

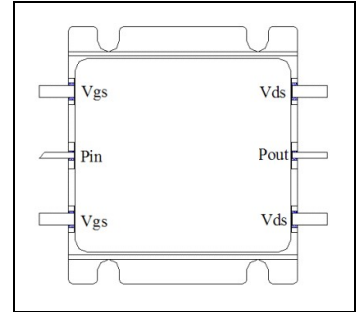


0.8-2.5GHz, 80W, GaN Fully matched PA Module

Description

The GMAH0825-80H3 is a 80-watt, single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 0.8 to 2.5GHz. The module is 50 Ω input/output matched and requires minimal external components. It can work at higher voltage up to 36V with increased power capability

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=150mA	VGS=-2.75V		CW		Harmonics (Pout=Psat)	
F (MHz)	Pin (dBm)	Psat (dBm)	Psat (W)	I (A)	Gain (dB)	Eff (%)	2nd (dBc)	3rd (dBc)		
700	38.18	48.79	75.7	3.45	10.61	68.6	11.00	13.50		
800	36.9	49.51	89.3	4.13	12.61	67.6	13.6	14.7		
900	37.27	49.94	98.6	4.72	12.67	65.3	20.7	13.9		
1000	36.2	50.12	102.8	5.06	13.92	63.5	25.0	15.5		
1100	37.36	50.4	109.6	5.71	13.04	60.0	17.8	16.8		
1200	37.35	50.55	113.5	6.06	13.2	58.5	26.0	18.0		
1300	39	51.29	134.6	6.94	12.29	60.6	23.3	16.7		
1400	38	50.93	123.9	6.6	12.93	58.7	23.8	19.4		
1500	38.83	51.13	129.7	6.78	12.3	59.8	30.6	23.3		
1600	38.94	51.07	127.9	7	12.13	57.1	30.5	27.8		
1700	38.5	51.01	126.2	7.16	12.51	55.1	24.5	26.2		
1800	39	51.13	129.7	7.29	12.13	55.6	24.4	24.4		
1900	39.05	51.1	128.8	7.24	12.05	55.6	19.8	17.9		
2000	39.11	50.75	118.9	6.56	11.64	56.6	19	12.8		
2100	38.6	50.65	116.1	6.47	12.05	56.1	31.5	16.4		
2200	38.93	50.63	115.6	6.81	11.7	53.1	29.2	18.2		
2300	39.4	50.53	113.0	6.42	11.13	55.0	30.8	17.3		
2400	38.5	50.25	105.9	6.09	11.75	54.4	36	15.9		
2500	38.61	49.74	94.2	5.56	11.13	52.9	42	24.5		



Product Features

- Operating Frequency Range: 0.8-2.5GHz
- Operating Drain Voltage(Recommended): +32 V (up to 36V with power increased >100W)
- 50 Ω Input/Output (External DC block capacitor needed)
- $P_{sat} \geq 49$ dBm (CW)
- Small signal gain:>13dB, Power gain:>11dB
- Minimum efficiency:>50%
- 30.8*27.4 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- Ultra Broadband Amplifiers, typically 0.8-2.5GHz, 1-2GHz,0.8-2.2GHz
- L band power amplifier, typically 960-1215MHz, 1200-1400MHz.1400-1600MHz
- Test Instrumentation
- EMC Amplifier Drivers
- 2-way Radios

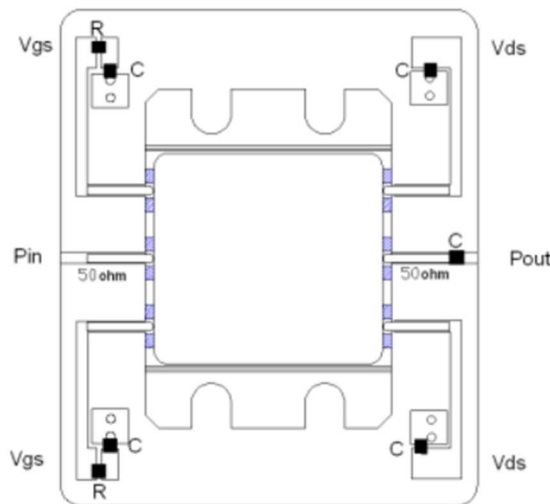
Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+36	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 $T_c = 25^\circ\text{C}, P_{out} = 90\text{W}, \text{FEA}$	$R_{\theta JC}$	1.3	°C/W

