

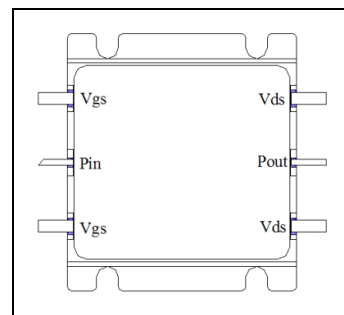


0.5-3GHz, 60W, GaN Fully matched PA Module

Description

The XMAH0630-60H3 is a 60-watt, single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 0.6 to 3.0GHz.

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.



Vds=28V, Idq=500mA, CW

Freq(MHz)	Pin(dBm)	Psat(dBm)	Psat(W)	IDS(A)	Gain(dB)	Eff(%)	2 nd Harmonic	3 rd Harmonic
500	36.70	49.40	87.1	5.46	12.70	57.0	-18.3	-14.6
600	37.90	50.65	116.1	8.56	12.75	48.5	-11.0	-15.4
700	36.50	50.32	107.6	8.88	13.82	43.3	-9.3	-15.1
800	37.50	50.30	107.2	8.79	12.80	43.5	-10.0	-15.3
900	37.10	50.22	105.2	8.00	13.12	47.0	-8.7	-12.9
1000	36.50	50.30	107.2	7.78	13.80	49.2	-9.6	-12.0
1100	36.50	50.45	110.9	8.11	13.95	48.8	-11.5	-11.5
1200	36.40	50.38	109.1	7.52	13.98	51.8	-10.0	-11.5
1300	36.00	49.66	92.5	6.70	13.66	49.3	-10.0	-10.8
1400	36.45	49.62	91.6	6.77	13.17	48.3	-7.4	-17.0
1500	37.60	50.06	101.4	7.51	12.46	48.2	-8.3	-23.5
1600	38.40	49.95	98.9	7.72	11.55	45.7	-9.3	-24.2
1700	39.30	50.95	124.5	8.92	11.65	49.8	-12.8	-19.0
1800	37.80	50.52	112.7	7.66	12.72	52.6	-13.1	-14.4
1900	37.00	50.64	115.9	7.80	13.64	53.1	-13.0	-17.8
2000	36.60	50.60	114.8	8.20	14.00	50.0	-13.4	-23.6
2100	37.40	50.80	120.2	7.68	13.40	55.9	-19.8	-28.1
2200	38.00	50.70	117.5	7.55	12.70	55.6	-24.7	-23.5
2300	39.80	50.82	120.8	8.10	11.02	53.3	-24.6	-24.1
2400	39.80	50.07	101.6	7.04	10.27	51.6	-22.0	-22.0
2500	38.80	49.02	79.8	5.55	10.22	51.4	-17.5	-37.0
2600	38.00	48.16	65.5	5.04	10.16	46.4	-10.0	-33.9
2700	37.60	48.38	68.9	4.57	10.78	53.8	-10.3	-25.1
2800	37.10	48.40	69.2	4.43	11.30	55.8	-12.9	-31.0
2900	37.60	48.35	68.4	4.53	10.75	53.9	-17.9	-28.7
3000	38.00	48.50	70.8	4.64	10.50	54.5	-23.1	-38.5
3100	38.10	48.32	67.9	4.52	10.22	53.7	-	-



Product Features

- Operating Frequency Range: 0.5-3.0GHz
- Operating Drain Voltage(Recommended): +28 V (up to 32V with power increased)
- 50 Ω Input/Output (External DC block capacitor needed)
- $Psat \geq 48dBm$ (CW)
- Small signal gain:>13dB, Power gain:>10dB
- Minimum efficiency:>40%
- 30.8*27.4 mm metal RF package

Applications

- Ultra Broadband Amplifiers, typically 1-2GHz,0.8-2.2GHz
- L band power amplifier, typically 600-960MHz,960-1215MHz, 1200-1400MHz.1800-2200MHz
- Test Instrumentation
- EMC Amplifier Drivers
- 2-way Radios

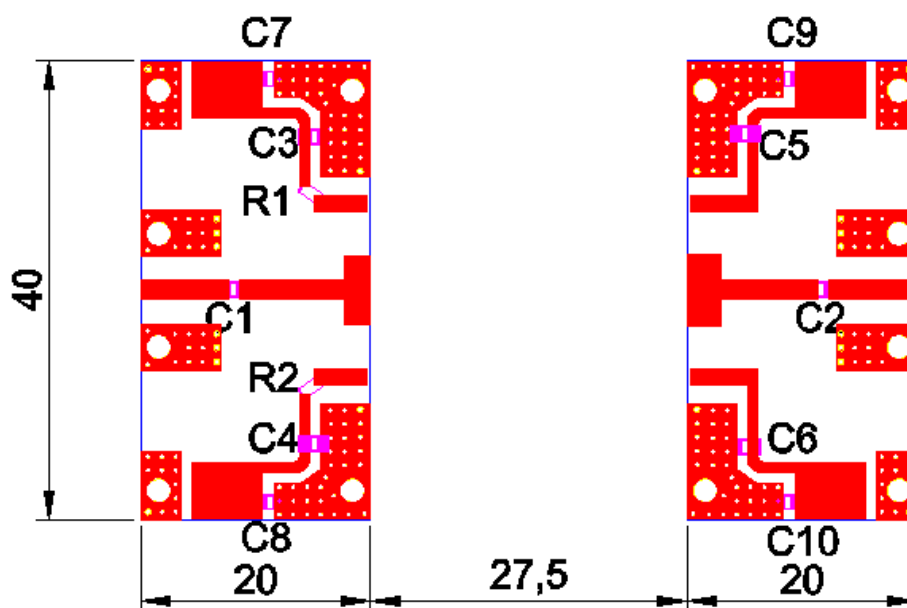
Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+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 $T_c = 25^\circ C, P_{out} = 60W, FEA$	$R_{\theta JC}$	1.6	°C/W

