

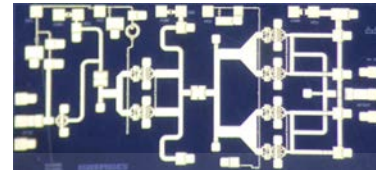


**Product Features**

- 20~22GHz frequency range
- 5W GaN HEMT MMIC
- 27% Efficiency at Psat
- up to 28V Supply voltage
- 50ohm matched input/output
- Die Size 3.4 x 1.6 x 0.1 mm

**Applications**

- SATCOM
- Point to Point Radios
- Point to Multipoint Radios.



**Description**

GM20022005D 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 37.5dBm of saturated output power, 27% of efficiency

**Electrical Specifications**

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Frequency	GHz	20	-	22	-
Gain	dB	23	25	-	-
Power Gain	dB	-	23	-	CW
Input Return Loss	dB	-	-9	-	-
Output Return Loss	dB	-	-9	-	-
Peak Output Power	dBm	-	37.5	-	CW
Efficiency	%	-	27	-	CW
DC Current	mA	-	500	-	Vdd = 28.0V

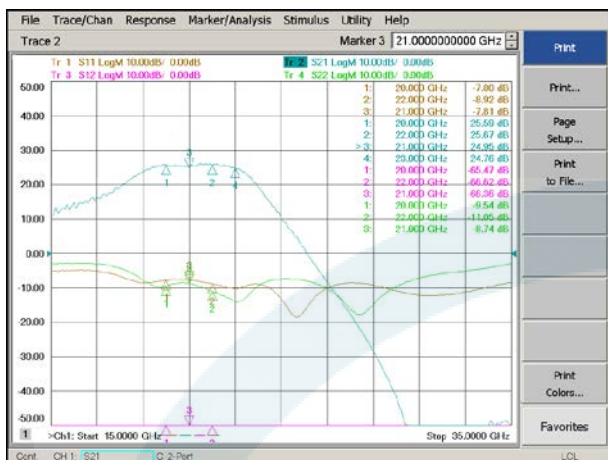
**Note**

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

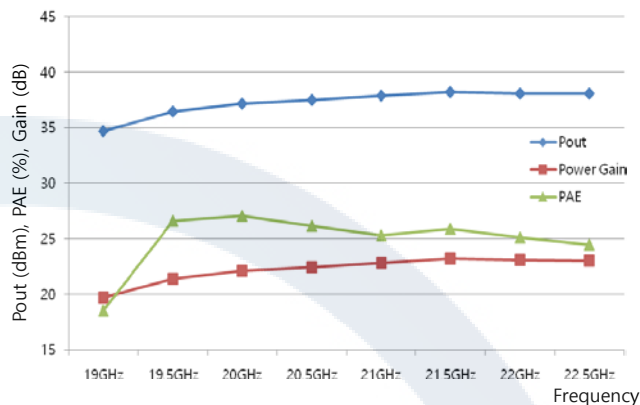
**Absolute Maximum Ratings**

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

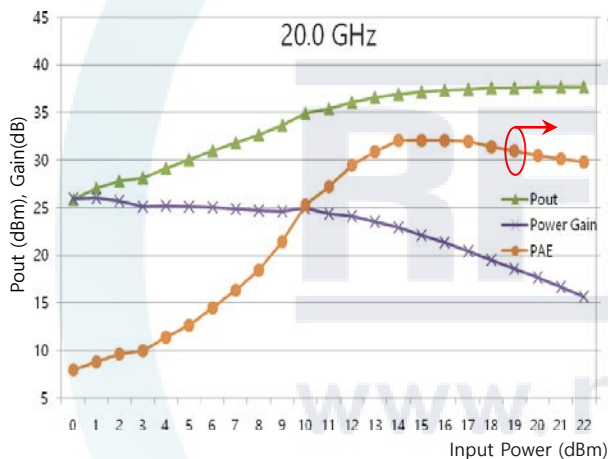
**Typical Performance @ VD1=VD2=28V, IDS=500mA, T=25°C, 50ohm System**



