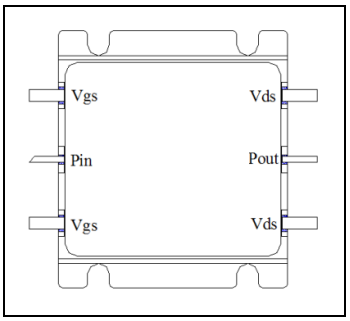
0.8-6.0GHz, 30W, GaN Fully matched PA Module



Description

The GMAH0860-30H3 is a 30-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 40W 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: G2MAH0160-8

Product Features

- Operating Frequency Range: 0.8-6.0GHz
- Operating Drain Voltage(Recommended): +28 to 32V
- 50 Ω Input/Output (External DC block capacitor needed)
- Psat≥30W (CW) @28V, 40W (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

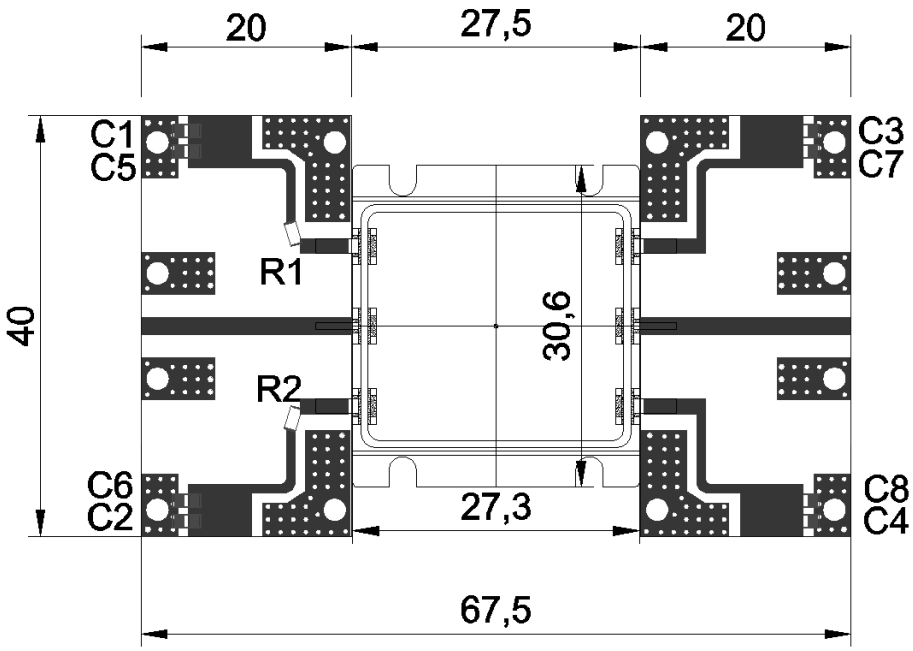
Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+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=30W, FEA	RθJC	2.4	°C/W

Typical application circuit



Component	Description	Suggestion
C1 C2 C3 C4	10 uF	1210
C5 C6 C7 C8	82 pF	MQ301111
R1 R2	10 Ohm	1206
PCB	30Mil Rogers 4350	

