

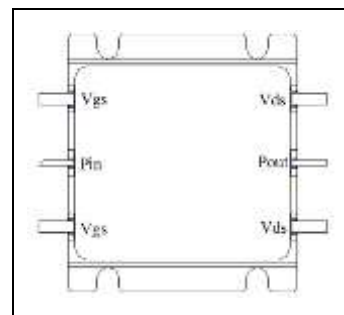


0.8-6.0GHz, 80W, GaN Fully matched PA Module

Description

The XMAH0860-80H3 is a 80-watt Psat capable, single stage integrated IMFET, designed for broad band applications, with frequencies from 0.8 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 30.8*27.4mm metal RF package with excellent capability for heat dissipation.



Psat at Vds=28V, Idq=240mA, CW

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)	2nd Harmonic	3rd Harmonic
700	40.95	48.22	66.4	4.22	7.27	56.2	-12.7	-11.3
800	41.70	49.32	85.5	5.53	7.62	55.2	-14.1	-13.5
1000	41.46	50.41	109.9	6.91	8.95	56.8	-15.9	-14
1500	40.40	51.06	127.6	8.70	10.66	52.4	-18.6	-14.6
2000	40.25	51.16	130.6	8.47	10.91	55.1	-18.4	-14.1
2500	40.65	50.68	116.9	8.95	10.03	46.7	-20.3	-36.8
3000	40.35	50.37	108.9	9.45	10.02	41.2		
3500	41.87	50.87	122.2	10.36	9.00	42.1		
4000	41.96	50.00	100.0	9.77	8.04	36.6		
4500	41.87	50.53	113.0	10.50	8.66	38.4		
5000	41.72	49.41	87.3	9.63	7.69	32.4		
5500	41.70	49.69	93.1	8.30	7.99	40.1		
6000	41.90	49.25	84.1	8.30	7.35	36.2		
6200	41.03	48.06	64.0	7.20	7.03	31.7		

Pout at Vds=28V, Idq=240mA, CW, Pin=42dBm

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
700	42.00	48.48	70.5	4.38	6.48	57.5
1000	42.00	50.51	112.5	7.00	8.51	57.4
1500	42.00	51.26	133.7	8.88	9.26	53.8
2000	42.00	51.27	134.0	8.46	9.27	56.6
2500	42.00	50.90	123.0	9.09	8.90	48.3
3000	42.00	50.69	117.2	9.77	8.69	42.8
3500	42.00	50.97	125.0	10.40	8.97	42.9
4000	42.00	50.10	102.3	9.80	8.10	37.3
4500	42.00	50.57	114.0	10.49	8.57	38.8
5000	42.00	49.50	89.1	9.78	7.50	32.5
5500	42.00	49.76	94.6	8.37	7.76	40.4
6000	42.00	49.28	84.7	8.30	7.28	36.5
6200	42.00	48.35	68.4	7.70	6.35	31.7

Recommended driver: XU5807H (Discrete) or GMAH0860-30H3(IMFET), and interstage attenuator suggested



Applications

- Ultra Broadband Amplifiers within L/S/C band
- Test Instrumentation
- EMC Amplifier Drivers

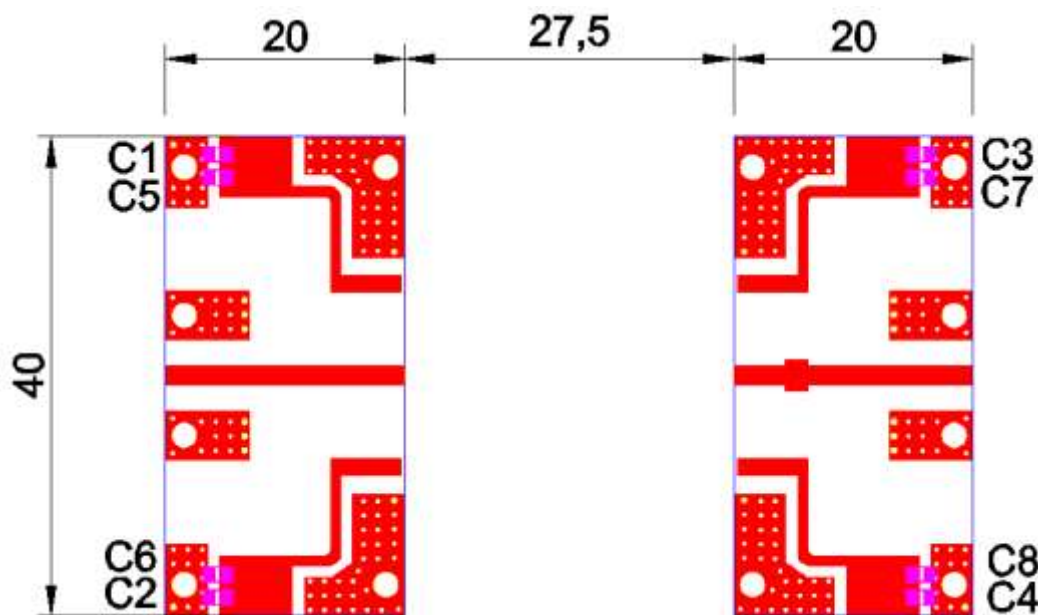
Table 1. Maximum Ratings

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 $T_C = 25^\circ\text{C}$, $P_{out} = 80\text{W}$, FEA	$R_{\theta JC}$	0.8	°C/W

