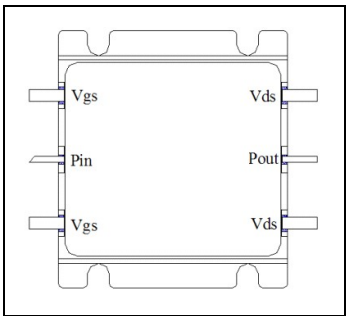
4.0-6.0GHz, 60W, GaN Fully matched PA Module



Description

The GMAH4060-60H3 is a 60-watt,single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 4.0 to 6.0GHz. The module is 50 Ω input/output matched and requires minimal external components. It can work at higher voltage up to 32V 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.

Note: Air cooling with Tcase=25 degree C

V_{ds}= 28V, V_{gs}=-2.54V,I_{dq}=200mA Pulse CW, 50us, 20%					
Freq(MHz)	P-1(dBm)	P-1Gain(dB)	P-3(dBm)	P-3(W)	EFF (%)
4000	49.41	12.9	50.65	113.1	53.7
4200	49.73	13.9	50.70	117.5	57.4
4400	49.77	13.9	50.64	115.9	57.9
4600	49.37	14.8	50.10	102.2	57.7
4800	48.43	14.1	49.49	89.0	53.0
5000	48.52	13.3	49.62	91.6	51.1
5200	48.41	13.5	49.54	90.0	48.1
5400	47.77	12.2	49.12	81.6	40.0
5600	48.74	13.2	49.62	91.6	48.1
5800	48.66	12.4	49.02	80.0	45.5
6000	48.29	14.3	49.13	81.9	50.4

V_{ds}= 28V, V_{gs}=-2.54V,I_{dq}=200mA ,CW					
Freq(MHz)	P-1(dBm)	P-1Gain(dB)	P-3(dBm)	P-3(W)	EFF (%)
4000	49.00	12.4	50.27	106.5	50.0
4200	49.51	13.3	50.12	102.8	51.8
4400	49.22	13.3	50.04	100.9	51.8
4600	48.65	14.7	49.57	90.6	52.8
4800	47.51	13.8	48.87	77.0	46.7
5000	47.39	12.8	49.02	79.9	45.3
5200	47.56	12.9	48.84	76.6	42.4
5400	48.56	11.2	49.07	80.7	40.6
5600	47.83	12.6	49.16	82.4	43.0
5800	47.29	12.2	48.31	67.8	40.0
6000	47.13	13.4	48.71	74.3	44.6

Product Features

- Operating Frequency Range: 4.0-6.0GHz
- Operating Drain Voltage(Recommended): +28 V (up to 32V with power increased >80W)
- 50 Ω Input/Output (External DC block capacitor needed)
- Psat≥48 dBm (CW), 49dBm(Pulse)
- Small signal gain:>12dB, Power gain:>9dB
- Minimum efficiency:>35%
- 30.8*27.4 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

