



2-6GHz, 30W, GaN Fully matched PA Module

Description

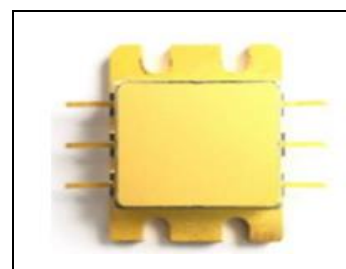
The GMAH2060-30H2 is a 30-watt, single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 2.0 to 6.0GHz.

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 24*17mm metal RF package with excellent capability for heat dissipation.

When used at narrower sub-band, it can be also fully matched solution with high performance highlighted in green

- 1.5-2.1G 60W
- 3.2-4.2G 50W



Freq(GHz)	Pin(dBm)	Pout(dBm)	Pout(W)	Ids(A)	Gain(dB)	Eff(%)
1.5	38.2	48.24	66.68	4.38	10.0	54.4
1.6	38.3	48.30	67.61	4.29	10.0	56.3
1.7	38.3	48.45	69.98	4.50	10.1	55.5
1.8	38.4	48.48	70.47	4.62	10.1	54.5
1.9	38.5	48.40	69.18	4.70	10.0	52.6
2.0	38.5	48.55	71.61	4.64	10.1	55.1
2.1	38.5	47.89	61.52	4.39	9.4	50.0
2.2	38.5	47.05	50.70	4.16	8.5	43.5
2.3	38.5	46.31	42.76	3.87	7.8	39.5
2.4	38.5	45.88	38.73	3.94	7.4	35.1
2.5	38.5	45.94	39.26	4.32	7.4	32.5
2.6	38.5	46.48	44.46	4.53	8.0	35.1
2.7	37.5	46.82	48.08	4.35	9.3	39.5
2.8	38.5	46.89	48.87	4.49	8.4	38.9
2.9	38.5	46.63	46.03	4.16	8.1	39.5
3.0	38.5	46.46	44.26	3.90	8.0	40.5
3.1	38.5	46.96	49.66	4.14	8.5	42.8
3.2	38.5	47.68	58.61	4.10	9.2	51.1
3.3	38.5	48.30	67.61	4.46	9.8	54.1
3.4	38.6	48.25	66.83	4.44	9.7	53.8
3.5	38.6	47.71	59.02	4.17	9.2	50.5



Freq(GHz)	Pin(dBm)	Pout(dBm)	Pout(W)	Ids(A)	Gain(dB)	Eff(%)
3.6	38.6	47.56	57.02	3.87	9.0	52.6
3.7	38.6	47.51	56.36	3.72	8.9	54.1
3.8	38.6	47.53	56.62	3.64	9.0	55.6
3.9	38.6	47.81	60.39	3.90	9.2	55.3
4.0	38.6	47.95	62.37	3.98	9.4	56.0
4.1	38.5	47.93	62.09	3.87	9.4	57.3
4.2	38.5	47.49	56.10	3.66	9.0	54.7
4.3	38.5	46.72	46.99	3.13	8.2	53.6
4.4	38.5	46.48	44.46	2.83	8.0	56.1
4.5	38.5	46.39	43.55	2.62	7.9	59.4
4.6	38.5	46.32	42.85	2.54	7.8	60.3
4.7	38.5	46.07	40.46	2.47	7.6	58.5
4.8	38.5	45.68	36.98	2.37	7.2	55.7
4.9	38.5	45.33	34.12	2.40	6.9	50.8
5.0	38.5	44.96	31.33	2.38	6.5	47.0
5.1	38.4	44.68	30.38	2.41	6.2	43.5
5.2	38.4	44.72	30.65	2.64	6.3	40.1
5.3	38.4	45.08	32.21	3.00	6.7	38.3
5.4	38.4	45.54	35.81	3.32	7.2	38.5
5.5	38.4	45.72	37.33	3.40	7.4	39.2
5.6	38.3	45.81	38.11	3.34	7.5	40.7
5.7	38.3	45.63	36.56	3.08	7.3	42.4
5.8	38.3	45.59	36.22	2.95	7.3	43.9
5.9	38.3	45.77	37.76	2.97	7.5	45.4
6.0	38.3	45.53	35.73	2.86	7.3	44.6

