9.5	1.1	-	-