Typical application circuit



TYPICAL CHARACTERISTICS

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

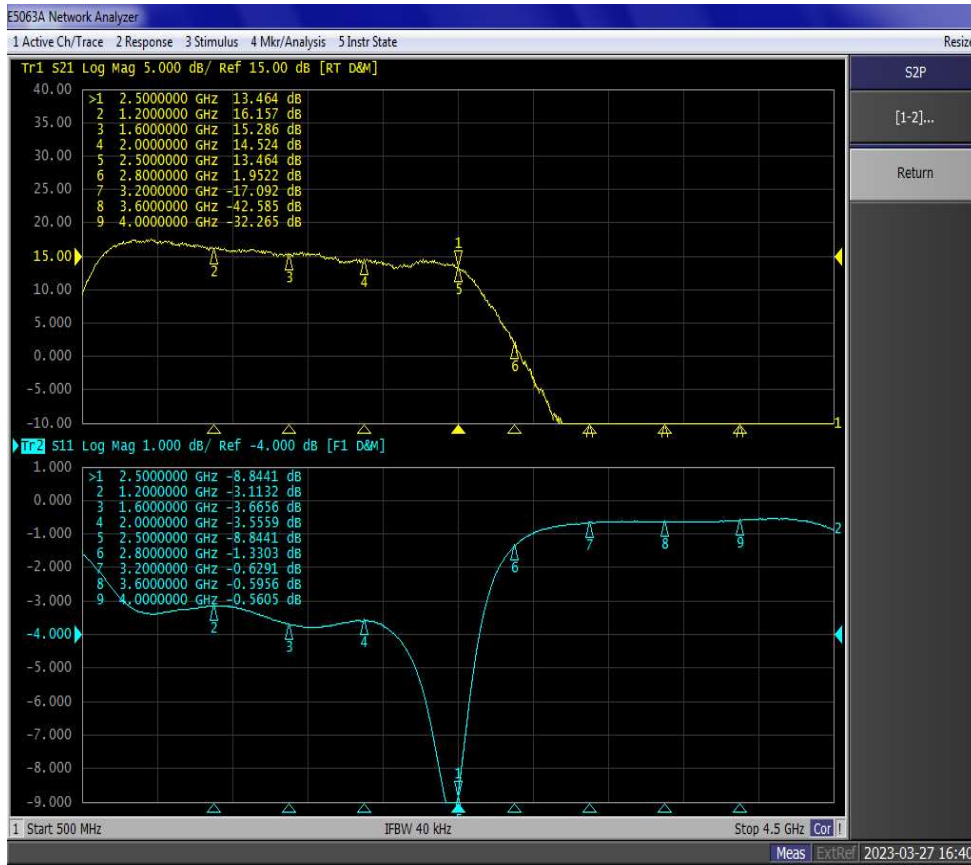
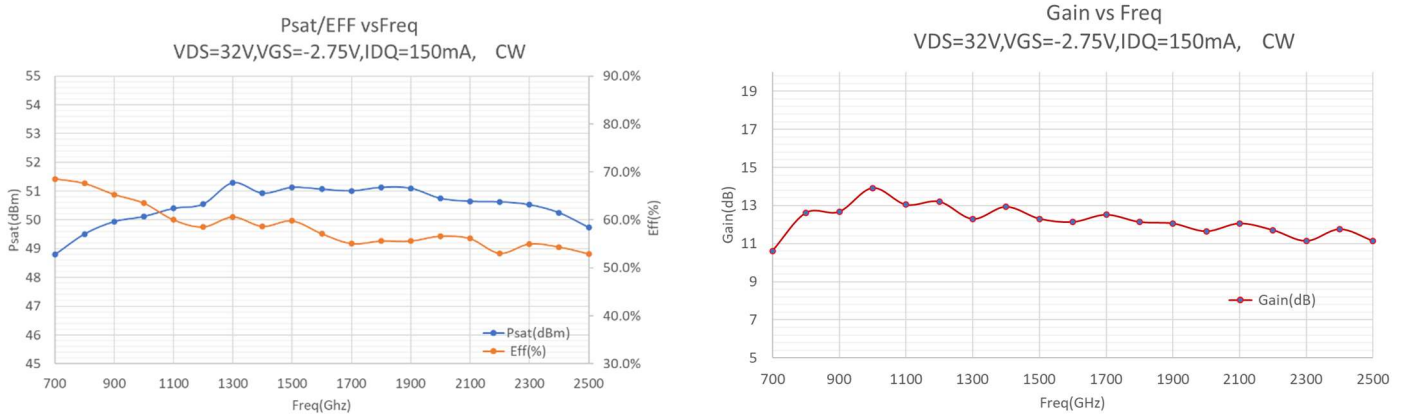
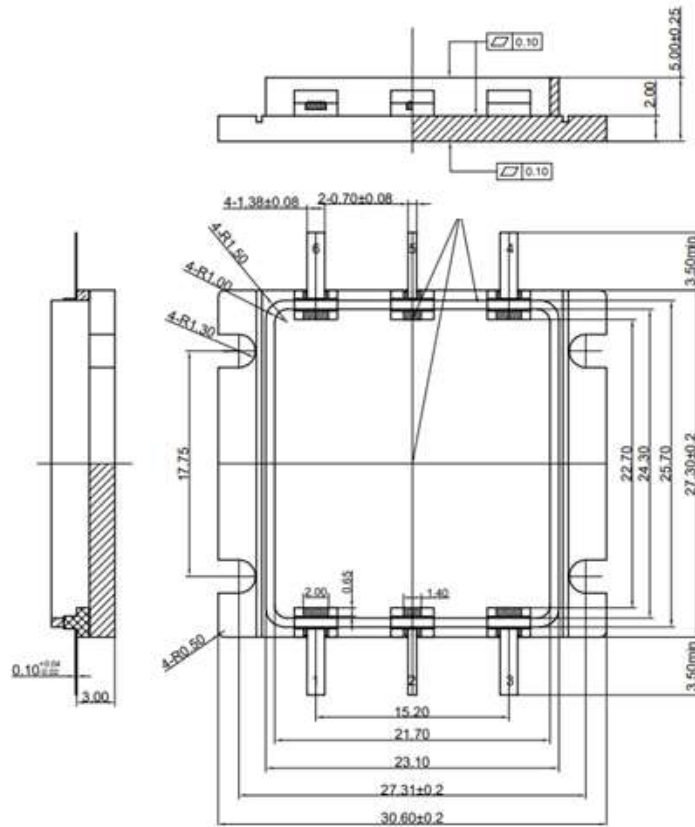


Figure 3. Psat, Eff and Power Gain Vs Frequency across the band





Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2023/3/29	Rev 1.0	Preliminary Datasheet

Application data based on SYX-23-10

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