

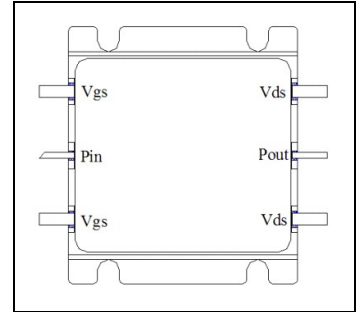


0.8-2.2GHz, 100W, GaN Fully matched PA Module

Description

The GMAH0822-100H3 is a 100-watt, single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 0.8 to 2.2GHz. The module is 50 Ω input/output matched and requires minimal external components.

The module implements multiple GaN active dice and its matching network within highly compact 30.8*27.4mm metal RF package with excellent capability for heat dissipation.



Vds=32V Idq=250mA Vgs=-2.75V CW						
F (MHz)	Pin (dBm)	Psat (dBm)	Psat (W)	Id (A)	Gain (dB)	Eff (%)
800	38.62	50.21	105.0	5.15	11.59	63.7
900	40.018	51.278	134.2	6.74	11.26	62.2
1000	40.429	51.269	133.9	6.975	10.84	60.0
1100	41.565	52.165	164.6	9.33	10.6	55.1
1200	41.299	52.159	164.4	8.15	10.86	63.0
1300	40.92	50.95	124.5	6.56	10.03	59.3
1400	40.527	51.067	127.8	7.05	10.54	56.7
1500	40.594	50.634	115.7	6.34	10.04	57.0
1600	41.522	50.762	119.2	7.29	9.24	51.1
1700	40.79	51.29	134.6	7.79	10.5	54.0
1800	39.56	51.34	136.1	8	11.78	53.2
1900	39.211	50.721	118.1	8.32	11.51	44.3
2000	39.324	50.944	124.3	6.82	11.62	56.9
2100	40.204	51.014	126.3	8.53	10.81	46.3
2200	40.209	50.729	118.3	9.04	10.52	40.9

Product Features

- Operating Frequency Range: 0.8-2.2GHz
- Operating Drain Voltage(Recommended): +32V
- 50 Ω Input/Output (External DC block capacitor needed)
- Psat ≥ 50 dBm (CW)
- Small signal gain: >13dB, Power gain: >10dB
- Minimum efficiency: >40%
- 30.8*27.4 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- Ultra Broadband Amplifiers within L band
- Test Instrumentation
- EMC Amplifier Drivers
- 2-way Radios

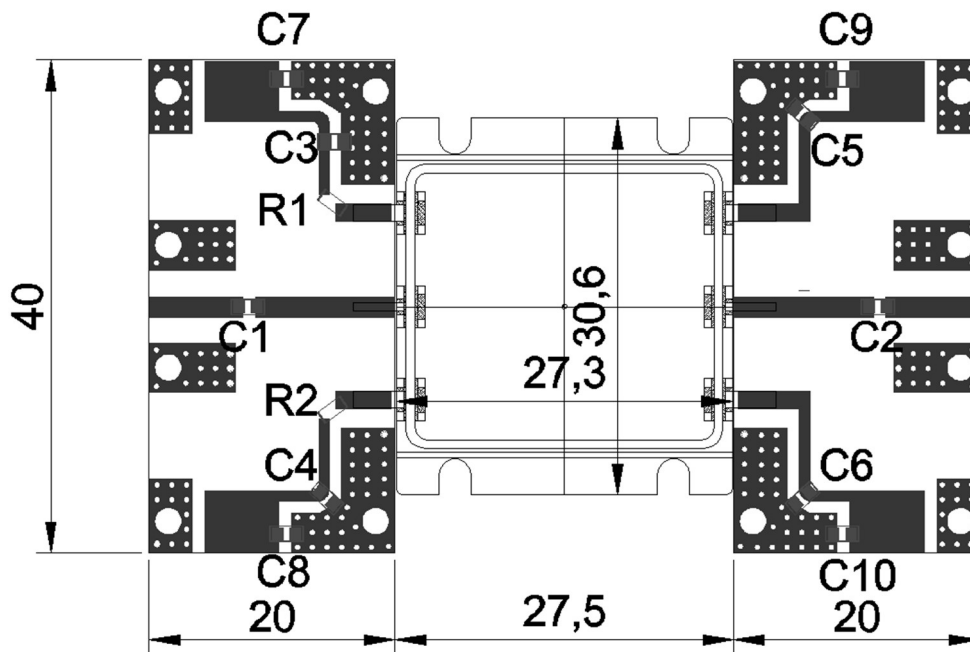
Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+32	Vdc
Storage Temperature Range	T_{stg}	-65 to +150	°C
Case Operating Temperature	T_c	+150	°C
Operating Junction Temperature	T_j	+225	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case $T_c = 25^\circ\text{C}$, $P_{out} = 100\text{W}$, FEA	$R_{\theta JC}$	1.3	°C/W

