

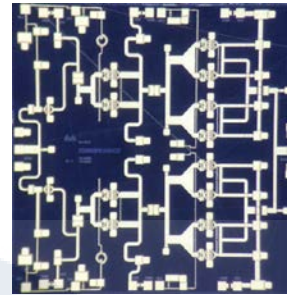


Product Features

- 20~22GHz frequency range
- 10W GaN HEMT MMIC
- 24% Efficiency at Psat
- up to 28V Supply voltage
- 50ohm matched input/output
- Die Size 3.4 x 3.4 x 0.1 mm

Applications

- SATCOM
- Point to point radios
- Point to Multipoint Radios



Description

GM20022010D is a balanced 3-stage monolithic GaN HEMT amplifier for SATCOM and Point to Point or Point to Multipoint Radios Application.

This MMIC is fully matched to 50 ohms with integrated DC blocking capacitors on RF ports.

This MMIC typically provides 25dB of Small signal gain and 40dBm of saturated output power, 24% of efficiency

Electrical Specifications

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Frequency	GHz	20	-	22	-
Gain	dB	23	25	-	-
Power Gain	dB	-	22	-	CW
Input Return Loss	dB	-	-10	-	-
Output Return Loss	dB	-	-10	-	-
Peak Output Power	dBm	-	40	-	CW
Efficiency	%	-	24	-	CW
DC Current	mA	-	1000	-	Vdd = 28.0V

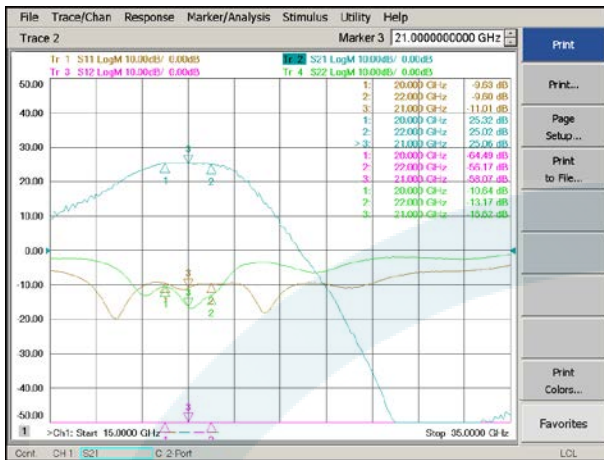
Note

1. Test conditions unless otherwise noted. T=25°C, Vdd=28V, 50Ω system

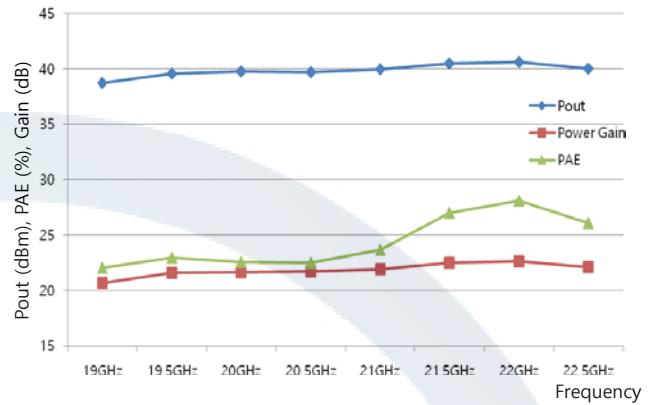
Absolute Maximum Ratings

PARAMETER	UNIT	MIN	TYP	MAX
Drain Voltage	VDC	-	-	35
Gate Voltage	VDC	-5.5	-	0
Operating Temperature	°C	-40	-	+85
Storage Temperature	°C	-55	-	+150
Mounting Temperature	°C	-	-	300