Product Features

- Operating Frequency Range: 1.5-6.0GHz
- Operating Drain Voltage(Recommended): +32V
- 50 Ω Input/Output (External DC block capacitor needed)
- $P_{sat} \geq 30W$ (CW)
- Small signal gain:>10dB, Power gain:>6dB
- Minimum P_{sat} efficiency:>25%



- 24*17 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

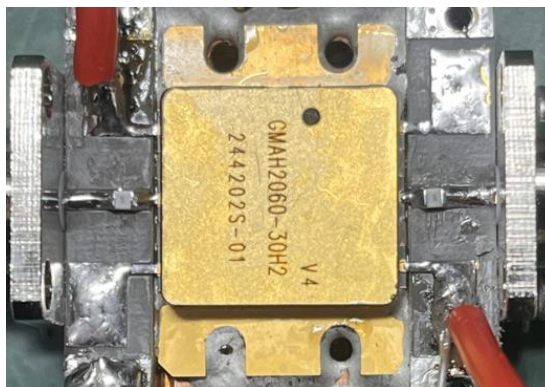
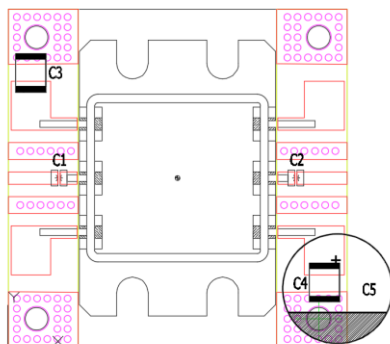
Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	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 $T_c = 25^\circ\text{C}$, $P_{out} = 30\text{W}$, FEA	$R_{\theta JC}$	2.4	°C/W

