

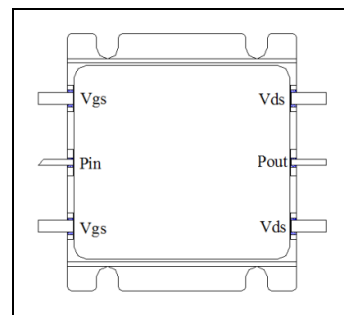


0.6-3.0GHz, 80W, GaN Fully matched PA Module

Description

The GMAH0630-80H3 is a 80-watt,single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 0.6 to 3.0GHz. The module is 50 Ω input/output matched and requires minimal external components. It can work at higher voltage up to 32V with increased power capability

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.



Vds=28V Idq=250mA Vgs=-2.75V CW						
F (MHz)	Pin (dBm)	Psat (dBm)	Psat (W)	Id (A)	Gain (dB)	Eff (%)
600	37.109	49.839	96.4	6.6	12.73	52.1
700	40.465	50.985	125.5	10.87	10.52	41.2
800	38.85	50.37	108.9	9.4	11.52	41.4
900	37.558	50.078	101.8	9.32	12.52	39.0
1000	37.459	50.239	105.7	9.5	12.78	39.7
1100	37.645	50.765	119.3	9.98	13.12	42.7
1200	37.659	50.779	119.6	8.59	13.12	49.7
1300	39.43	50.71	117.8	8.3	11.28	50.7
1400	41.567	51.467	140.2	12.13	9.9	41.3
1500	40.194	50.244	105.8	8.5	10.05	44.4
1600	39.422	49.742	94.2	7.73	10.32	43.5
1700	38.83	49.86	96.8	8.16	11.03	42.4
1800	37.39	50.39	109.4	8.38	13	46.6
1900	36.971	50.391	109.4	7.58	13.42	51.6
2000	37.704	49.944	98.7	7.87	12.24	44.8
2100	41.304	51.324	135.6	10.98	10.02	44.1
2200	40.979	51.369	137.1	9.8	10.39	49.9
2300	41.325	51.275	134.1	10.49	9.95	45.7
2400	40.595	50.725	118.2	10.68	10.13	39.5
2500	40.123	50.123	102.9	9.52	10	38.6
2600	37.365	49.245	84.0	6.66	11.88	45.1
2700	34.026	49.010	80.0	6.28	14.98	45.2
2800	34.025	49.115	81.6	5.98	15.09	48.7



2900	37.372	49.832	96.2	7.03	12.46	48.9
3000	38.547	50.187	104.4	8.03	11.64	46.4

Product Features

- Operating Frequency Range: 0.6-3.0GHz
- Operating Drain Voltage(Recommended): +28 V (up to 32V with power increased >90W)
- 50 Ω Input/Output (External DC block capacitor needed)
- $P_{sat} \geq 49$ dBm (CW)
- Small signal gain:>13dB, Power gain:>11dB
- Minimum efficiency:>35%
- 30.8*27.4 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- Ultra Broadband Amplifiers, typically 0.8-2.5GHz, 1-2GHz,2-3GHz
- L band power amplifier, typically 960-1215MHz, 1200-1400MHz.1400-1600MHz
- Test Instrumentation
- EMC Amplifier Drivers
- 2-way Radios

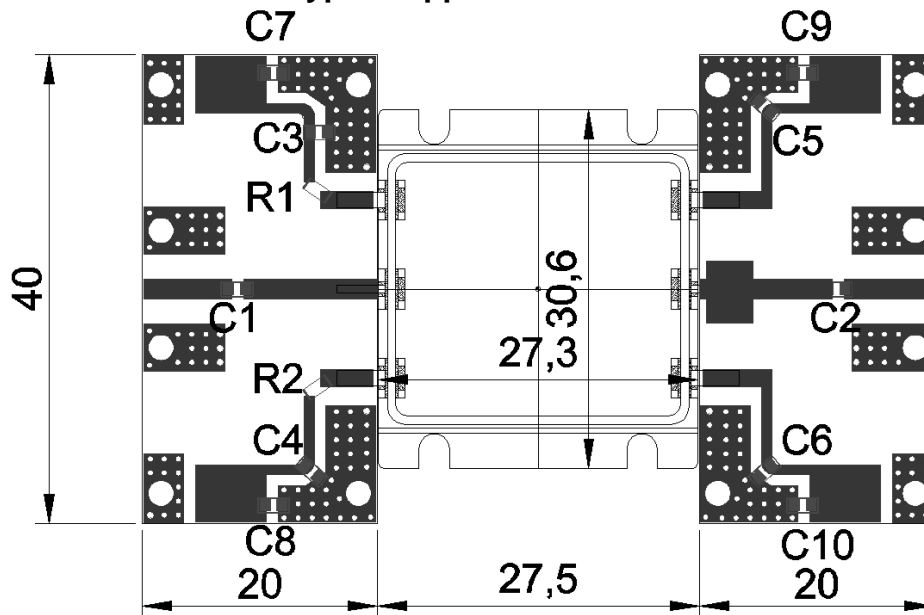
Table 1. Maximum Ratings

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 $T_c = 25^\circ\text{C}$, $P_{out} = 130\text{W}$, FEA	$R_{\theta JC}$	1.3	°C/W