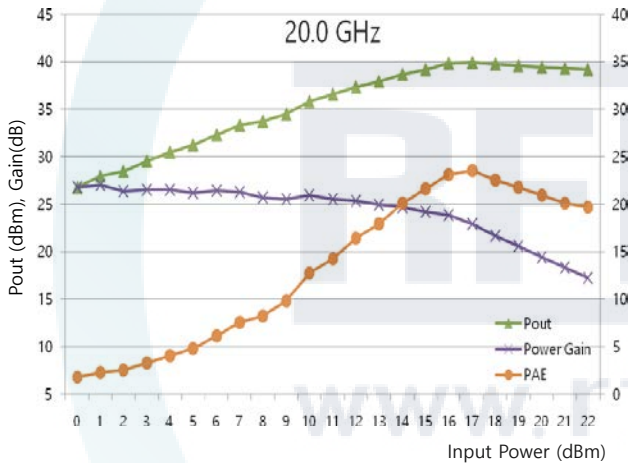
Typical Performance @ VDD=28V, IDS=1000mA, T=25°C, 50ohm System



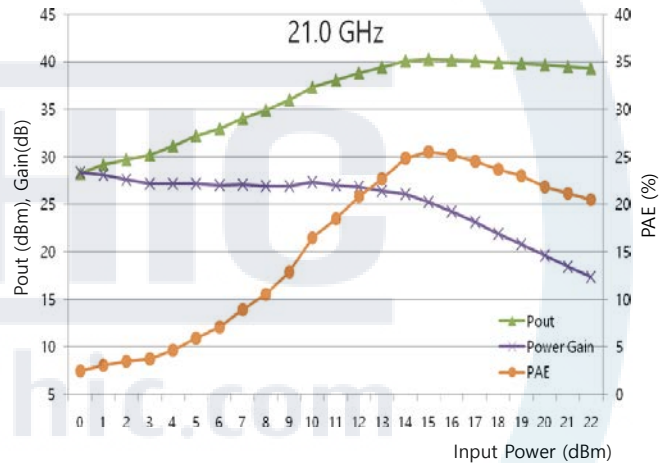
Pout, PAE, Gain vs. Frequency
18dBm input



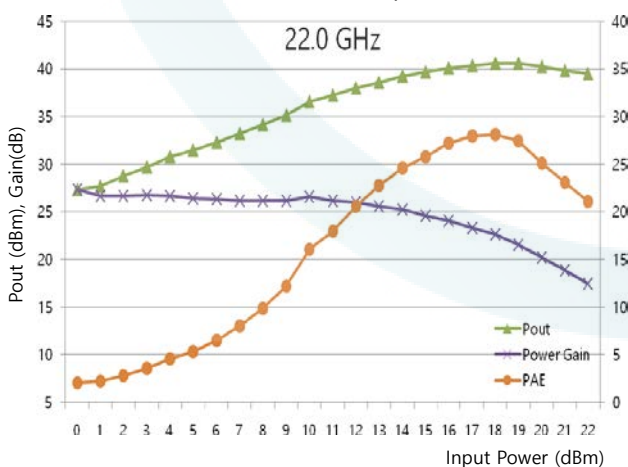
Pout, PAE, Gain vs. Input Power
20.0 GHz



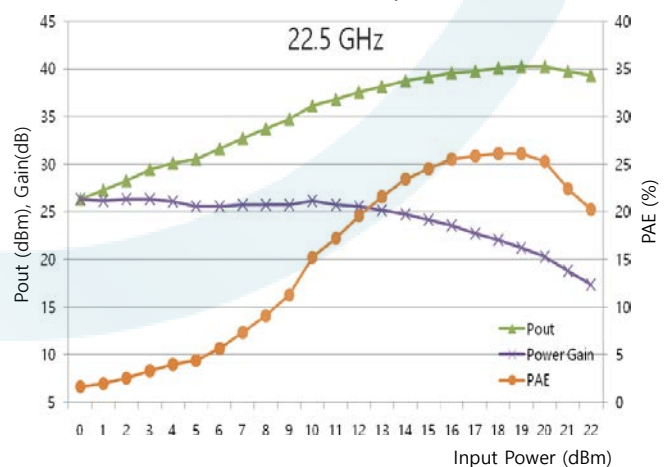
Pout, PAE, Gain vs. Input Power
21.0 GHz



