



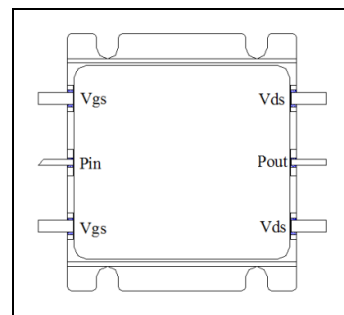
2.0-6.0GHz, 100W, GaN Fully matched PA Module

Description

The GMAH2060-100H3 is a 100-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. In typical application at fixed pin at 17W, it can deliver >80W across the full band.

When used at higher voltage like 32V, it can deliver up to 120W Psat 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.



Pout at 28V and fixed input power, CW

Freq (MHz)	Pin (dBm)	Pout (dBm)	Pout (W)	IDS (A)	Gain (dB)	Eff (%)
2000	42.30	49.97	99.4	5.86	7.67	60.6
2500	42.30	50.72	117.9	7.11	8.42	59.2
3000	42.30	49.04	80.1	8.41	6.74	34.0
3500	42.30	50.20	104.7	9.97	7.90	37.5
4000	42.30	51.11	129.2	10.27	8.81	44.9
4500	42.30	50.98	125.3	10.31	8.68	43.4
5000	42.30	51.43	138.9	10.47	9.13	47.4
5500	42.30	51.39	137.7	10.26	9.09	47.9
6000	42.30	50.37	108.8	8.11	8.07	47.9

Psat across the full band at different input power referred to later pages to reach >100W,

32V data upon request

Applications

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

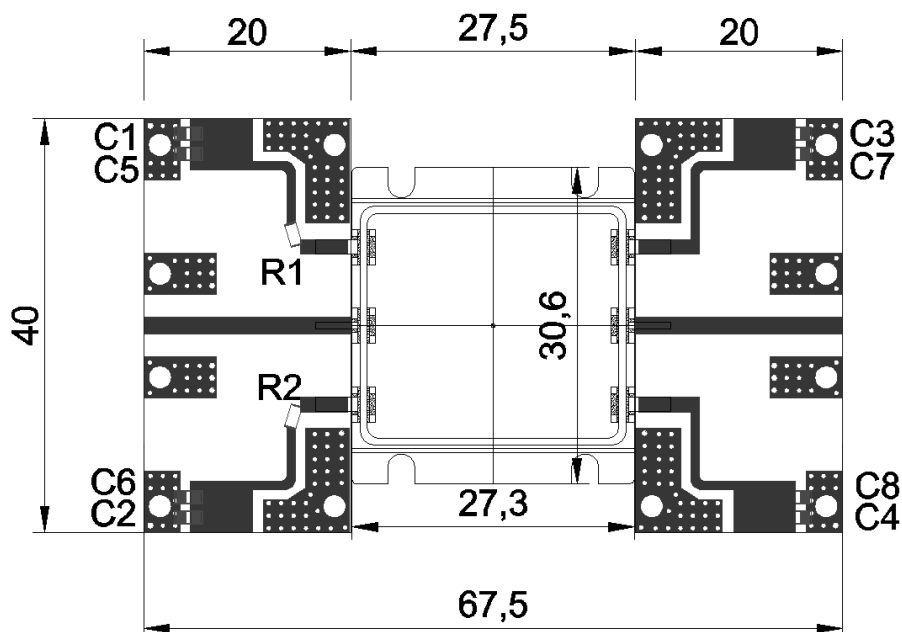
Table 1. Maximum Ratings

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=100W, 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
R1 R2	10 Ohm	1206
PCB	30Mil Rogers 4350	