Typical application circuit



Component	Description	Suggested Manufacturer
C7,C8,C9,C10	Ceramic multilayer capacitor, 10uF, 100V	10uF/100V
C1,C3,C4,C5,C6	10pF	MQ200805_Series
C2	15pF	MQ300709_Series
R1	Chip Resistor, 10Ω, 1206	
PCB	30Mil Rogers 4350B	



TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Pin=0dBm)

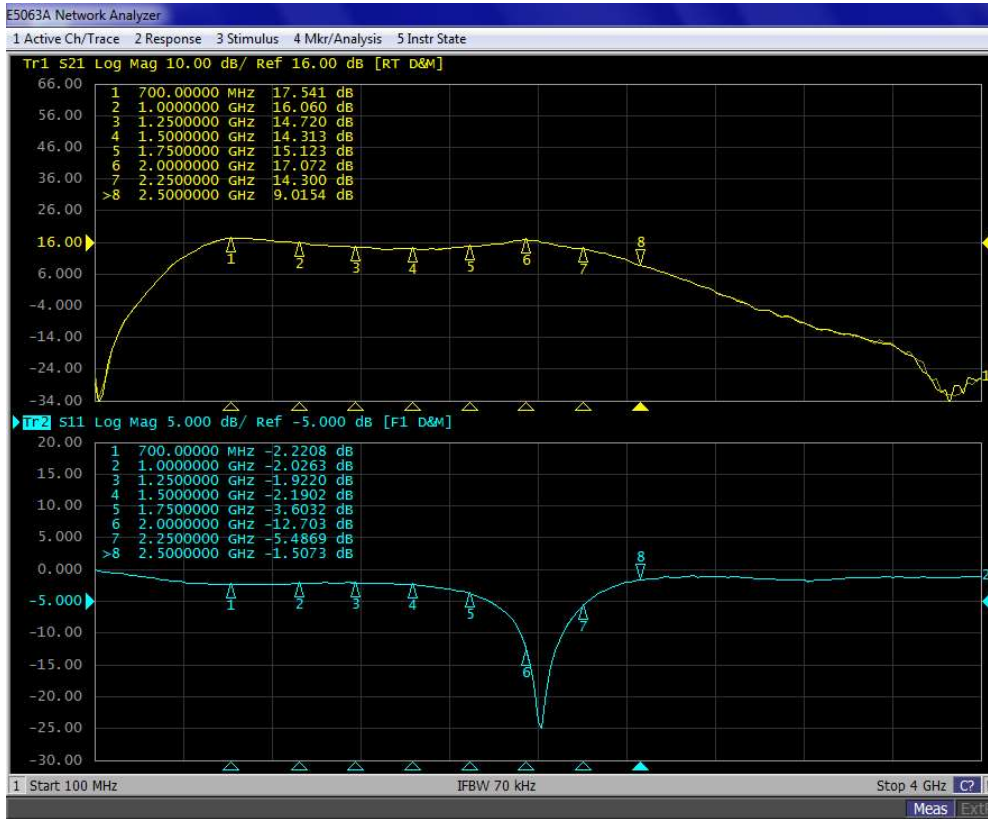
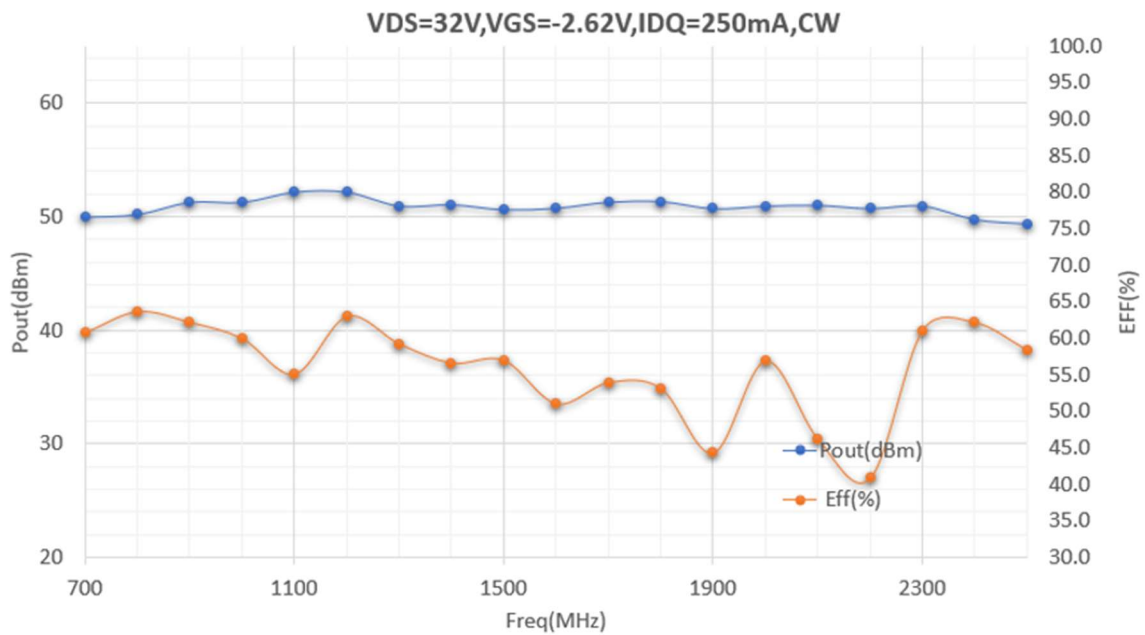
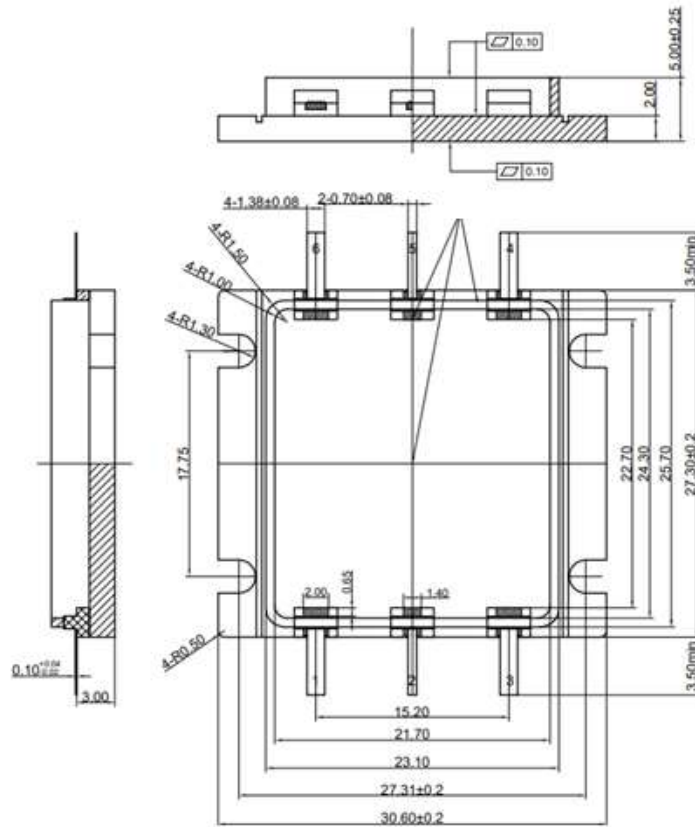


Figure 3. Psat, Eff Vs Frequency across the band





Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2023/7/17	Rev 1.0	Advanced Datasheet

Application data based on JF-23-05

Disclaimers

Specifications are subject to change without notice. Innogrations believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Innogrations for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Innogrations. Innogrations makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. "Typical" parameters are the average values expected by Innogrations in large quantities and are provided for information purposes only. These values can and do vary in different applications and actual performance can vary over time. All operating parameters should be validated by customer's technical experts for each application. Innogrations products are not designed, intended or authorized for use as components in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the Innogrations product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility. For any concerns or questions related to terms or conditions, pls check with Innogrations and authorized distributors
Copyright © by Innogrations (Suzhou) Co.,Ltd.