Typical application circuit





Component	Description	Suggested Manufacturer / Series Number
C1	6.8 pF	MQ200805
C2	6.8 pF x 2	MQ200805
C3 C4 C5 C6	6.8 pF	MQ401111
C7 C8 C9 C10	10 uF	TDK
R1	10 Ohm	Open suppliers. 1206 SMD Resistor
PCB	30Mil Rogers 4350	Rogers

TYPICAL CHARACTERISTICS

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

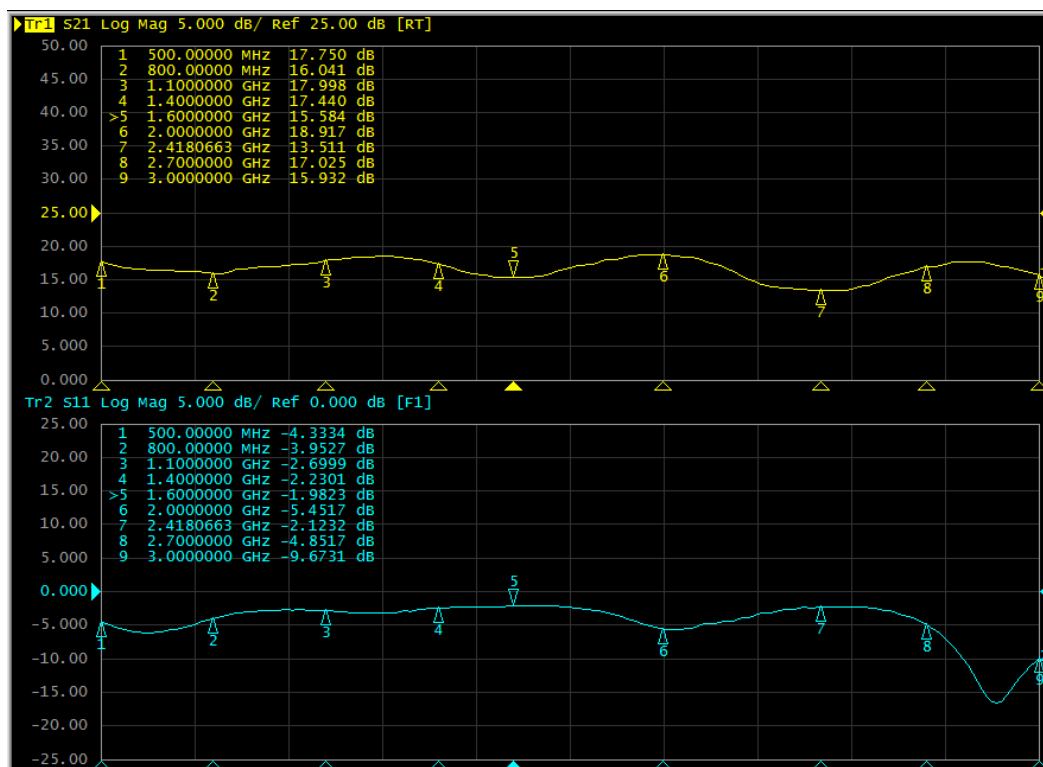
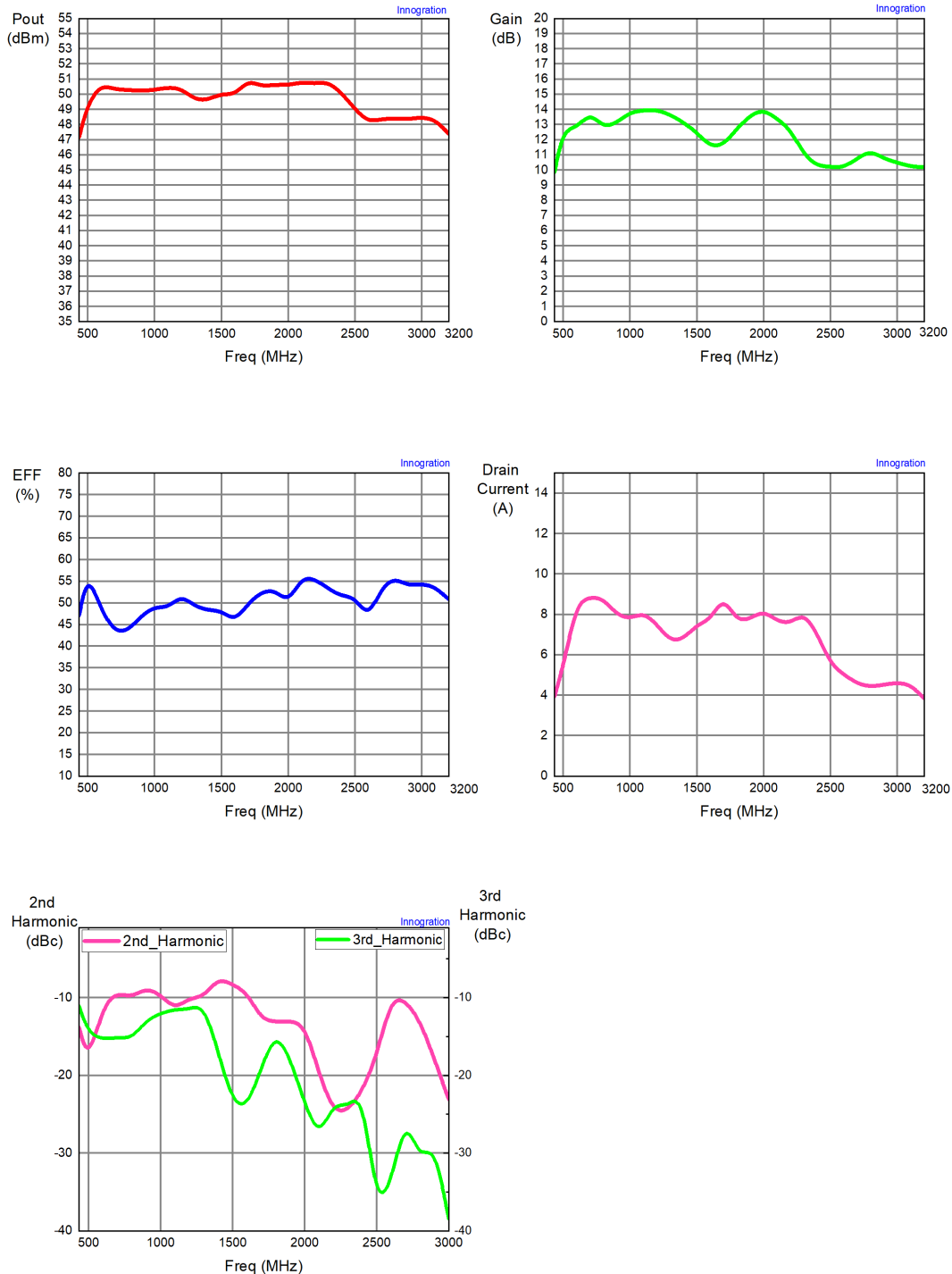