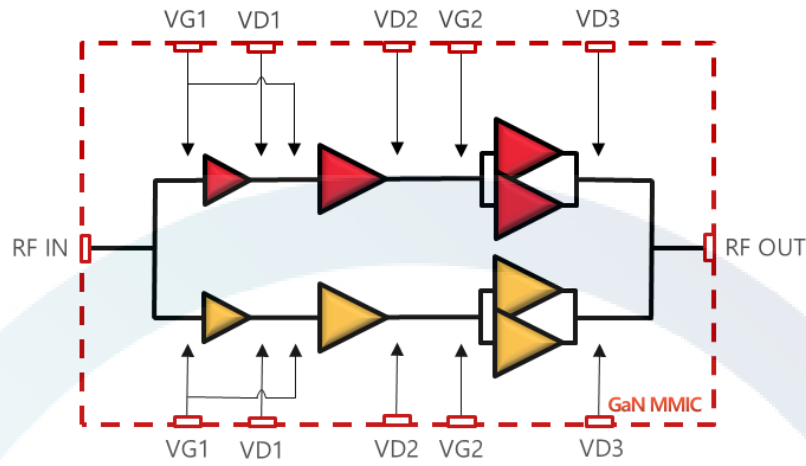
Pout, PAE, Gain vs. Input Power
22.0 GHz



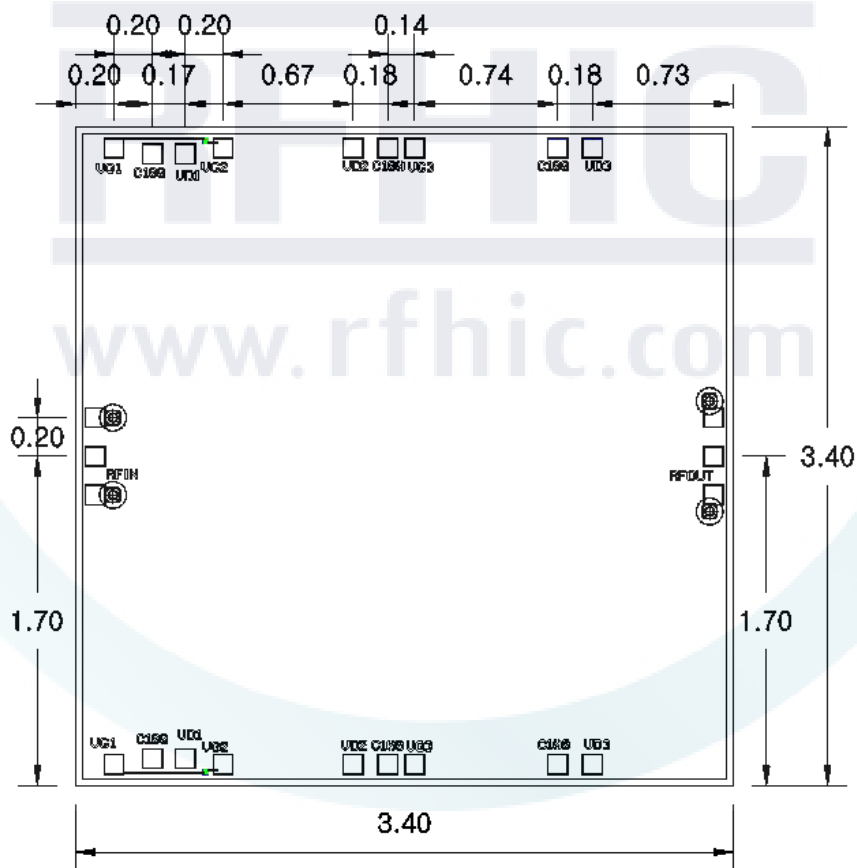
Pout, PAE, Gain vs. Input Power
22.5 GHz



Block Diagram



Die Dimensions (mm)