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

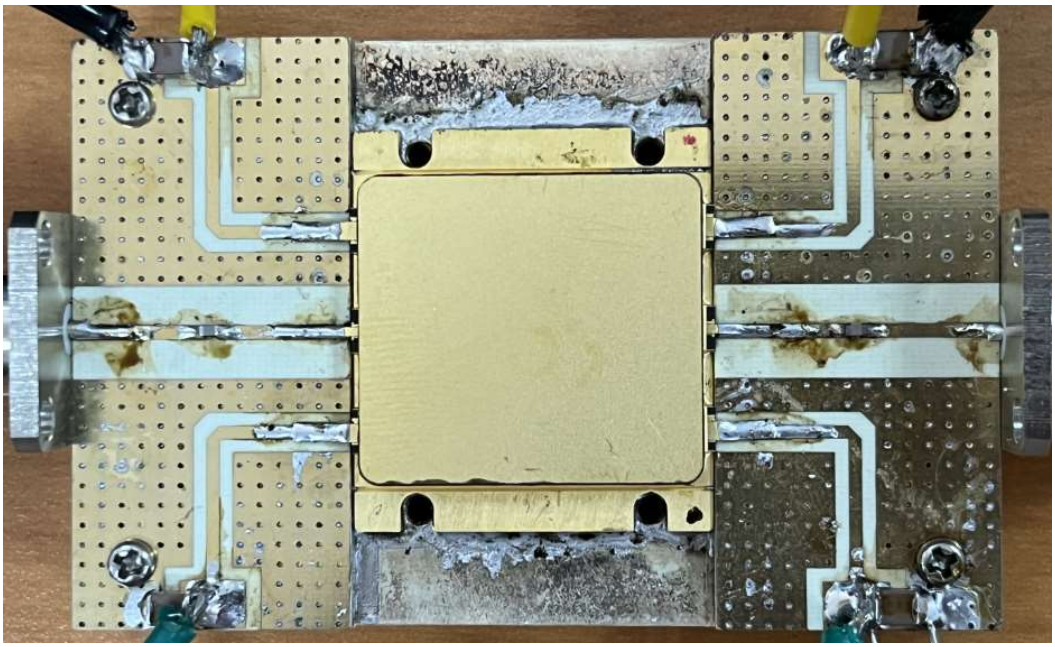
Table 1. Maximum Ratings

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	Tstg	-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°C, Pout=120W, FEA	RθJC	1.2	°C/W