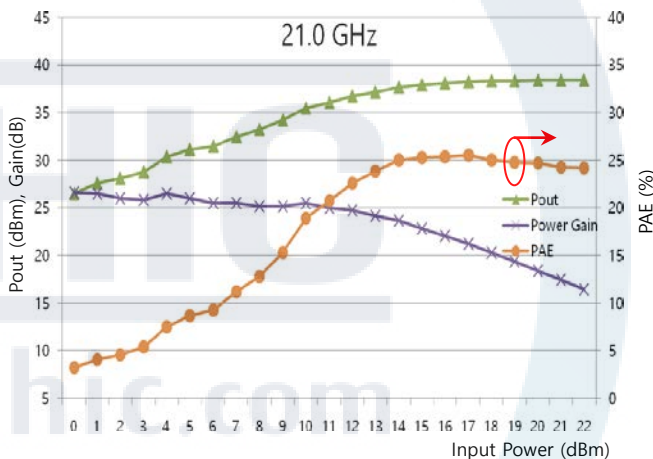
Pout, PAE, Gain vs. Frequency  
15dBm input



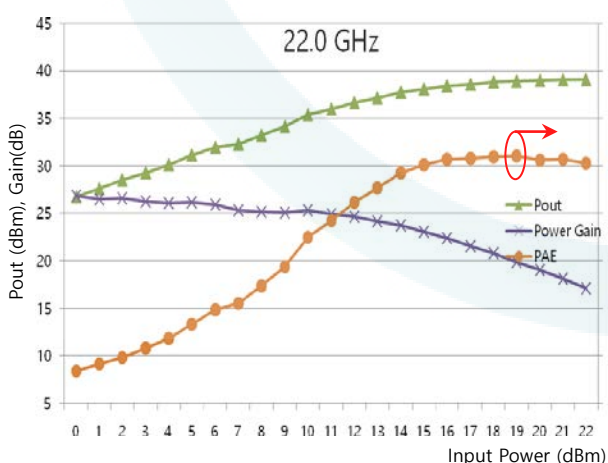
Pout, PAE, Gain vs. Input Power  
20.0 GHz



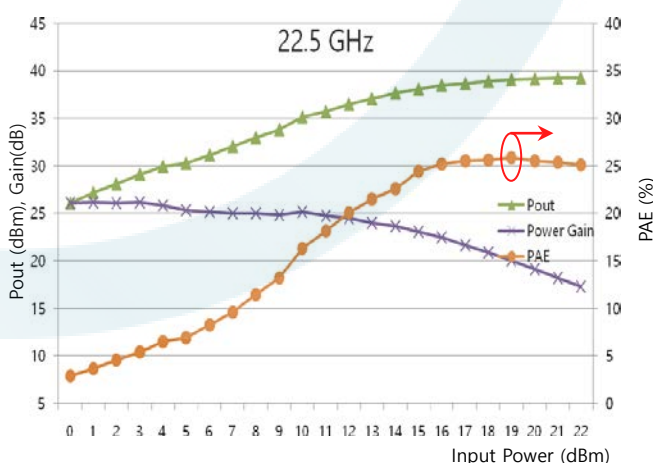
Pout, PAE, Gain vs. Input Power  
21.0 GHz



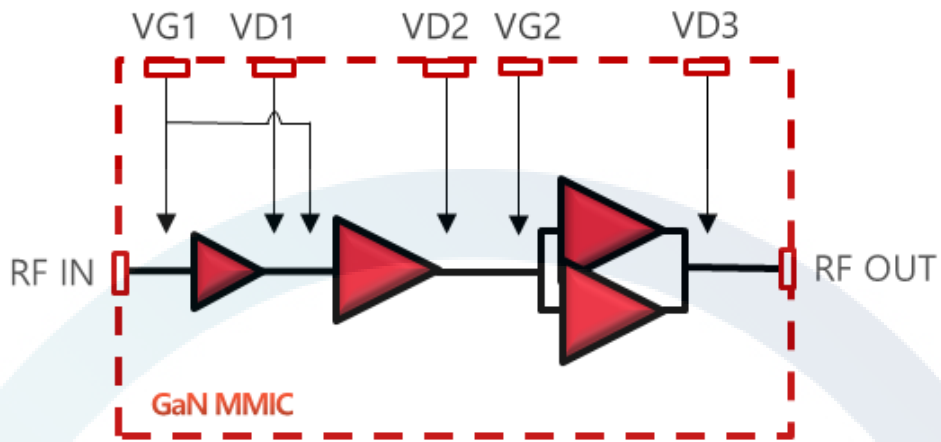
Pout, PAE, Gain vs. Input Power  
22.0 GHz



