

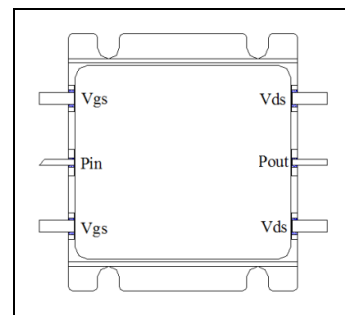


2.0-6.0GHz, 80W, GaN Fully matched PA Module

Description

The XMAH2060-80H3 is a 80-watt Psat capable, single stage integrated IMFET, 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 30.8*27.4mm metal RF package with excellent capability for heat dissipation.



Pout at Vds=28V, Idq=300mA

| Freq(MHz) | Pin(dBm) | Pout(dBm) | Pout(W) | IDS(A) | Gain(dB) | Eff(%) | 2nd Harmonic | 3rd Harmonic |
|-----------|----------|-----------|---------|--------|----------|--------|--------------|--------------|
| 2000 | 43.30 | 50.86 | 121.9 | 6.80 | 7.56 | 64.0 | -20.4 | -13.9 |
| 2500 | 42.95 | 50.41 | 109.9 | 6.73 | 7.46 | 58.3 | -17.9 | -28.3 |
| 3000 | 42.50 | 49.90 | 97.7 | 8.56 | 7.40 | 40.8 | -17.5 | -46.0 |
| 3400 | 42.20 | 49.20 | 83.2 | 9.40 | 7.00 | 31.6 | -23.7 | -47.0 |
| 3500 | 44.00 | 51.07 | 127.9 | 11.82 | 7.07 | 38.7 | -26.1 | -48.1 |
| 4000 | 43.70 | 50.80 | 120.2 | 9.23 | 7.10 | 46.5 | -40.3 | -40.4 |
| 4200 | 42.20 | 49.20 | 83.2 | 8.26 | 7.00 | 36.0 | | |
| 4500 | 43.30 | 50.40 | 109.6 | 10.31 | 7.10 | 38.0 | | |
| 5000 | 42.92 | 50.26 | 106.2 | 9.68 | 7.34 | 39.2 | | |
| 5500 | 42.55 | 50.70 | 117.5 | 10.77 | 8.15 | 39.0 | | |
| 6000 | 38.65 | 49.11 | 81.5 | 7.26 | 10.46 | 40.1 | | |

Applications

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

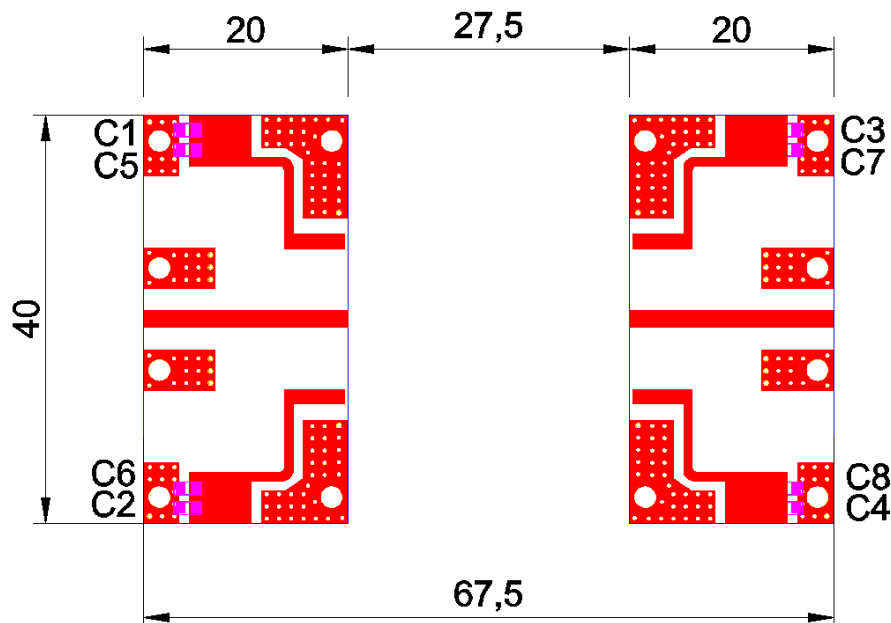
Table 1. Maximum Ratings

| 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 $T_c=25^{\circ}\text{C}$, Pout=80W, FEA | $R_{\theta JC}$ | 0.8 | °C/W |