Typical application circuit



Component	Description	Suggested Manufacturer
C7,C8,C9,C10	Ceramic multilayer capacitor, 10uF, 100V	10uF/100V
C1,C3,C4,C5,C6	6.8pF	MQ200805_Series
C2	6.8pF x 2	MQ301111_Series
R1	Chip Resistor, 10Ω, 1206	
PCB	30Mil Rogers 4350B	

TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Pin=0dBm)

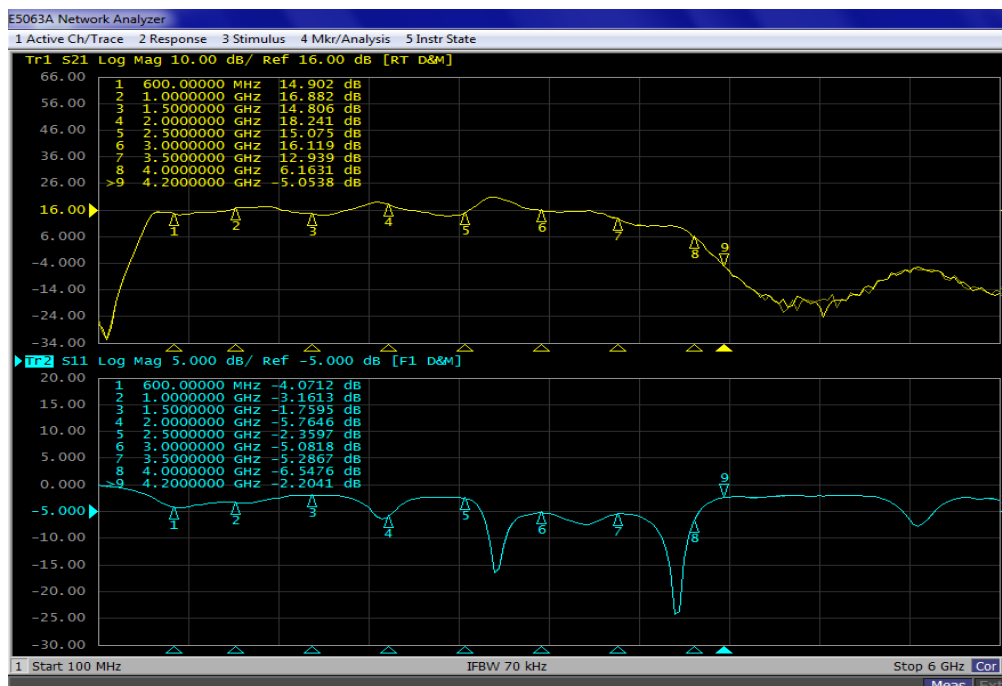
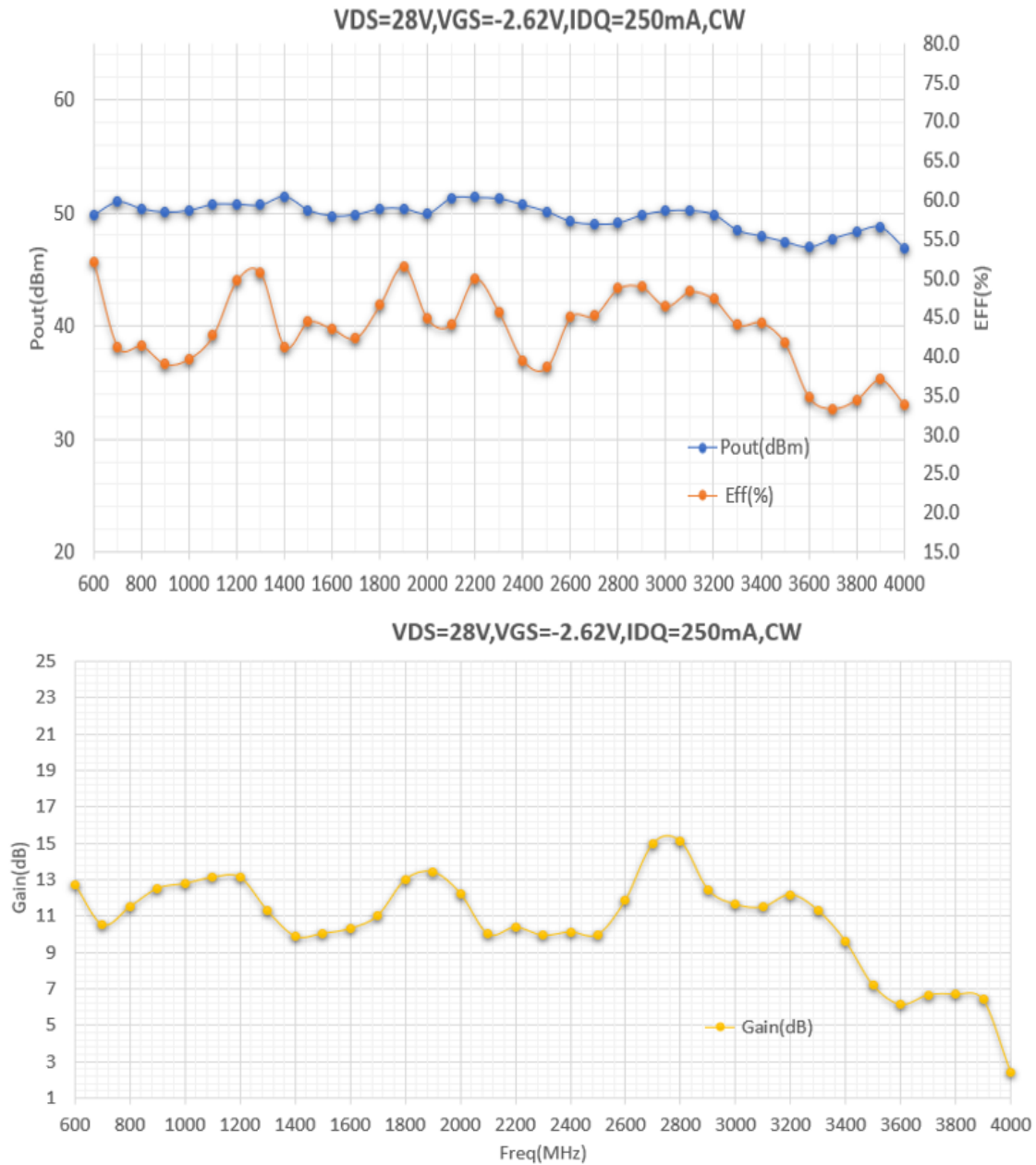