TYPICAL CHARACTERISTICS

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

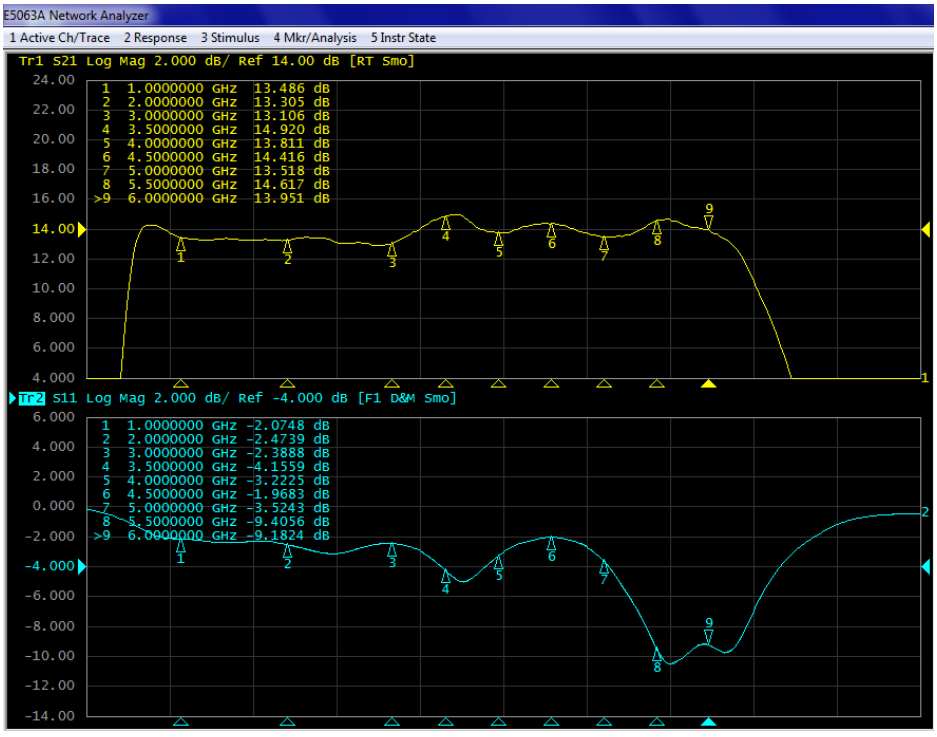


