



## Product Features

- GaN on SiC Wideband Power Amplifier
- 1600 ~ 2300MHz Operating Bandwidth
- 250W Saturated Power @ 28V
- 23% Drain Efficiency @ 28V
- Wide Supply Voltage @20~36V

## Applications

- General Purpose
- Communication System



## Description

The RTP1623050-20 is a unique GaN-SiC wideband power amplifier that powers 47dBm over a bandwidth of 1600~2300MHz. This GaN wideband power amplifier has been specifically developed for communication system and other application in general.

## Electrical Specifications @ $V_{DS} = 28V$ , $T = 45^{\circ}C$ , 50 $\Omega$ System

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	1600	-	2300	$f_o$
Operating Bandwidth	MHz	-	700	-	OBW
Average Rated Output Power <sup>*1</sup>	dBm		47		$P_o$
Peak Output Power <sup>*2</sup>	dBm	-	54	-	$P_{peak}$
OIP3 / OIP5 <sup>*1, *4</sup>	dBm	57/59/61	-	-	-
Power Gain <sup>*1</sup>	dB	10	-	-	$G_p$
Gain Flatness <sup>*1</sup>	dB	-	-	3	$G_f$
Output Return Loss	dB	14	-	-	$S_{22}$
Operating Voltage	V	20	28	36	-
Efficiency <sup>*1</sup>	%	-	23	-	$E_{ff}$
Enable/Disable Response Time <sup>*3</sup>	$\mu sec$	-	-	5	-
Out-band Spurious and Harmonics <sup>*1, *4</sup>	dBc	35/40	-	-	-

### Note

\*1  $P_o=47dBm/2$ -tone, 10MHz tone spacing.

\*2 Pulse width 10 $\mu sec$ , Duty Cycle 10%

\*3 Low(0V)=Enable, High(+5V)=Disable

\*4 Measurements about OIP3/OIP5, Out-band spurious and harmonics following under specifications

a.OIP3/OIP5

- 59dBm Min.@1810~2000MHz

- 61dBm Min.@2100~2200MHz

- 57dBm Min.@1600~1810MHz, 2200~2300MHz

b. Out-band Spurious and Harmonics

- 40dBc Min.@3620~4000MHz, 4200~4400MHz

- 35dBc Min.@Other frequencies

**Mechanical Specifications**

PARAMETER	UNIT	VALUE
Dimensions (L x W x H)	mm	190 x 110 x 30
Weight	Kg	1.1(typ)
RF Input Connector	-	SMA (Female)
RF Output Connector	-	N-type (Female)
I/O Connector	-	26-01-3116 (Molex)
Cooling	-	External Heat-sink & Airflow

**Environmental Characteristics**

PARAMETER	UNIT	MIN	TYP	MAX
Operating Case Temperature *	°C	-40	-	+85
Storage Temperature	°C	-60	-	+125
Relative humidity w/o condensation	%	-	-	95

\* Dissipation power is about 250W

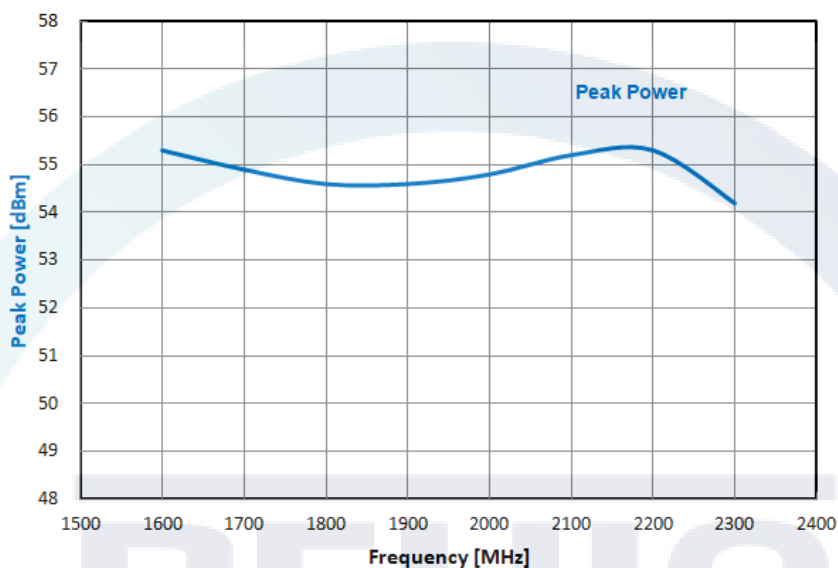
**RFHIC**  
www.rfhic.com

## Typical Pulsed Signal Performance

(Pulse width 10μsec, Duty Cycle 10%)

\* Bias condition( $V_{DS}=28V$ ,  $I_{DS}=3500mA$ ,  $T_c=45^{\circ}C$ )