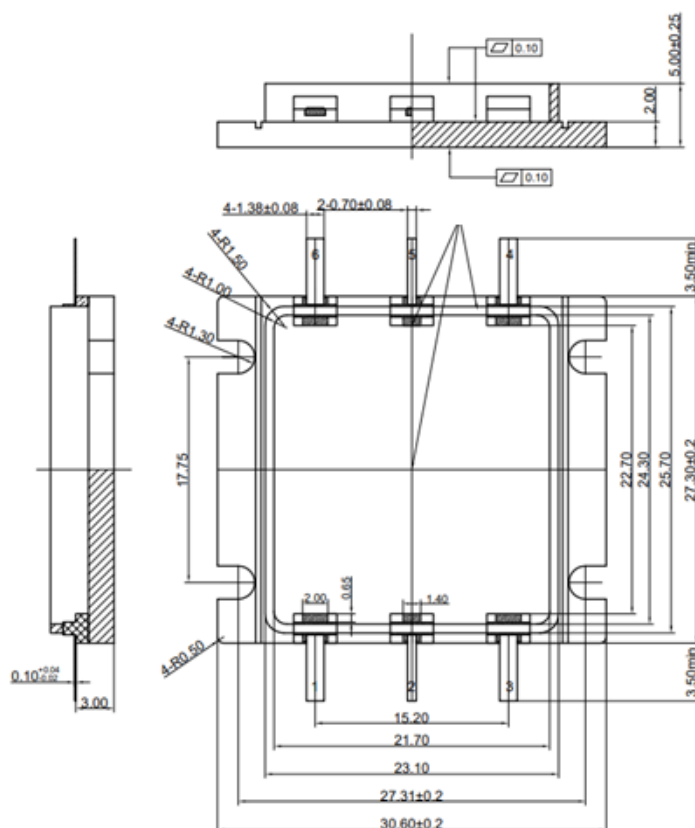


Figure 3. Psat, Eff and Power Gain Vs Frequency across the band





Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2023/6/28	Rev 1.0	Advanced Datasheet

Application data based on JF-23-06

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