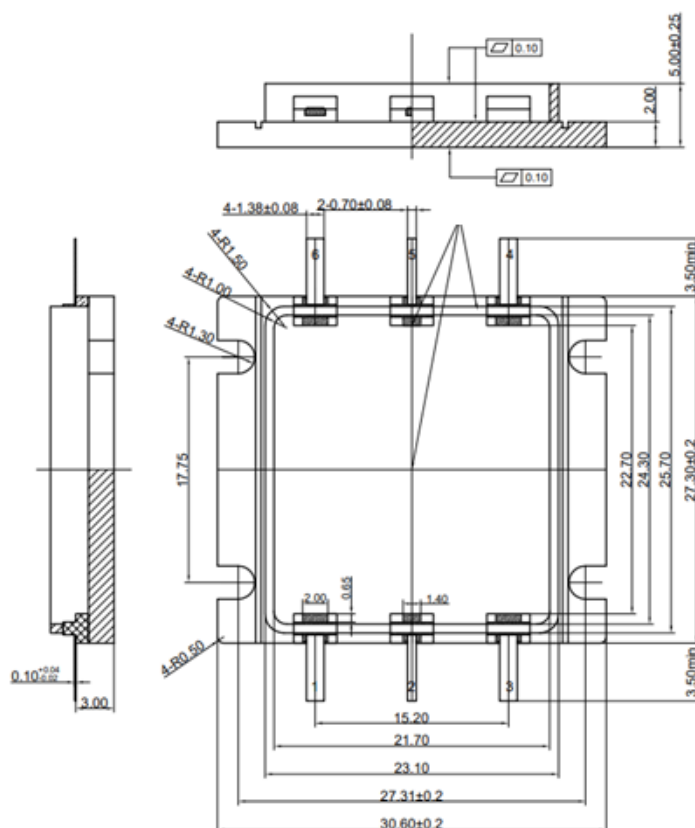
Figure 3. Psat, Eff and Power Gain Vs Frequency across the band

XMAH0630-60H3 CW Test Vgs=-2.67V Vds=28V Idq=500mA





Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2025/11/18	Rev 1.0	Preliminary datasheet

Application data based on JF-25-37

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