Typical application circuit

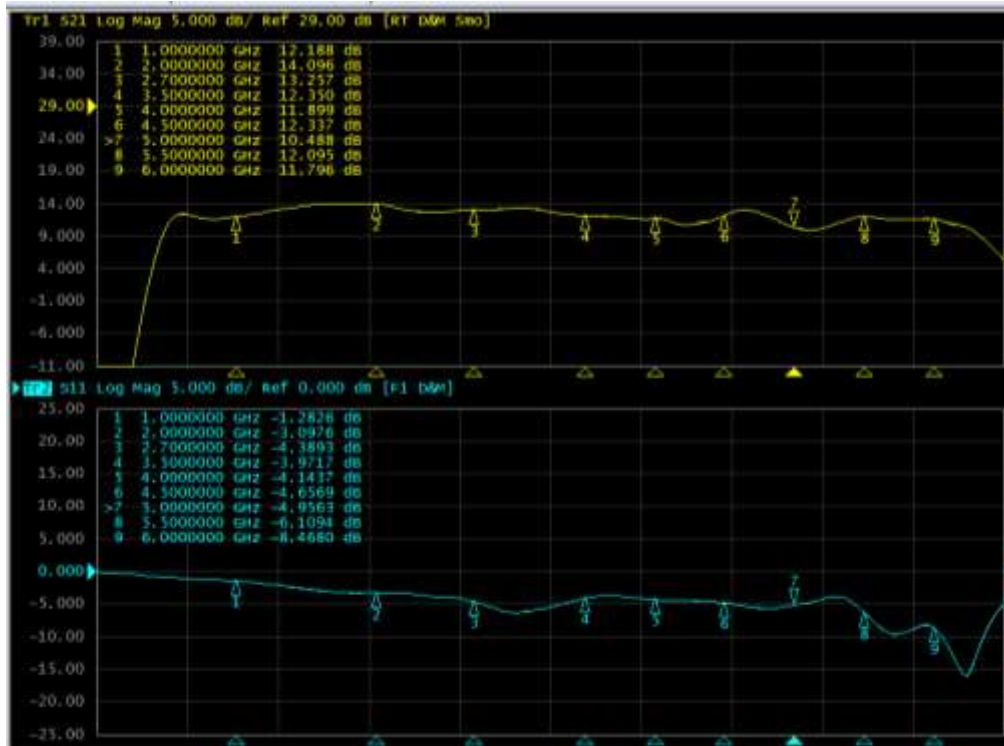


Component	Description	Suggested Manufacturer / Series Number
C1 C2 C3 C4	10 μF	TDK
C5 C6 C7 C8	100 pF	MQ301111
PCB	30Mil Rogers 4350	Rogers