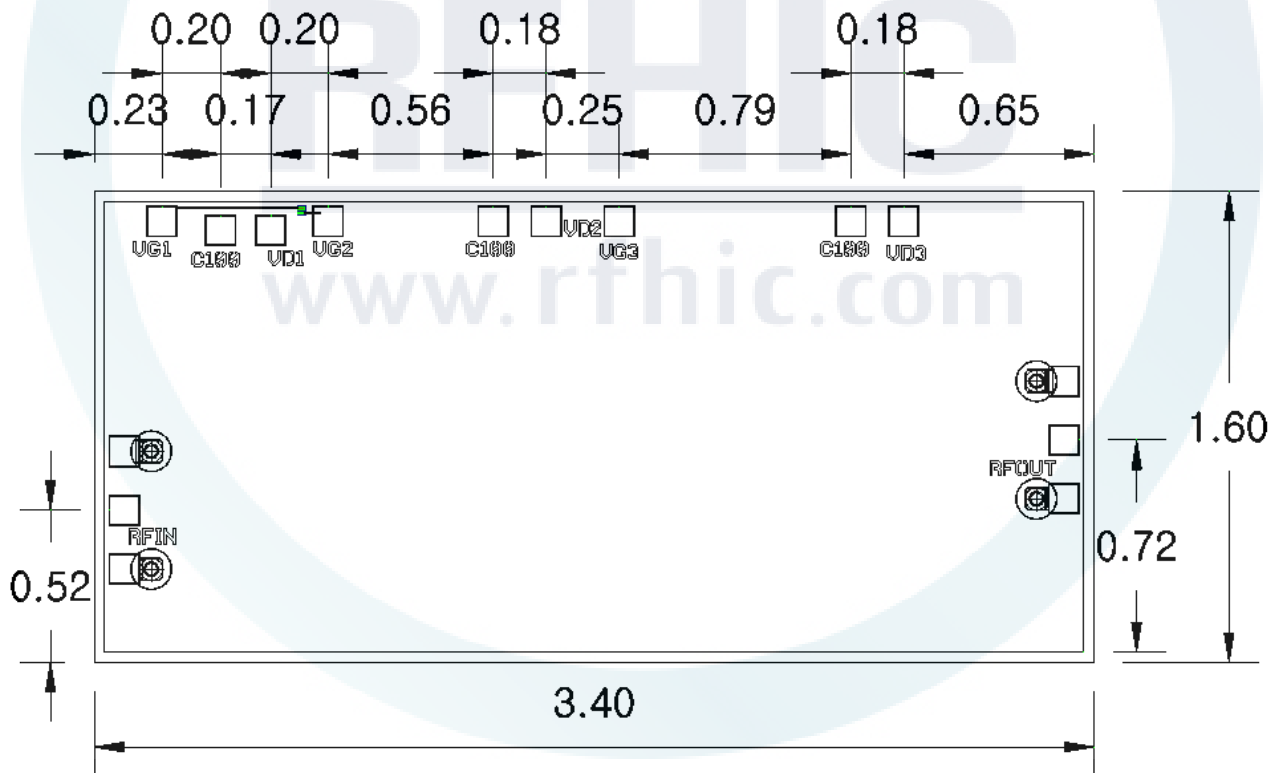
Pout, PAE, Gain vs. Input Power  
22.5 GHz