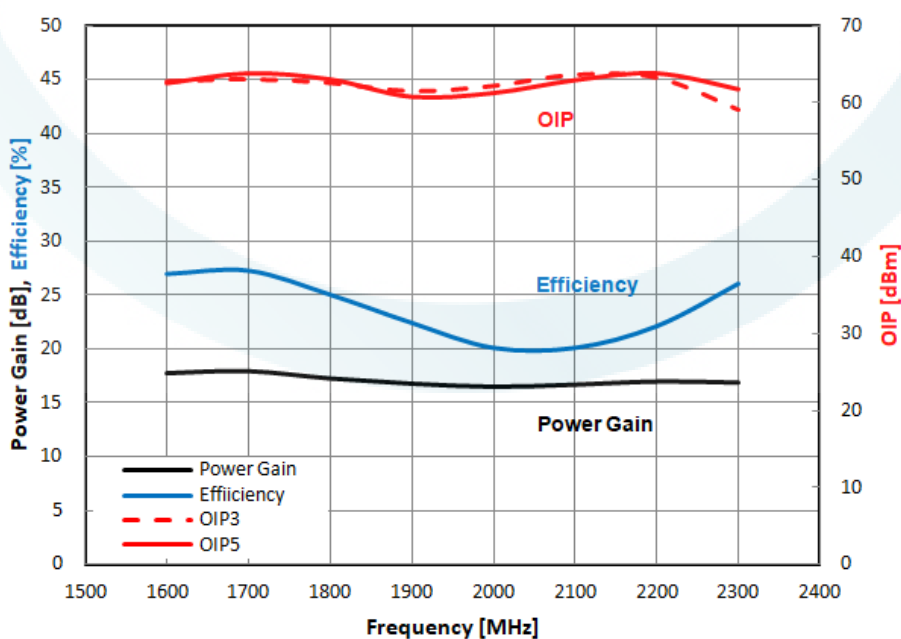
Pulsed Signal Peak Power vs. Frequency

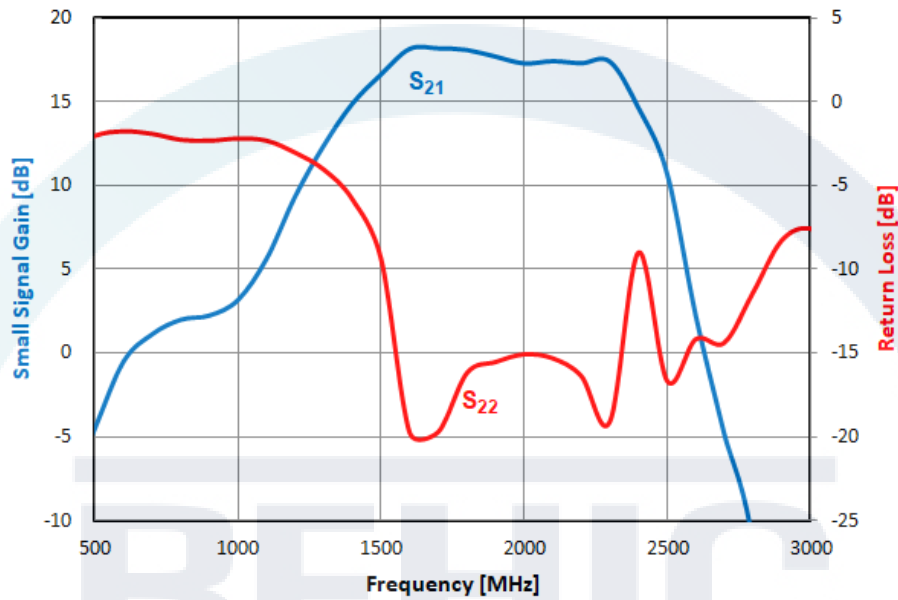
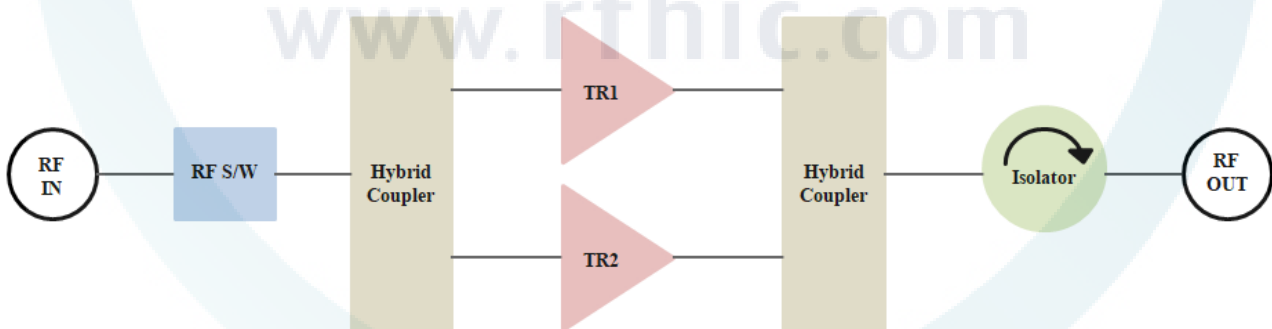