TYPICAL CHARACTERISTICS

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

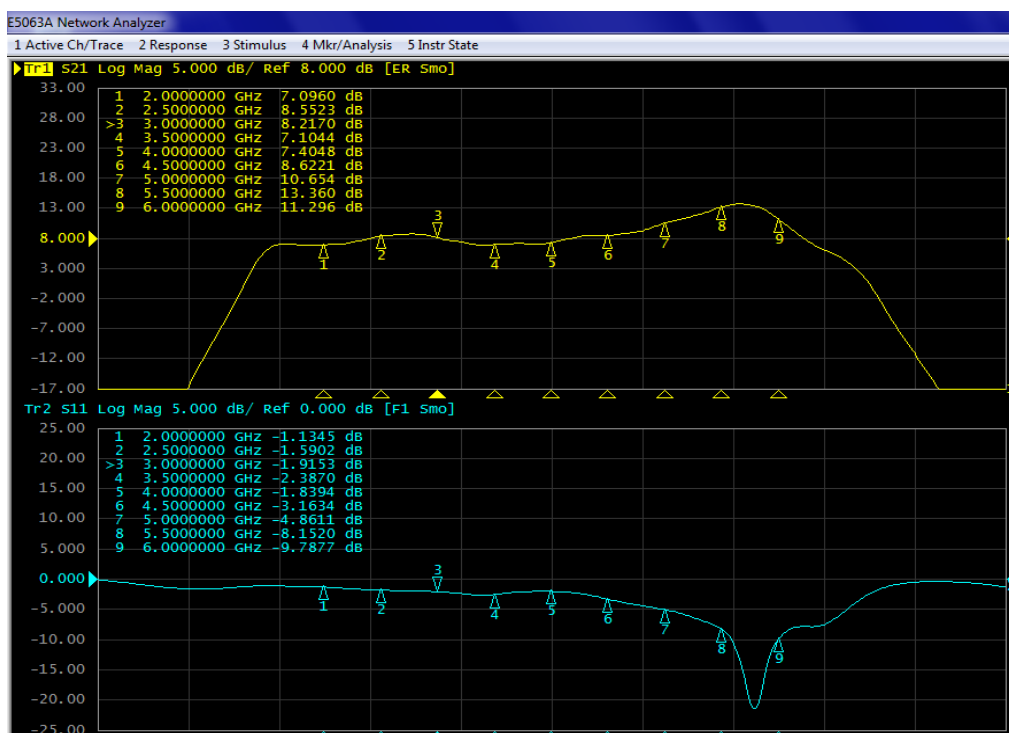




Figure 3. Pout, Eff, Gain Vs Frequency When fixed Pin @28V