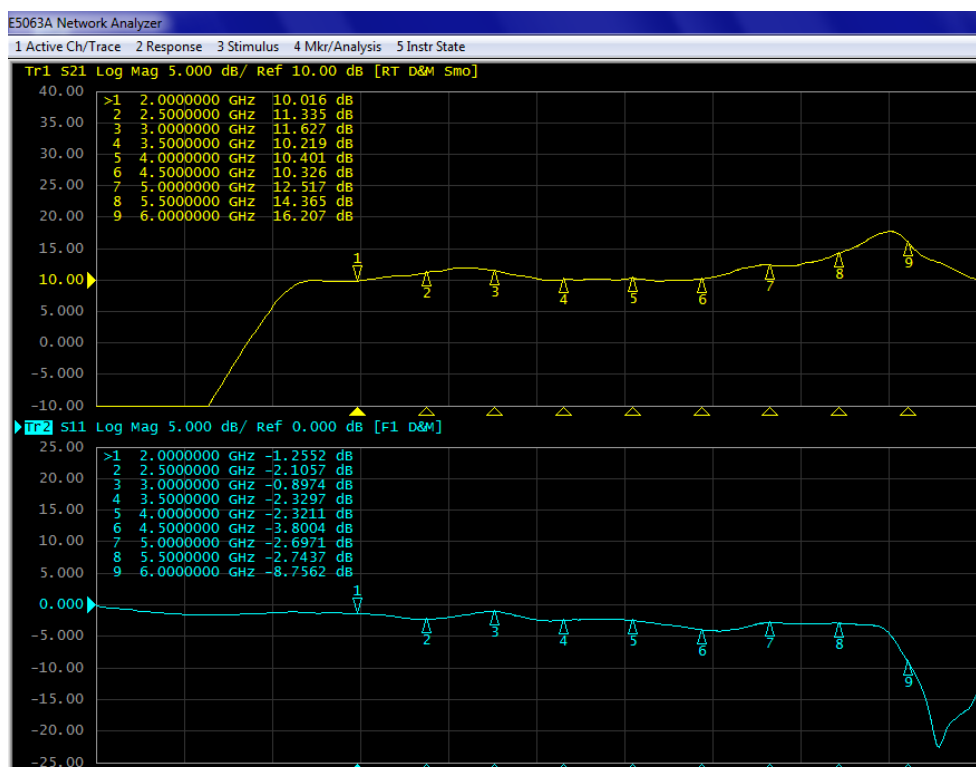
Typical application circuit



| Component | Description | Suggestion |
|-------------|-------------------|------------|
| C1 C2 C3 C4 | 10 uF | 1210 |
| C5 C6 C7 C8 | 100 pF | MQ301111 |
| PCB | 30Mil Rogers 4350 | |