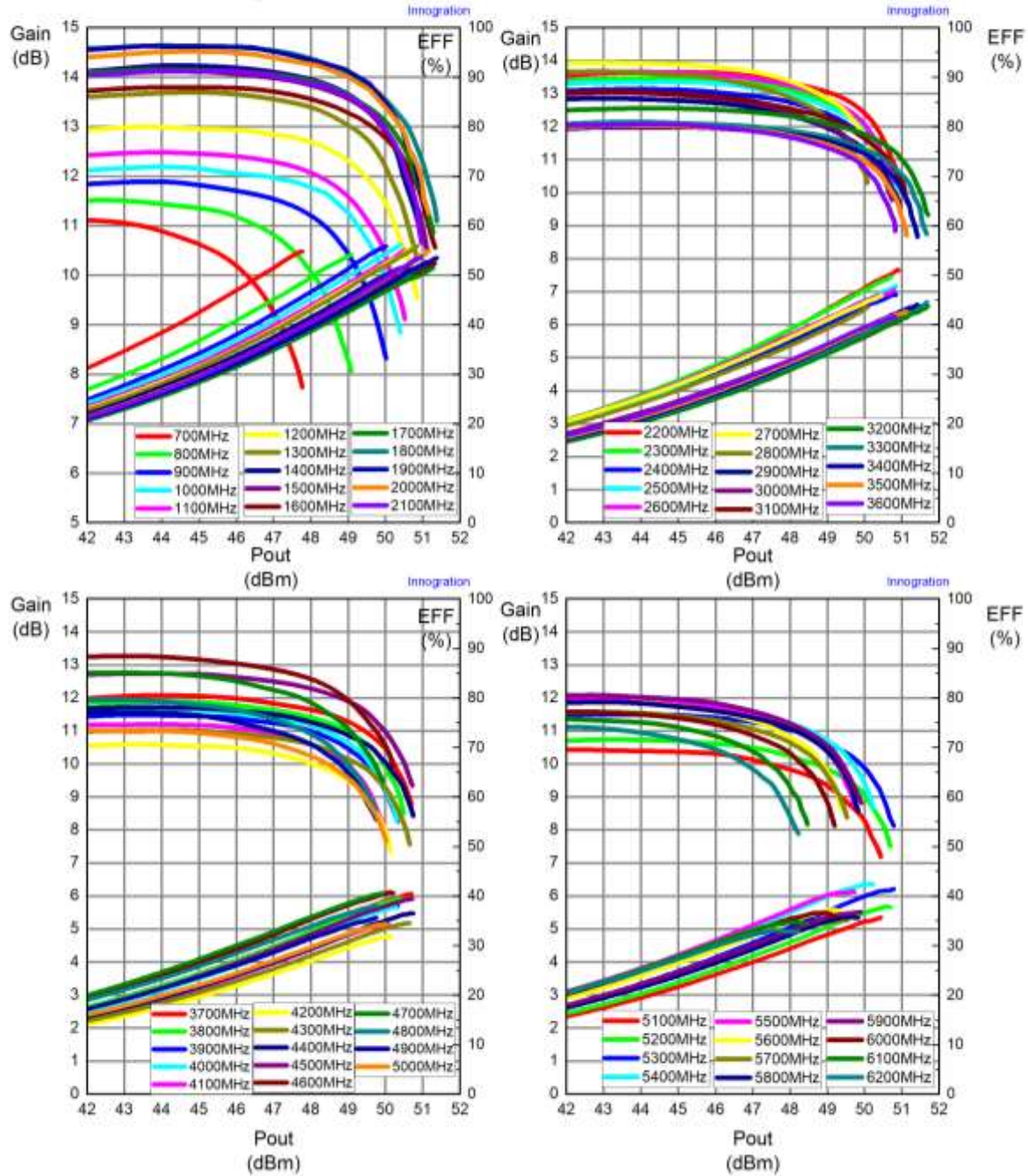
TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Pin=0dBm, Idq=500mA)