## Typical 2-tone Signal Performance

 $(P_o=47dBm/2\text{-tone}, 10MHz\text{ tone spacing})$ \* Bias condition( $V_{DS}=28V$ ,  $I_{DS}=3500mA$ ,  $T_c=45^{\circ}C$ )

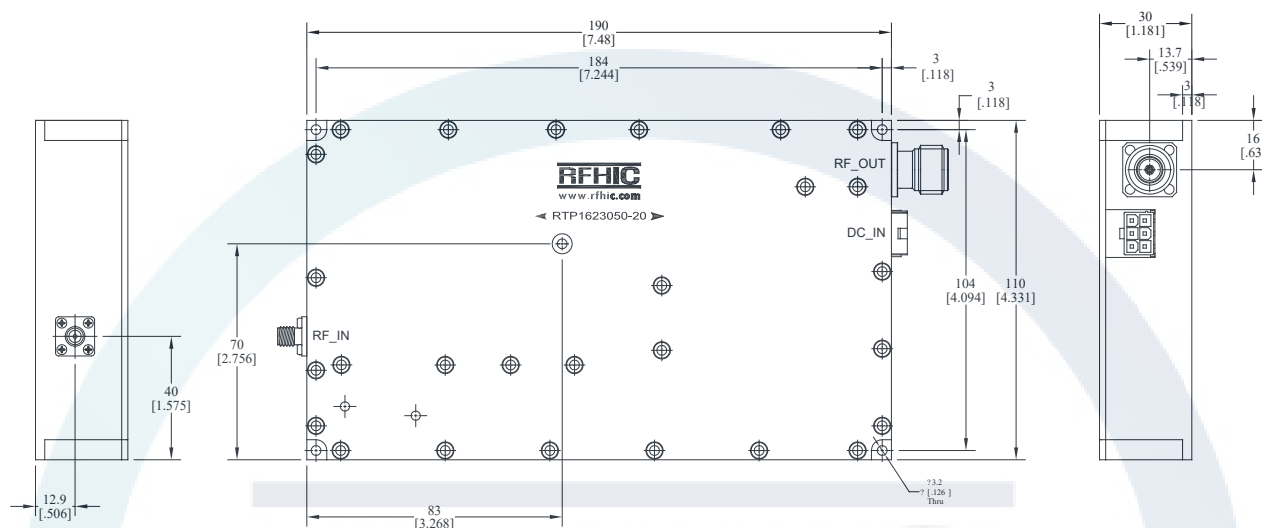
2 Tone based Power Gain and Drain Efficiency, OIP vs. Frequency



**Typical Small Signal Performance**(Network Analyzer input level  $P_{in}=0\text{dBm}$ )\* Bias condition( $V_{DS}=28\text{V}$ ,  $I_{DS}=3500\text{mA}$ ,  $T_c=45^\circ\text{C}$ )**Small Signal Gain and Output Return Loss vs. Frequency****Block Diagram**

## Outline Drawing

Unit : $\frac{\text{mm}}{[\text{inch}]}$	Tolerance : $\pm \frac{0.3}{.0118}$
--	-------------------------------------



## Note

Connector positions and module mount holes may be subjected change.

## Interface Connector

Based on 6 Pin Connector(26-01-3116)

Pin No	Description
1	N.C
2,5	GND
3,6	+28V
4	Enable/Disable

## Note

Pin No.4 refers to Low(0V)=Enable and High(+5V)=Disable

**Revision History**

Part Number	Release Date	Version	Description	Data Sheet Status
RTP1623050-20	June, 2019	0.1	Initial release of datasheet	-



RFHIC Corporation reserves the right to make changes to any products herein or to discontinue any product at any time without notice. While product specifications have been thoroughly examined for reliability, RFHIC Corporation strongly recommends buyers to verify that the information they are using is accurate before ordering. RFHIC Corporation does not assume any liability for the suitability of its products for any particular purpose, and disclaims any and all liability, including without limitation consequential or incidental damages. RFHIC products are not intended for use in life support equipment or application where malfunction of the product can be expected to result in personal injury or death. Buyer uses or sells such products for any such unintended or unauthorized application, buyer shall indemnify, protect and hold RFHIC Corporation and its directors, officers, stockholders, employees, representatives and distributors harmless against any and all claims arising out of such unauthorized use.

Sales, inquiries and support should be directed to the local authorized geographic distributor for RFHIC Corporation. For customers in the US, please contact the US Sales Team at 919-677-8780. For all other inquiries, please contact the International Sales Team at 82-31-8069-3000.