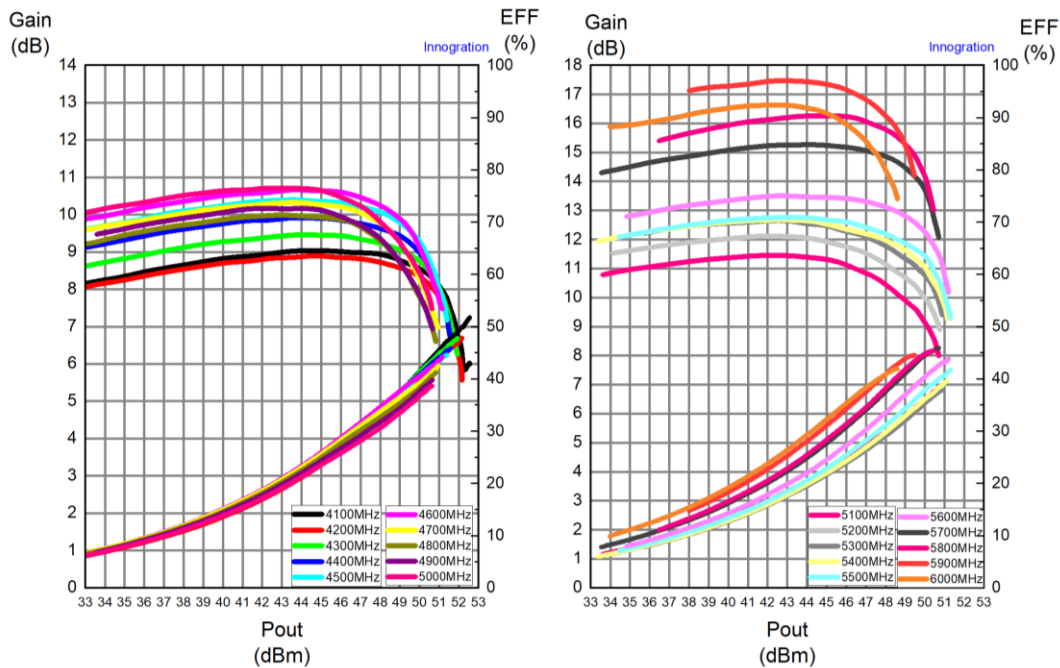
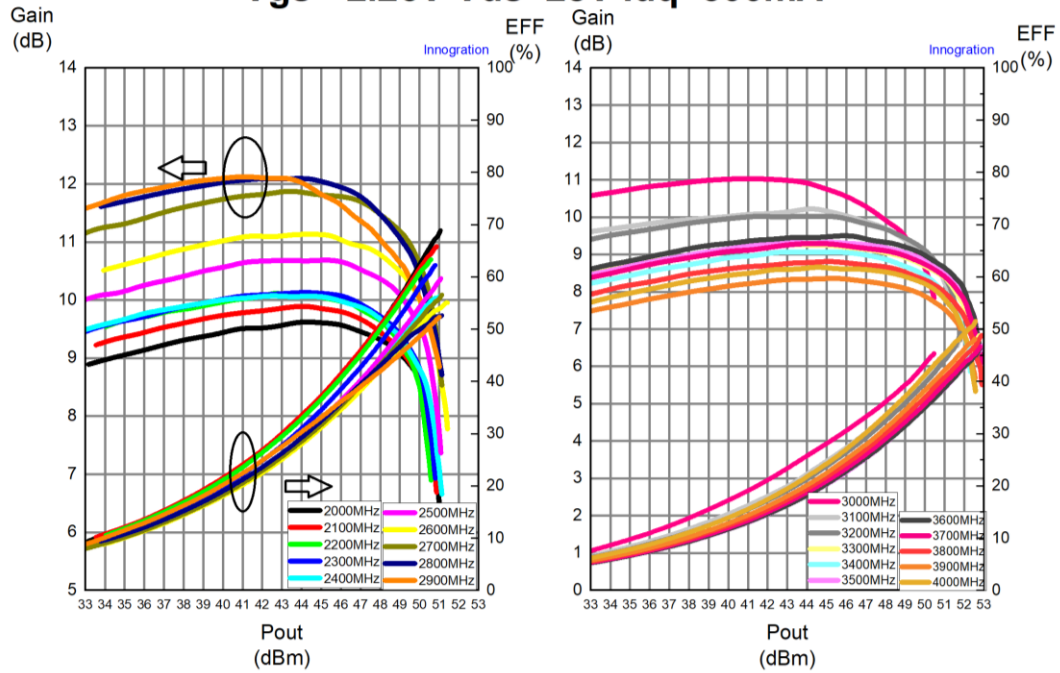
TYPICAL CHARACTERISTICS