Typical application circuit



TYPICAL CHARACTERISTICS

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

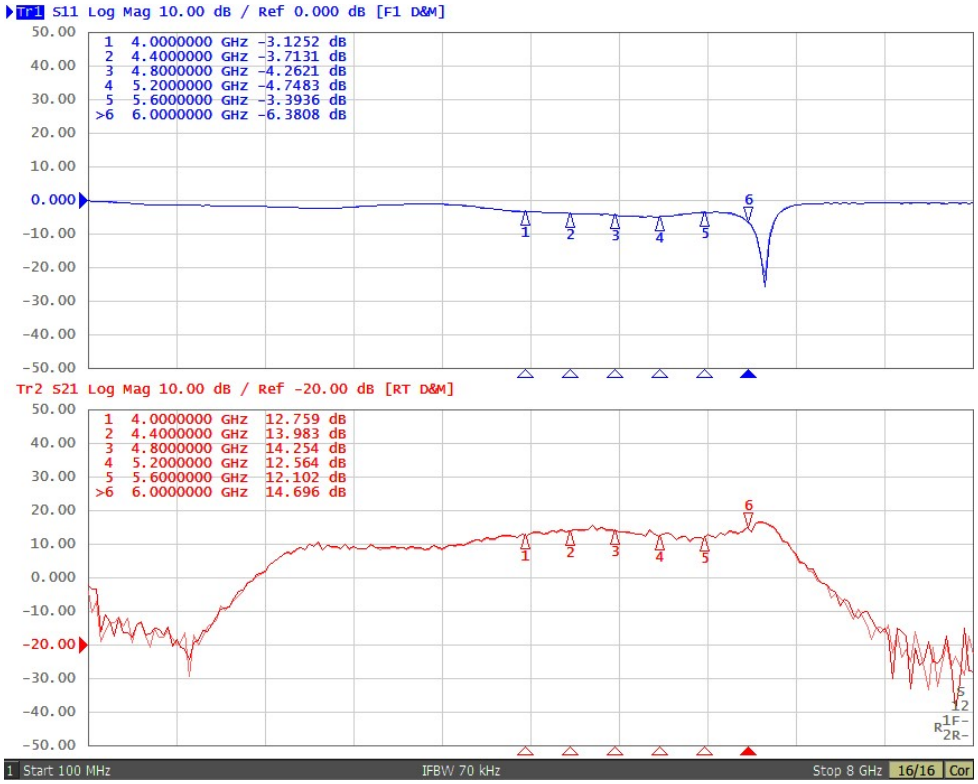
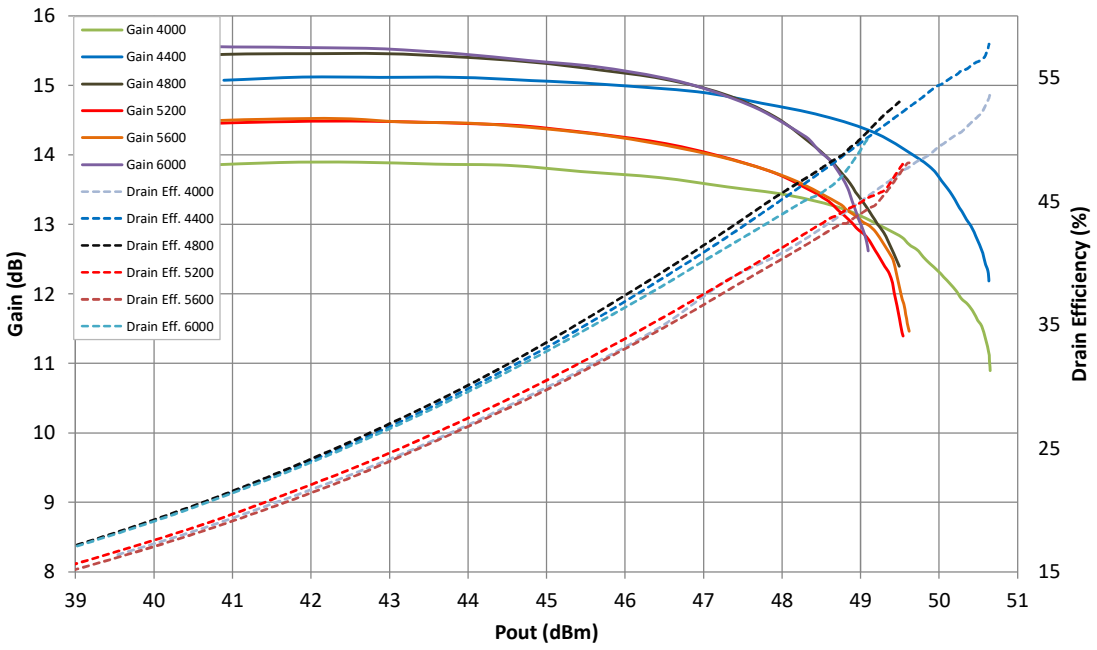
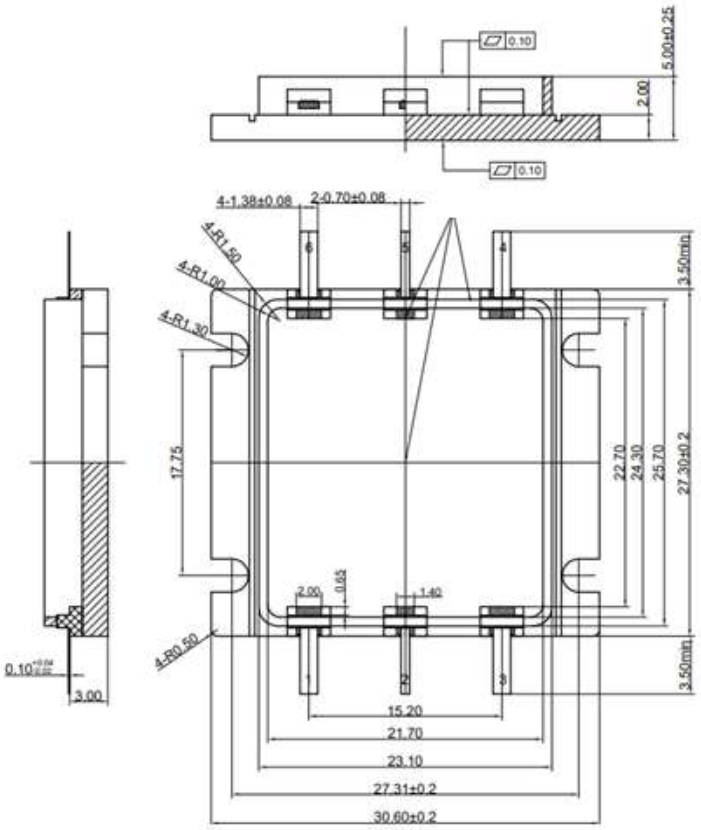


Figure 3. Psat, Eff and Power Gain Vs Frequency across the band under Pulsed CW condition (50us, 20%)



Package Dimensions （Unit:mm）



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2023/7/10	Rev 1.0	Advanced Datasheet

Application data based on JF-23-12

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