Figure 3. Psat, Eff, Gain Vs Frequency across the band @28V

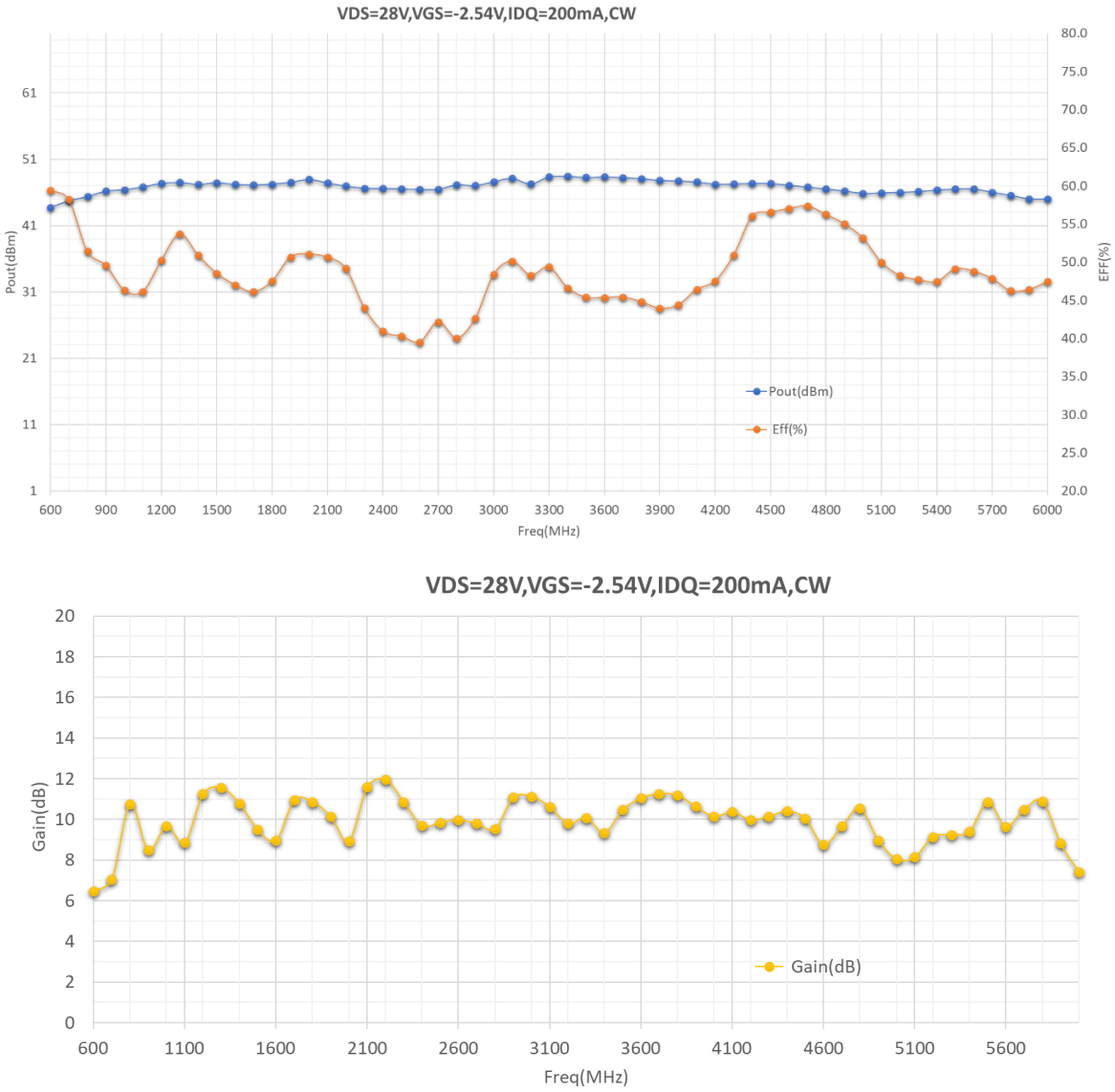
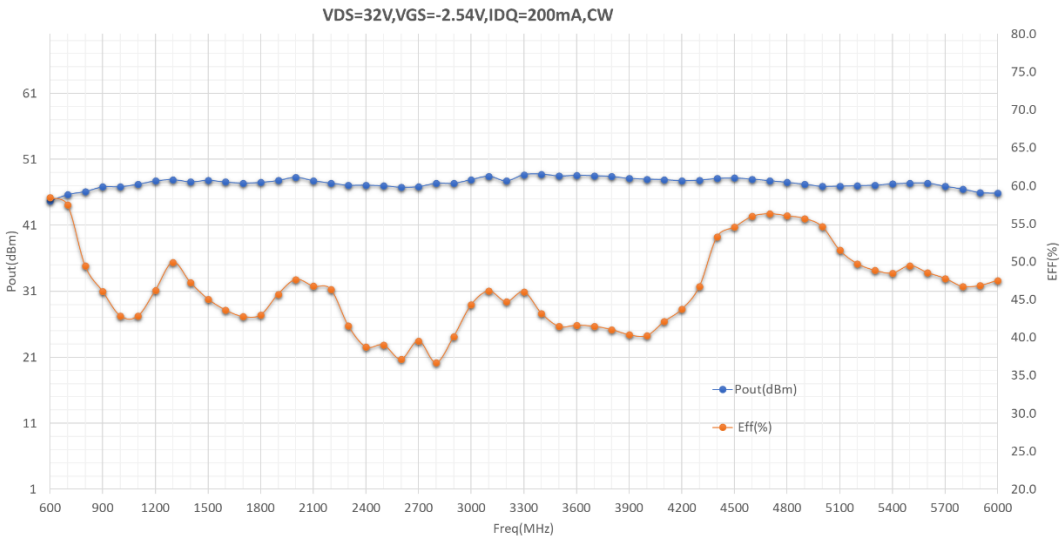