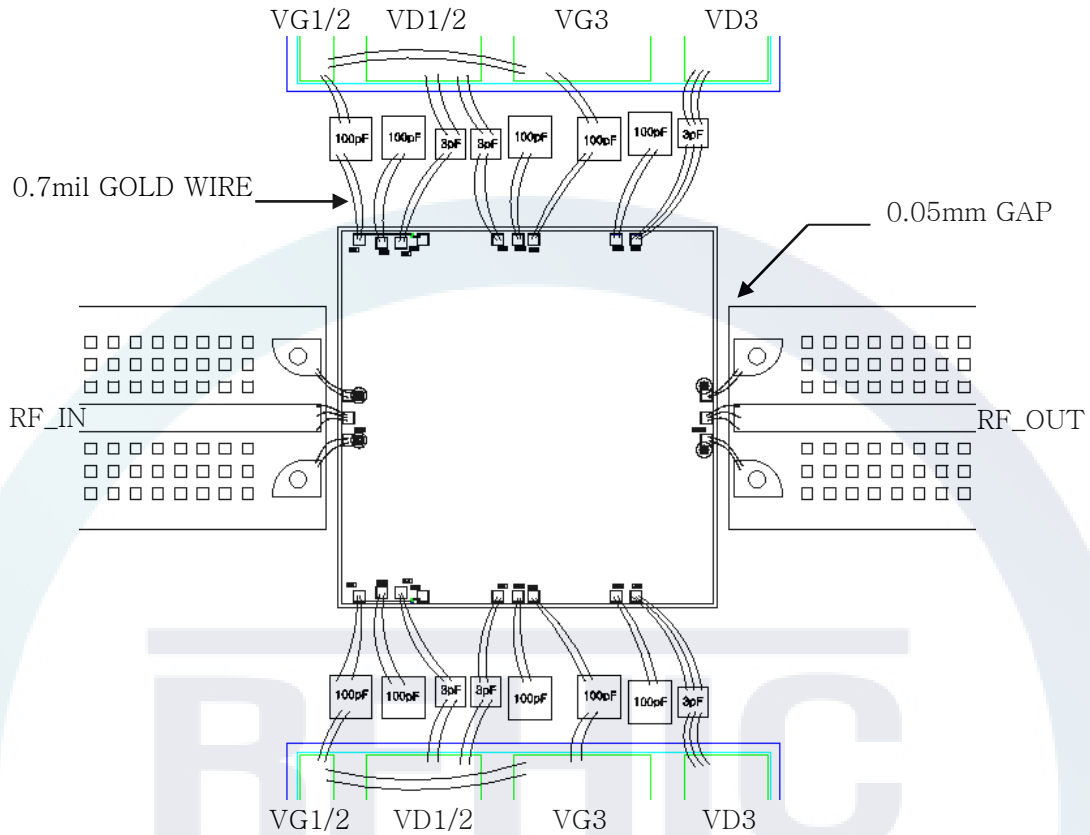


DC/GND Bond pad : 100 x 100 um

RF Bond pad : 100 x 100 um

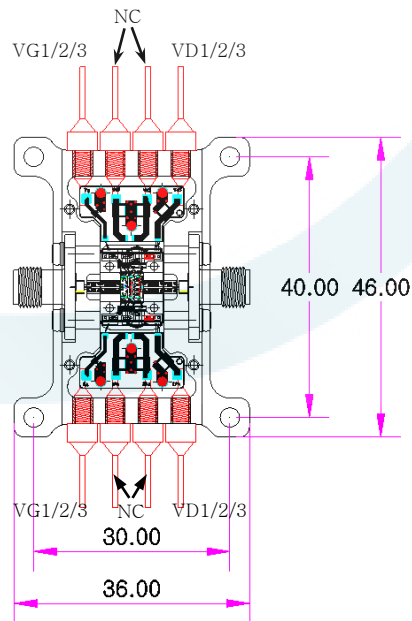
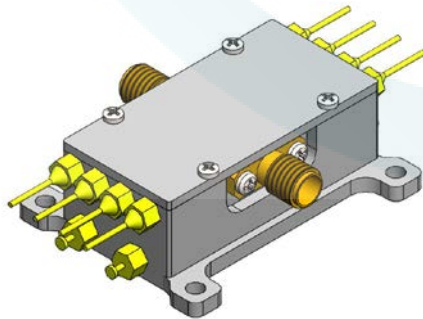
Die thickness : 0.10mm

Assembly Diagram



Ground is backside of die
 VG & VD connection must be biased from both sides.
 Recommended solder is AuSn(80/20) solder

Evaluation board dimension



Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
GM20022010D	2017.11.27	0.1	Initial Release	Preliminary



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 82-31-8069-3036