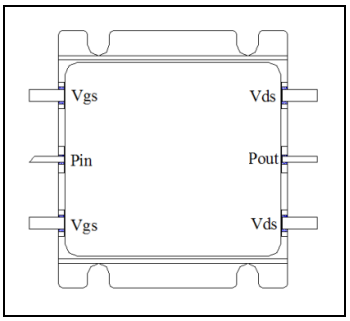
0.8-6.0GHz, 40W, GaN Fully matched PA Module



Description

The XMAH0860-40H3 is a 40-watt,single stage integrated Power Amplifier Module, 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.

When used at higher voltage like 32V, it can deliver 50W across the full band

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.

Recommended driver: GMAH0162-10

Product Features

- Operating Frequency Range: 0.8-6.0GHz
- Operating Drain Voltage(Recommended): +28 to 32V
- 50 Ω Input/Output (No external DC block capacitor needed)
- Psat≥40W (CW) @28V, 50W (CW) at 32V
- Small signal gain:>13dB,
- Efficiency at Psat:40%
- IM3 at 39dBm output: <-25dBc with 1MHz tone spacing
- 30.8*27.4 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

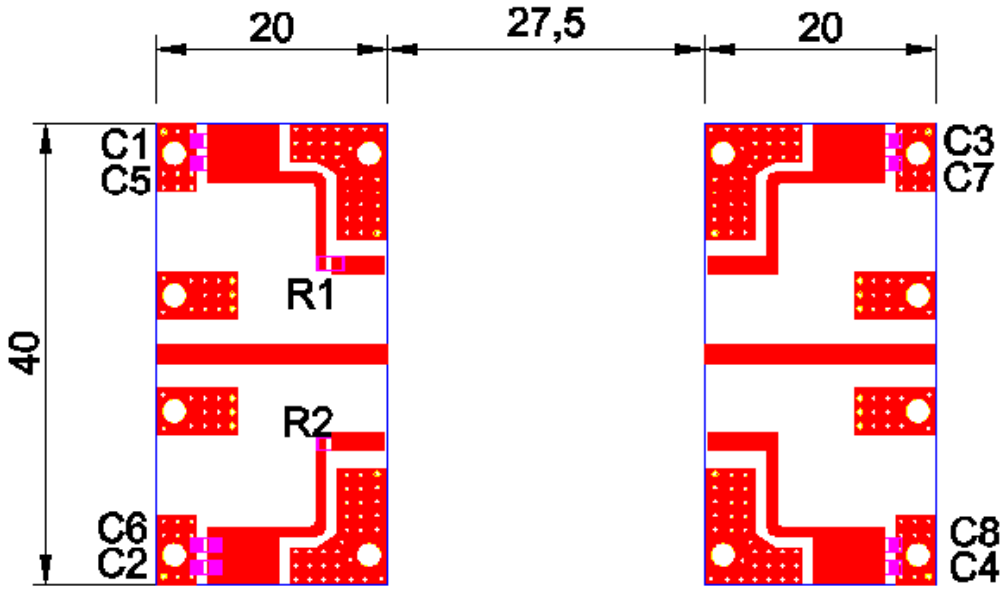
Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+36	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=40W, FEA	$R_{\theta JC}$	2.1	°C/W

Typical application circuit



Component	Description	Suggestion
C1 C2 C3 C4	10 uF	TDK
C5 C6 C7 C8	82 pF	BJYN
C7 C8 C9 C10	10 uF	TDK
R1 R2	10 Ohm	Open suppliers. 1206 SMD Resistor
PCB	30Mil Rogers 4350	Rogers

TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Pin=0dBm, Idq=200mA)