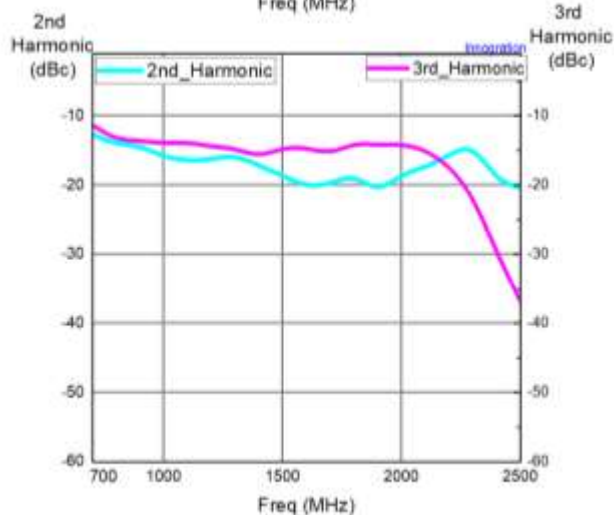
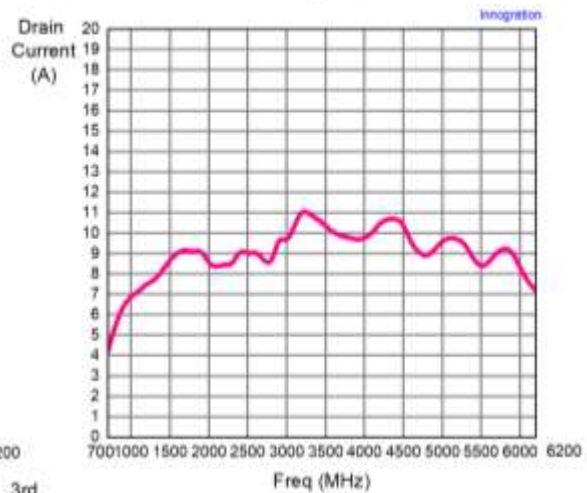
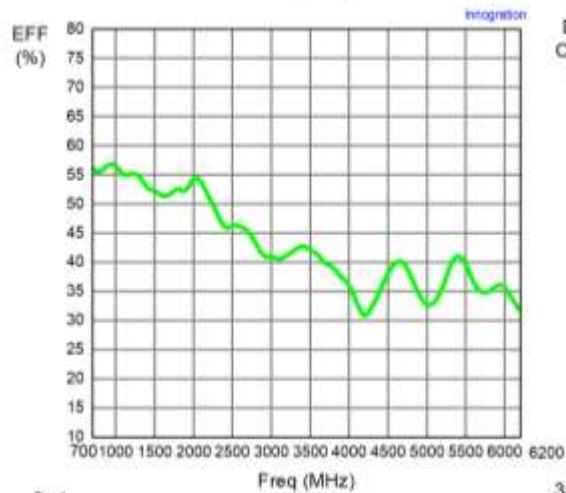
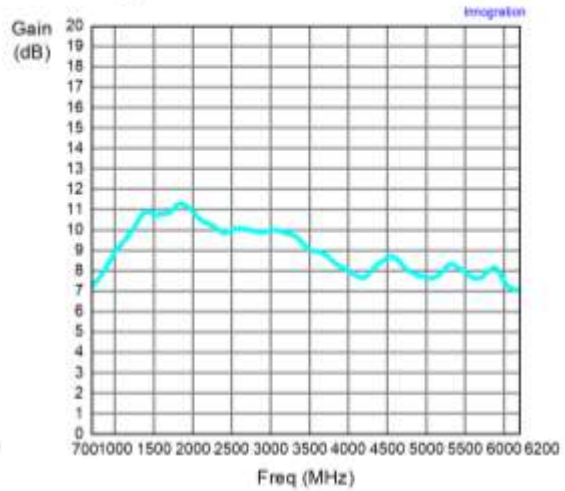
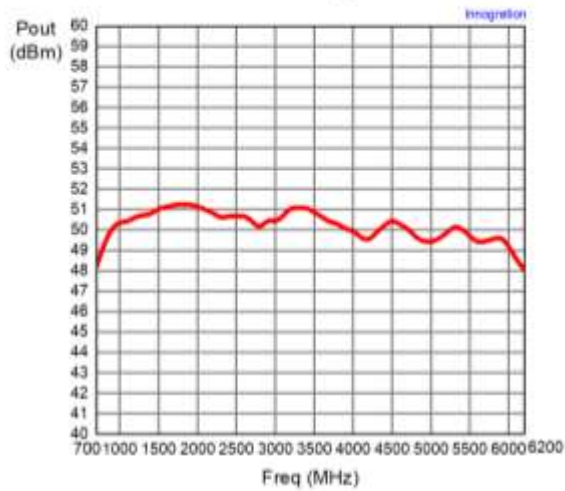


XMAH0860-80H3 Pulse 100us 10%
Vgs=-2.20V Vds=28V Idq=280mA



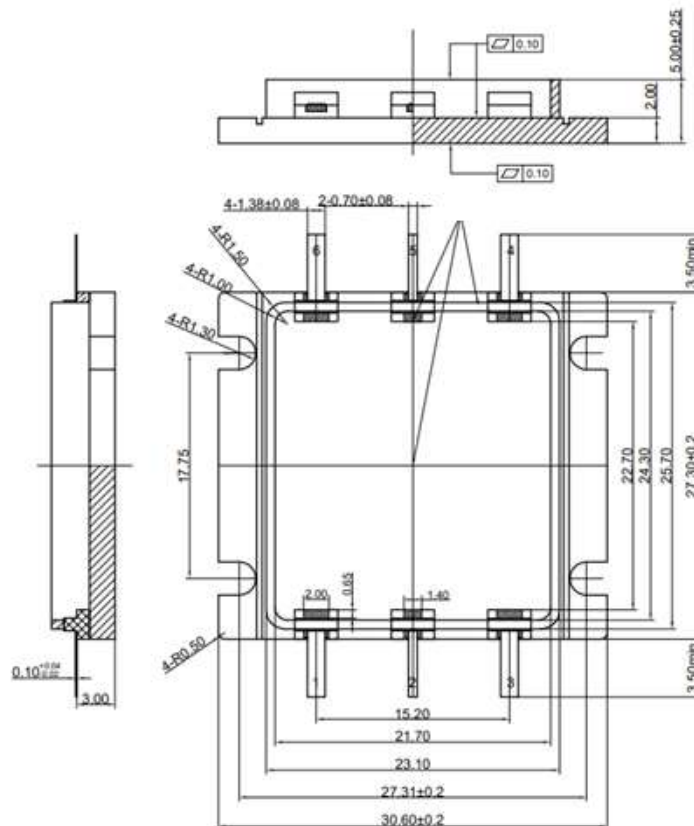


XMAH0860-80H3_rev1 CW Test
Vgs=-2.2V Vds=28V Idq=280mA





Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2026/8/25	Rev 1.0	Preliminary Datasheet
2026/9/17	Rev 2.0	Update according V1 with improvement on higher end

Application data based on JF-26-18/24

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