**Block Diagram**



**Die Dimensions (mm)**



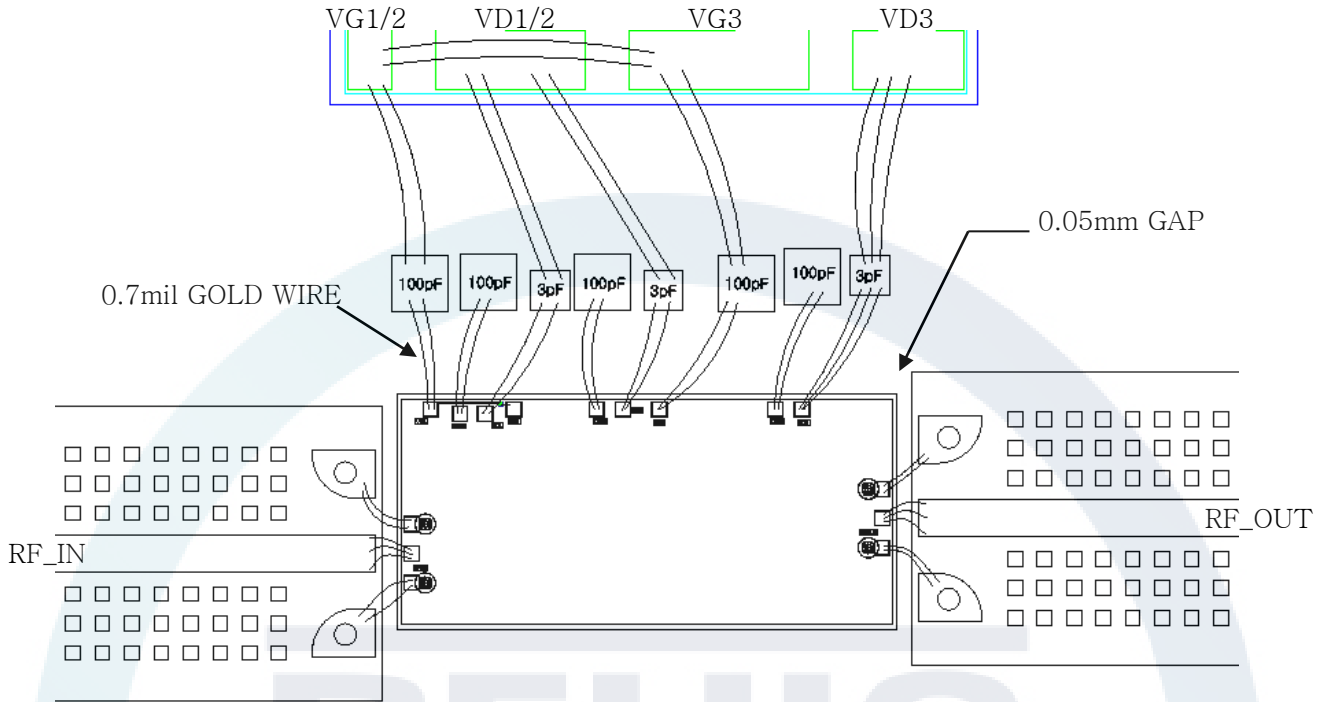
**DC Bond pad : 100 x 100 um**

**GND Bond pad : 100 x 100 um**

**RF Bond pad : 100 x 100 um**

**Die thickness : 0.10mm**

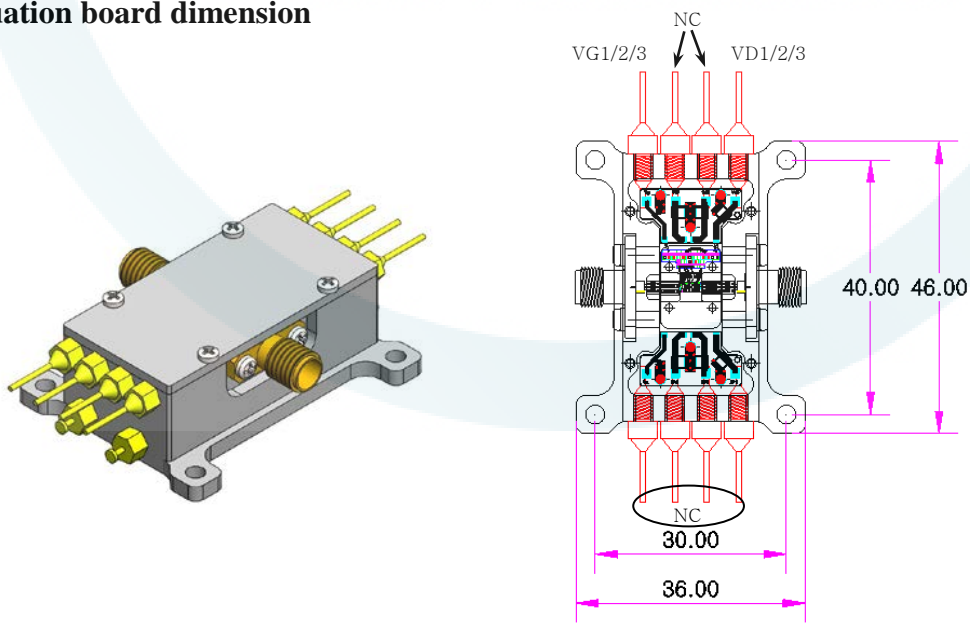
**Assembly Diagram**



Ground is backside of die  
 Recommended solder is AuSn(80/20) solder



**Evaluation board dimension**



**Revision History**

Part Number	Release Date	Version	Modification	Data Sheet Status
GM20022005D	2017.11.27	0.1	Initial Release	Preliminary



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