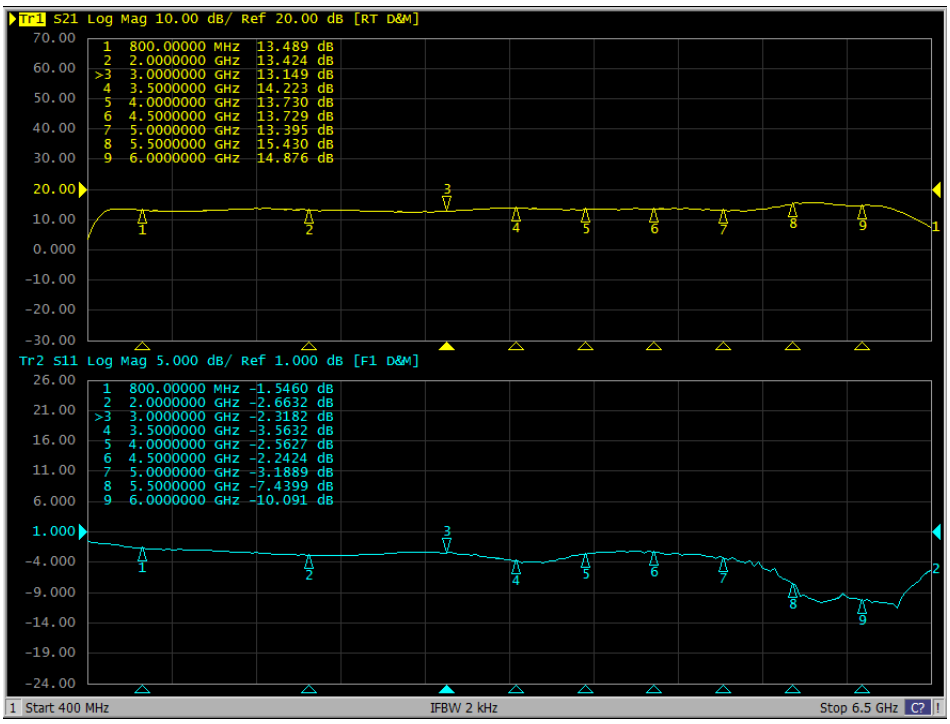


Figure 3. Psat, Eff, Gain Vs Frequency across the band @28V

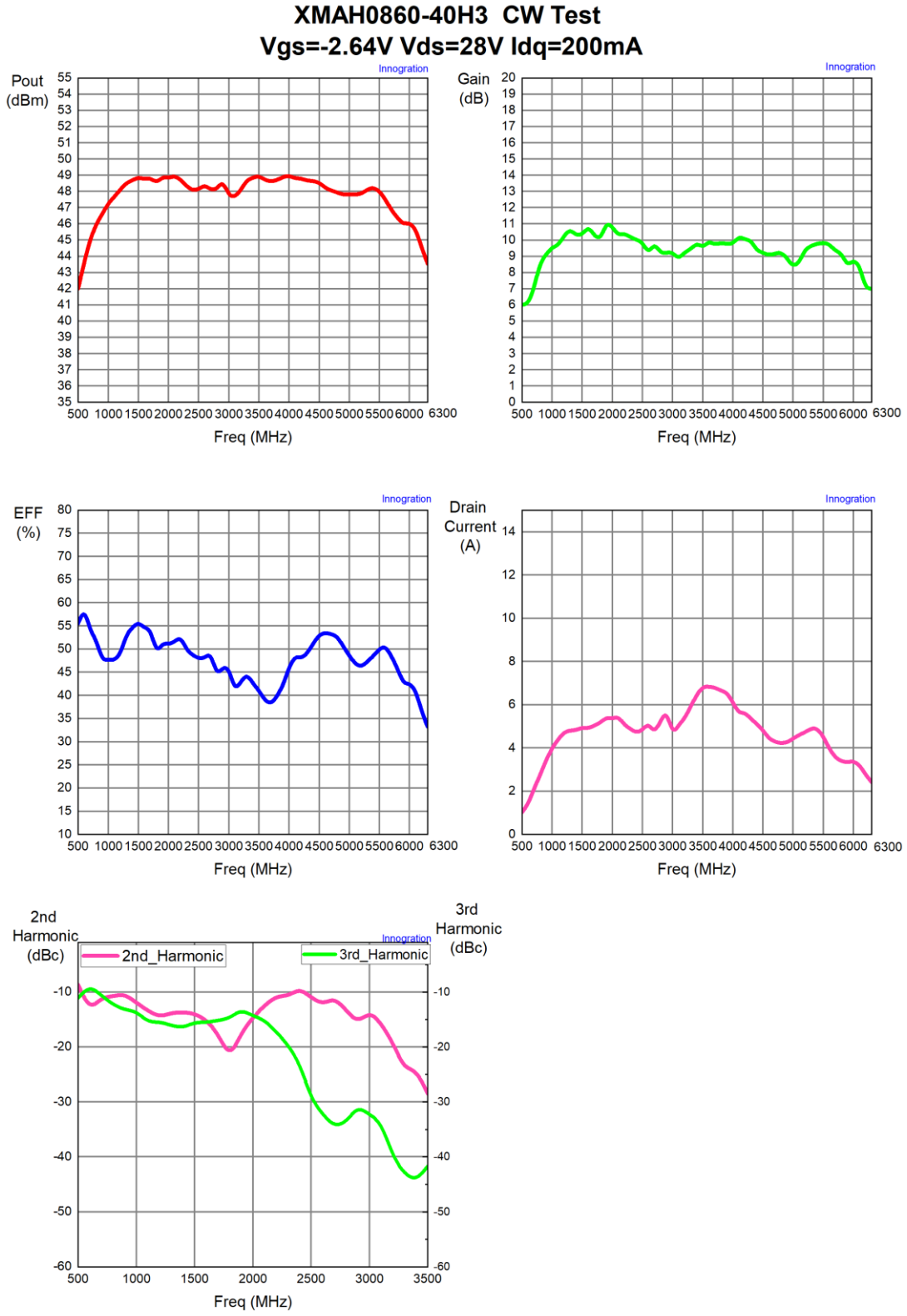
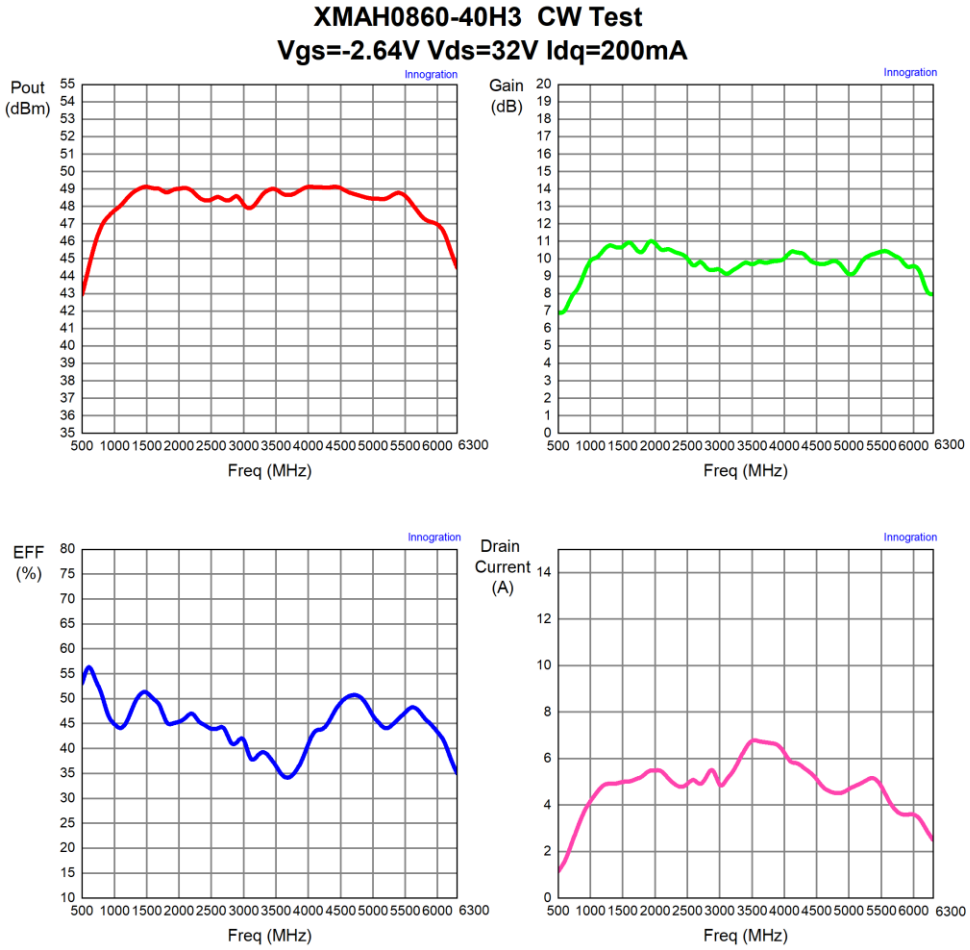
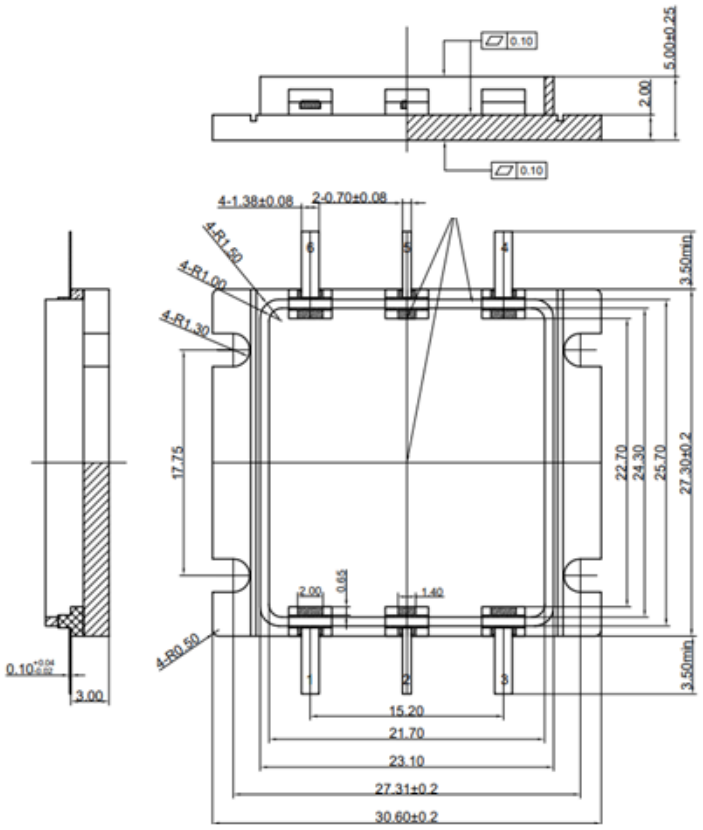


Figure 4. Psat, Eff, Gain Vs Frequency across the band @ 32V



Package Dimensions （Unit:mm）



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2025/10/28	Rev 1.0	Preliminary Datasheet

Application data based on JF-25-34

Disclaimers

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