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



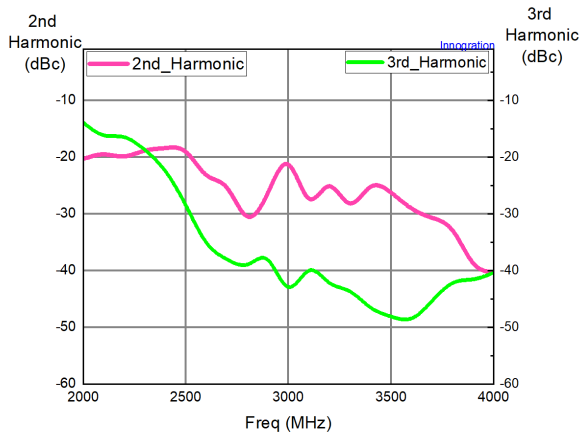
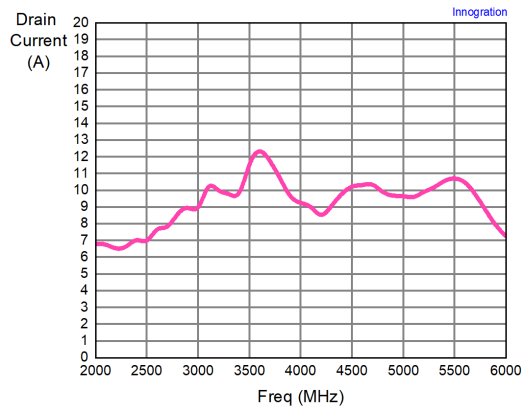
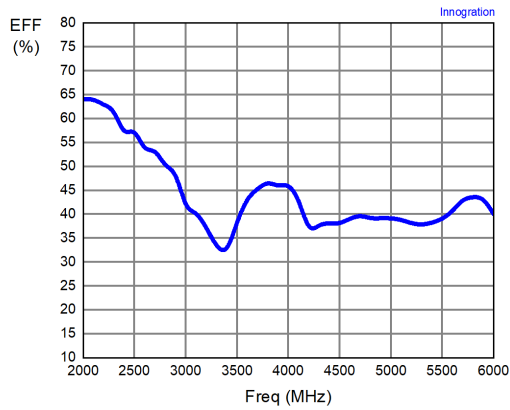
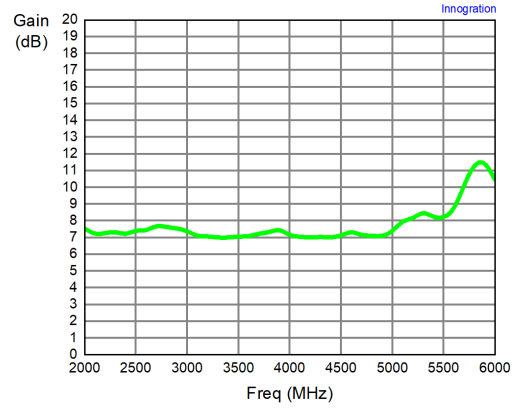
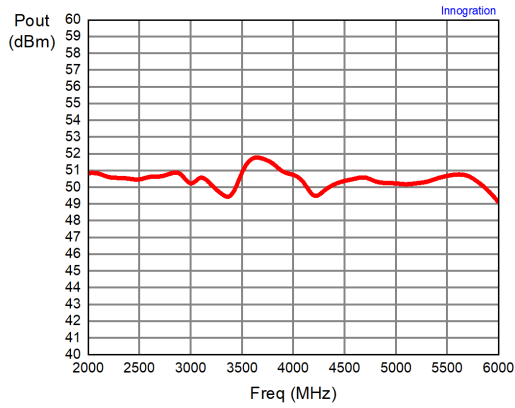


XMAH2060-80H3_rev6 Pulse 100us 10%
Vgs=-2.26V Vds=28V Idq=300mA



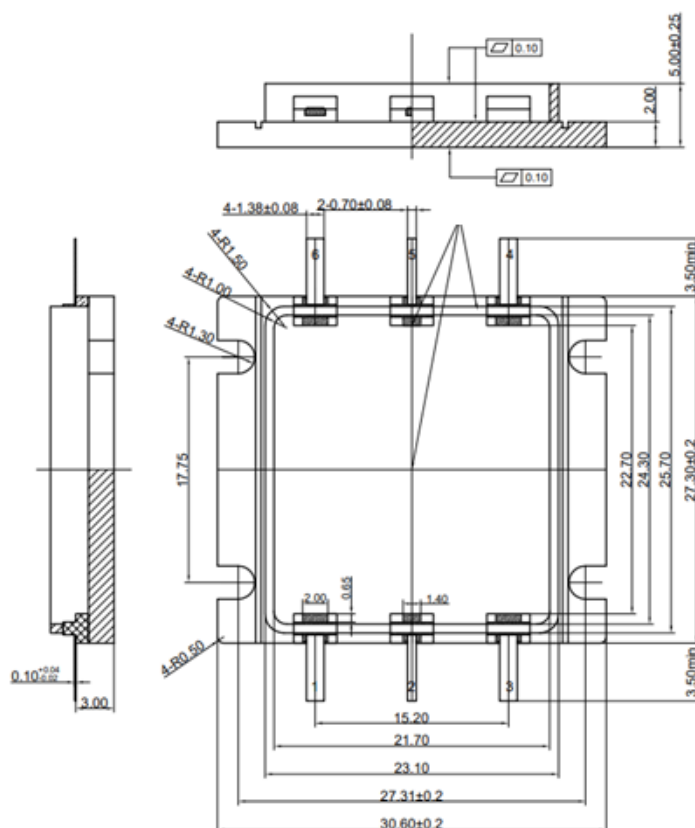


XMAH2060-80H3_Rev6 CW Test
Vgs=-2.28V Vds=28V Idq=220mA





Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

| Date | Revision | Datasheet Status |
|-----------|----------|--------------------|
| 2025/8/19 | Rev 1.0 | Advanced Datasheet |
| 2025/9/14 | Rev 2.0 | Modify the Rth |
| | | |

Application data based on JF-25-18

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