Typical application circuit

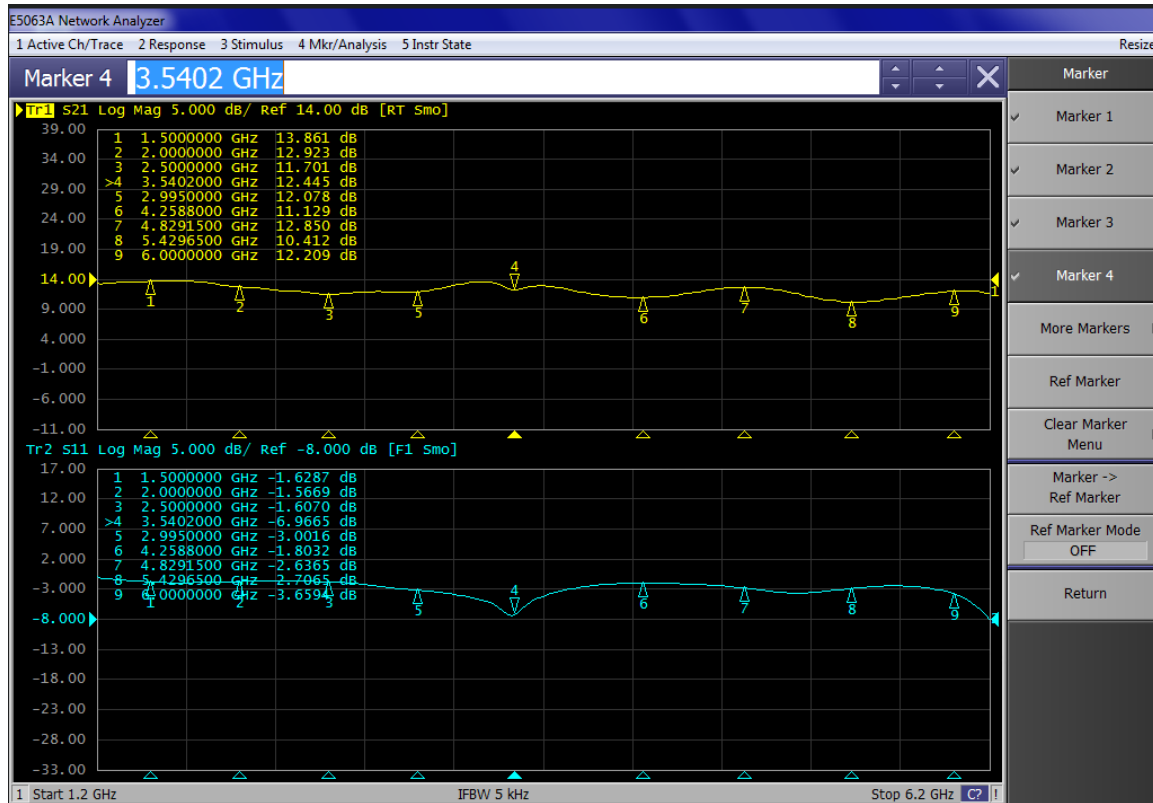


Component	Description	Suggestion
C5	470uF/63V	
C3, C4	10uF	1210
C1, C2	2.7pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ100505
PCB		Rogers RT5880 , $\epsilon_r = 2.2$, thickness 20 mils,

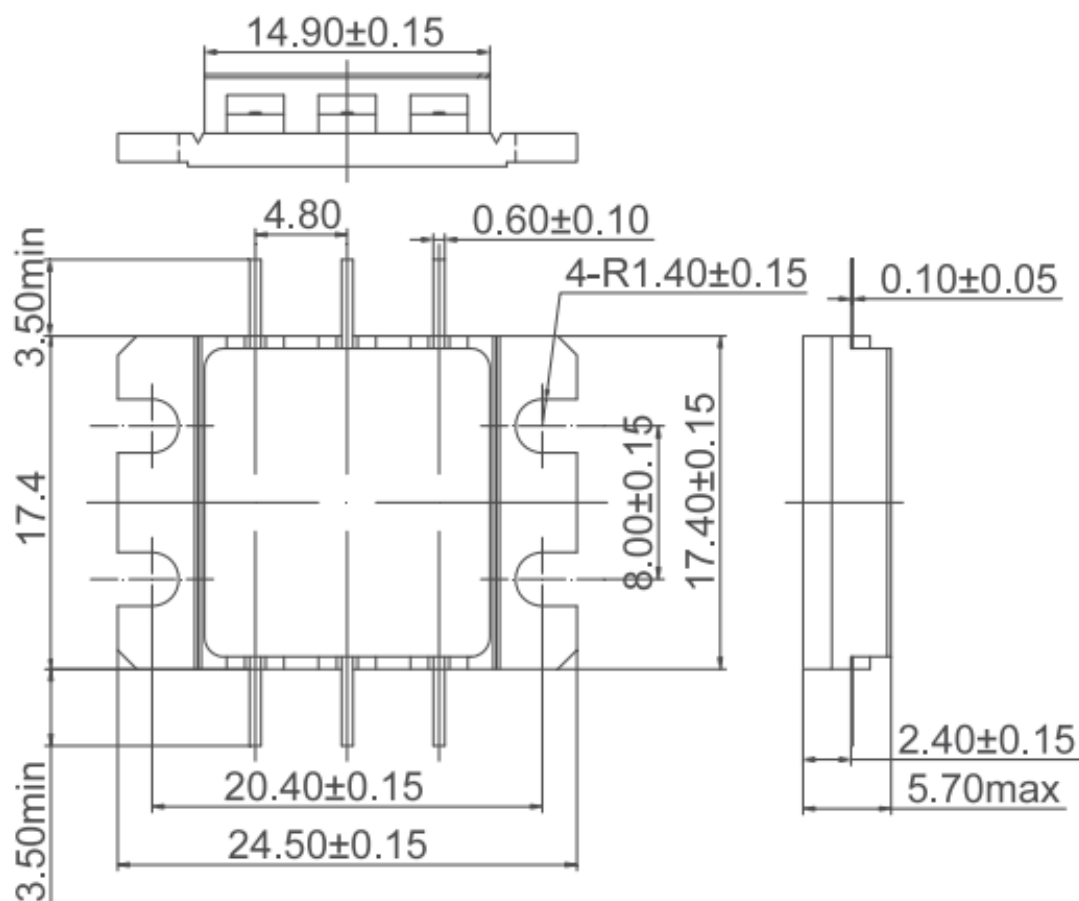


TYPICAL CHARACTERISTICS

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



Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2024/8/7	Rev 1.0	Advanced Datasheet
2024/10/22	Rev 2.0	Preliminary datasheet based on V4

Application data based on YHG-24-11/19

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