Figure 4. Psat, Eff, Gain Vs Frequency across the band @ 32V



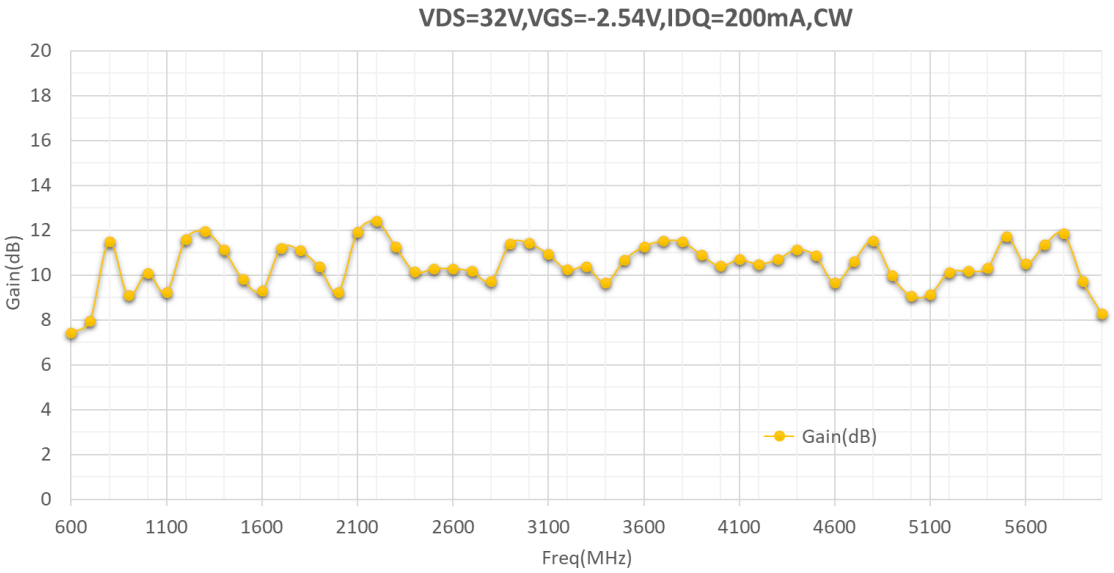
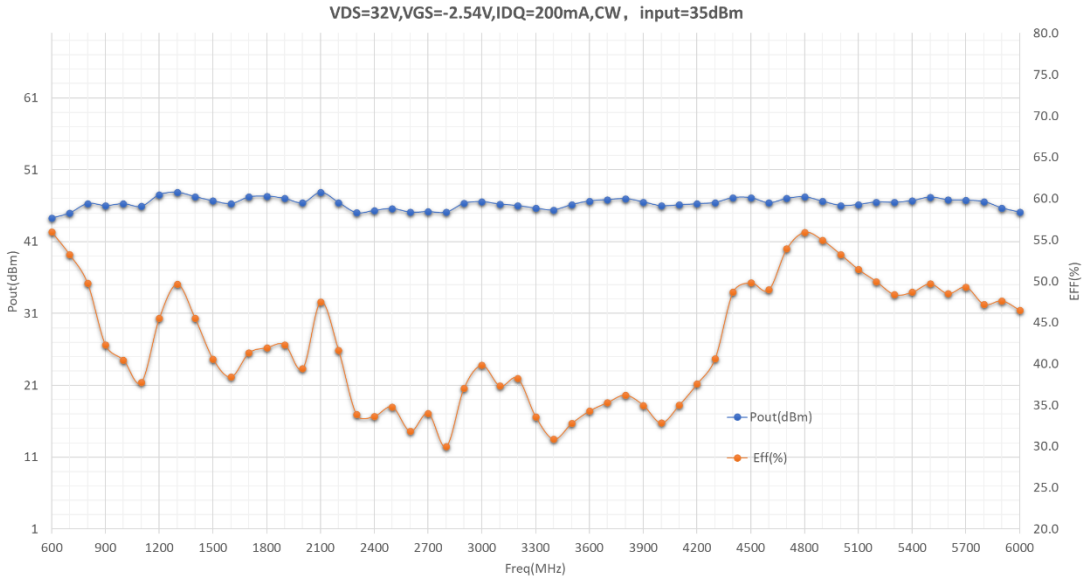
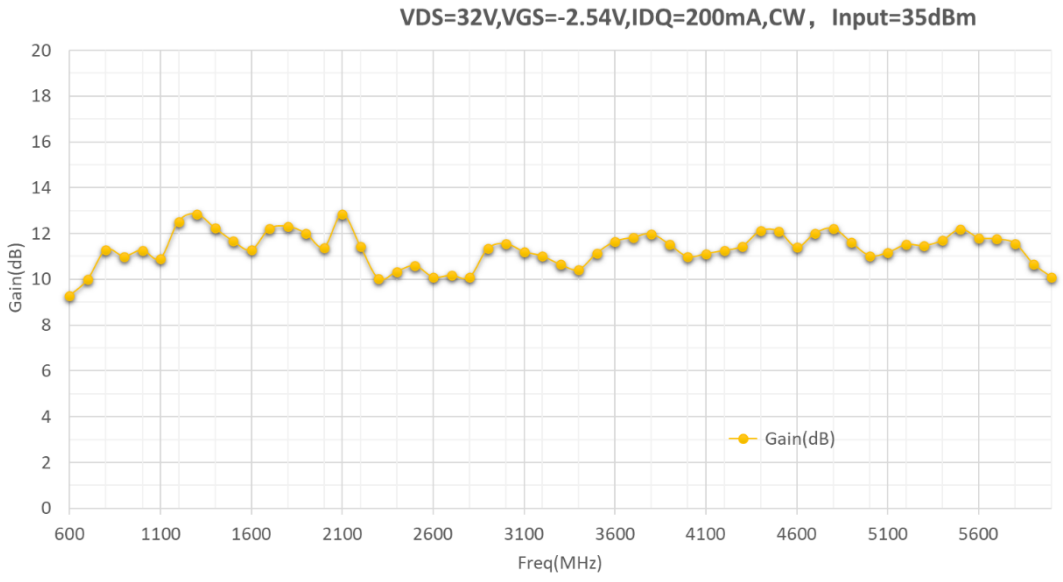
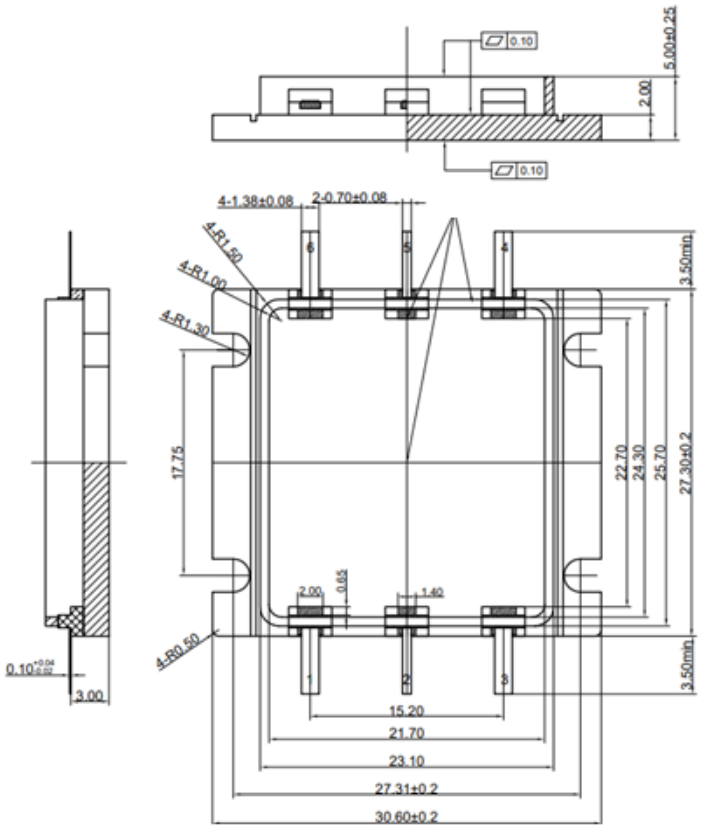


Figure 5. Pout, Eff, Gain Vs Frequency across the band @ 32V Pin=35dBm





Package Dimensions （Unit:mm）



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2024/11/16	Rev 1.0	Advanced Datasheet

Application data based on JF-24-11

Disclaimers

Specifications are subject to change without notice. Innogration believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Innogration for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Innogration . Innogration makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose.“Typical” parameters are the average values expected by Innogration in large quantities and are provided for information purposes only. These values can and do vary in different applications and actual performance can vary over time. All operating parameters should be validated by customer’s technical experts for each application. Innogration products are not designed, intended or authorized for use as components in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the Innogration product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility. For any concerns or questions related to terms or conditions, pls check with Innogration and authorized distributors