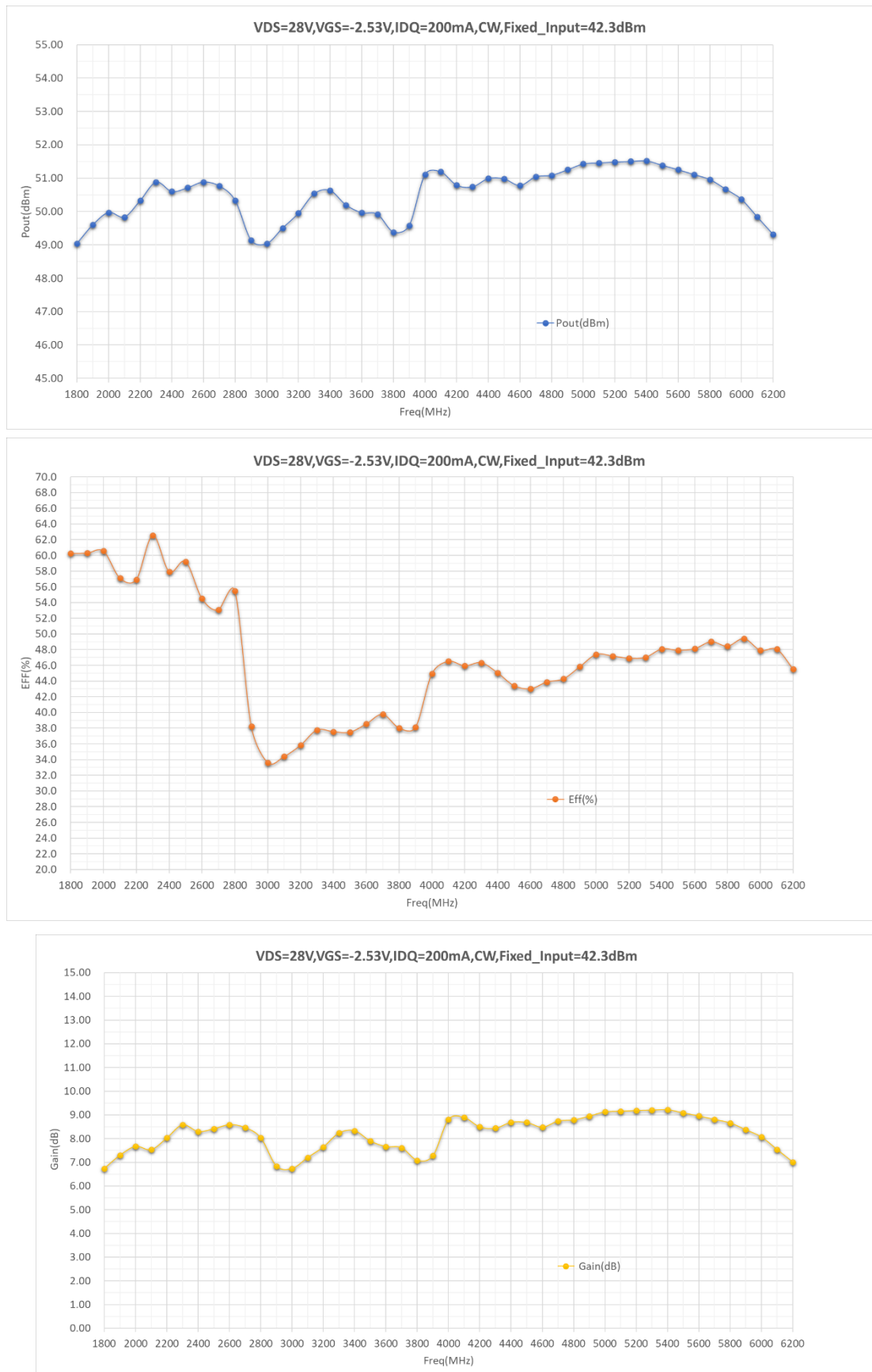
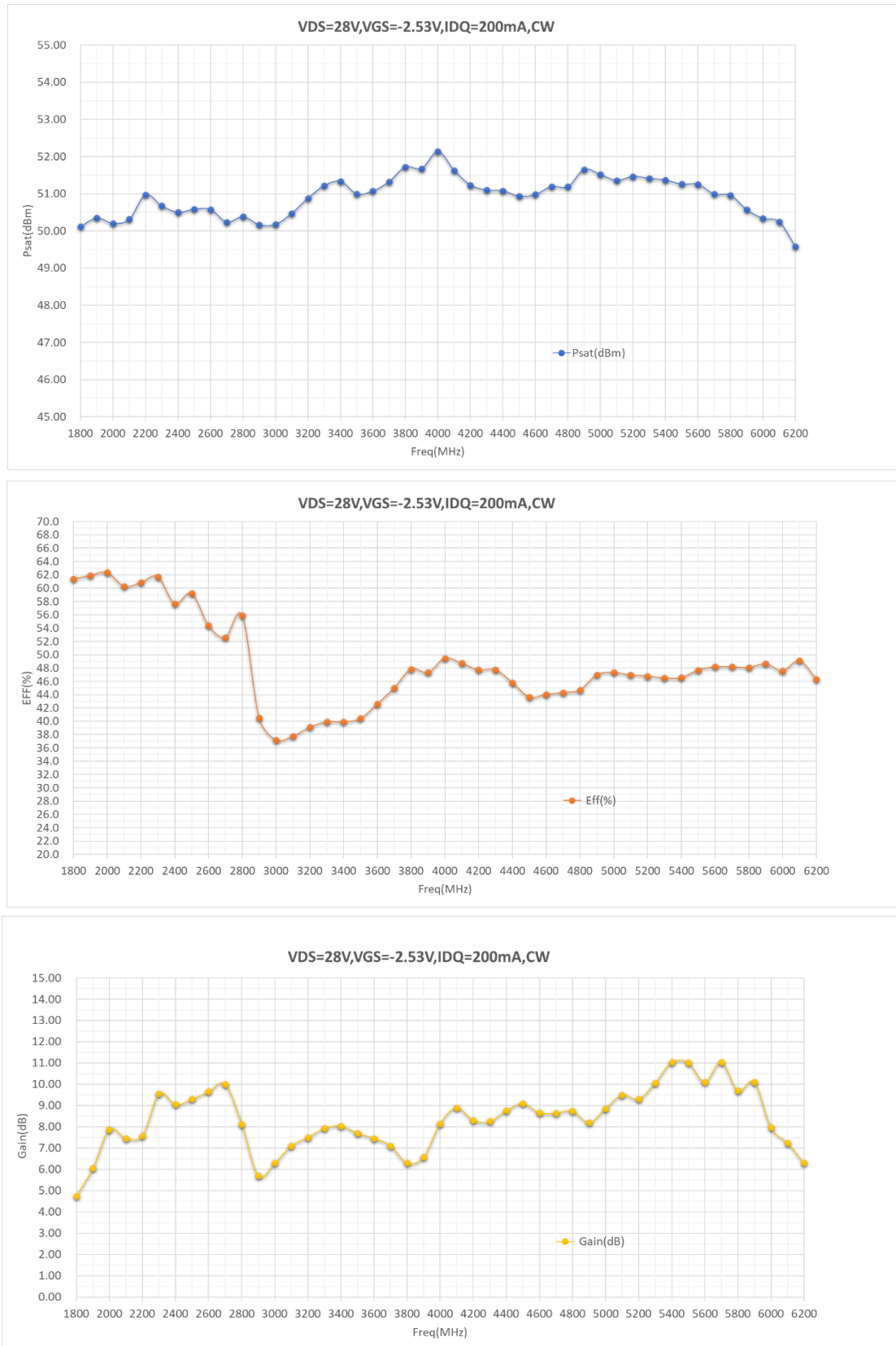
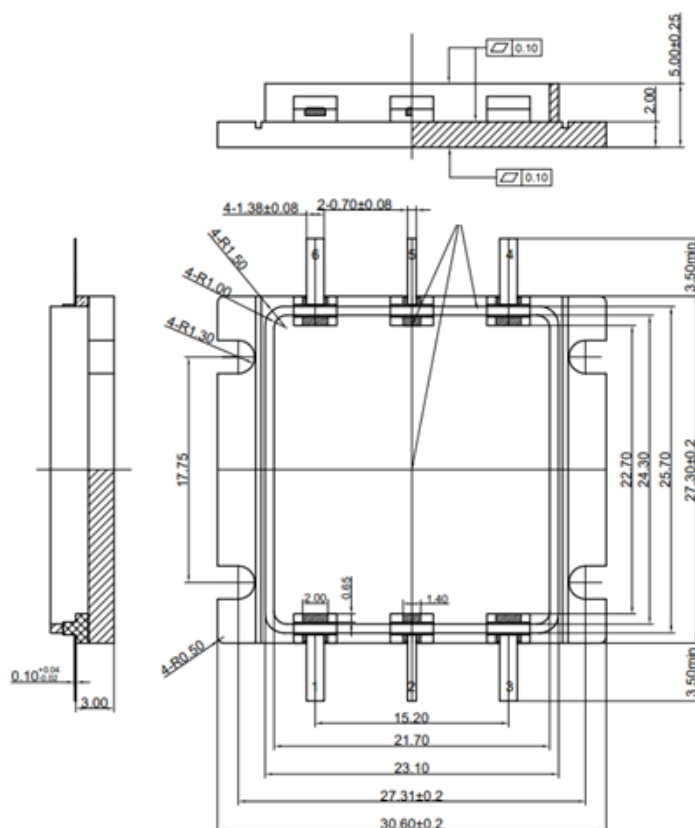




Figure 4. Psat Eff, Gain Vs frequency across the band @28V



Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2024/12/11	Rev 1.0	Advanced Datasheet
2025/9/14	Rev 2.0	Modify the Rth

Application data based on JF-24-14 (18)

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