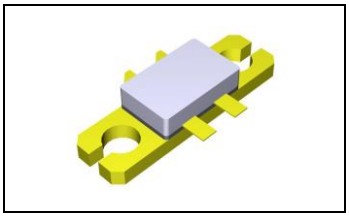
0.7-2.4GHz, 30W, 28V GaN Fully matched PA Module



Description

The XMAH0724-30G4E is a 30-watt ,single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 700MHz to 2.4GHz. The module is 50 Ω input matched and requires minimal external components at output.

XMAH0724-30G4 VGS=-2.73V VDS=28V IDQ=200mA CW								
Freq (MHz)	Pout (dBm)	Pout (W)	IDS (A)	Pin (dBm)	Gain (dB)	Eff (%)	2nd (dBc)	3rd (dBc)
600	44.35	27.23	1.74	37.39	6.96	55.88	-9.2	-10.8
700	45.37	34.43	2.19	38.23	7.14	56.16	-9.0	-12.1
800	45.62	36.48	2.29	37.94	7.68	56.89	-8.0	-10.8
900	45.45	35.08	2.43	37.88	7.57	51.55	-11.6	-14.6
1000	46.30	42.66	2.79	39.22	7.08	54.61	-15.7	-19.0
1100	47.01	50.23	3.18	38.50	8.51	56.42	-21.3	-26.4
1200	47.19	52.36	3.05	38.35	8.84	61.31	-21.5	-27.7
1300	47.62	57.81	2.93	39.27	8.35	70.47	-18.4	-23.3
1400	46.77	47.53	2.71	38.86	7.91	62.64	-24.2	-32.8
1500	46.23	41.98	2.74	38.40	7.83	54.71	-26.5	-38.5
1600	46.11	40.83	2.75	38.59	7.52	53.03	-25.9	-38.3
1700	45.69	37.07	2.85	38.59	7.1	46.45	-27.0	-39.9
1800	45.18	32.96	2.80	37.45	7.73	42.04	-26.7	-51.4
1900	46.24	42.07	3.46	36.83	9.41	43.43	-23.1	-59.1
2000	46.64	46.13	3.56	39.00	7.64	46.28	-23.0	-64.7
2100	46.41	43.75	3.70	38.79	7.62	42.23	-35.9	-63.5
2200	46.21	41.78	3.62	38.31	7.9	41.22	-44.6	-65.0
2300	46.70	46.77	3.57	38.69	8.01	46.79	-45.8	-65.0
2400	45.63	36.56	2.66	37.75	7.88	49.09	-37.3	-64.3
2500	44.11	25.76	1.97	38.97	5.14	46.71	-35.5	-46.9

Recommended driver：G2MAH0133-12 or GMAH0027-10

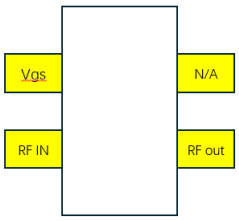
Product Features

- Operating Frequency Range: 700M-2.4GHz
- Operating Drain Voltage: +28 V
- 50 Ω Input
- Psat: ≥30W(CW)
- Small signal gain:>10dB, Power gain:>7dB @28V
- Efficiency:>40%

Applications

- Ultra Broadband Amplifiers
- UHF, L band pulsed power Amplifier
- Test Instrumentation
- EMC Amplifier Drivers
- 2-way Radios

Pin Configuration and Description



Top View

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, DC test	RθJC	2.8	°C/W

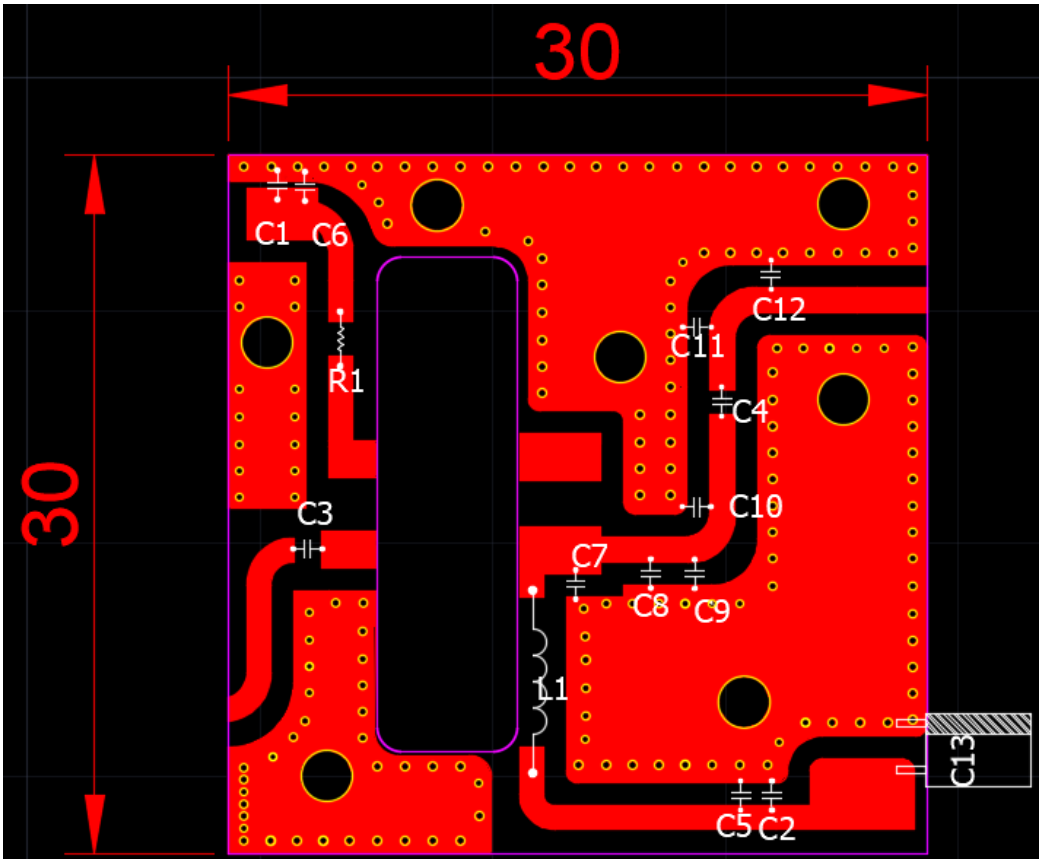
Table 3. Electrical Characteristics

Parameter	Condition	Min	Typ	Max	Unit
Frequency Range		700		2400	MHz
Power Gain @ Psat		7			dB
P_{SAT}			30		W
Drain Efficiency @ P_{SAT}		40			%
Unless otherwise noted: TA = 25°C, V_{DD} =28 V, Pulse Width=20 us, Duty cycle=10%					

Load Mismatch of per Section (On Test Fixture, 50 ohm system): V_{DD} =28V, I_{DQ} =200mA, f = 2GHz

VSWR 10:1 at Pout=30W, pulse CW Output Power	No Device Degradation

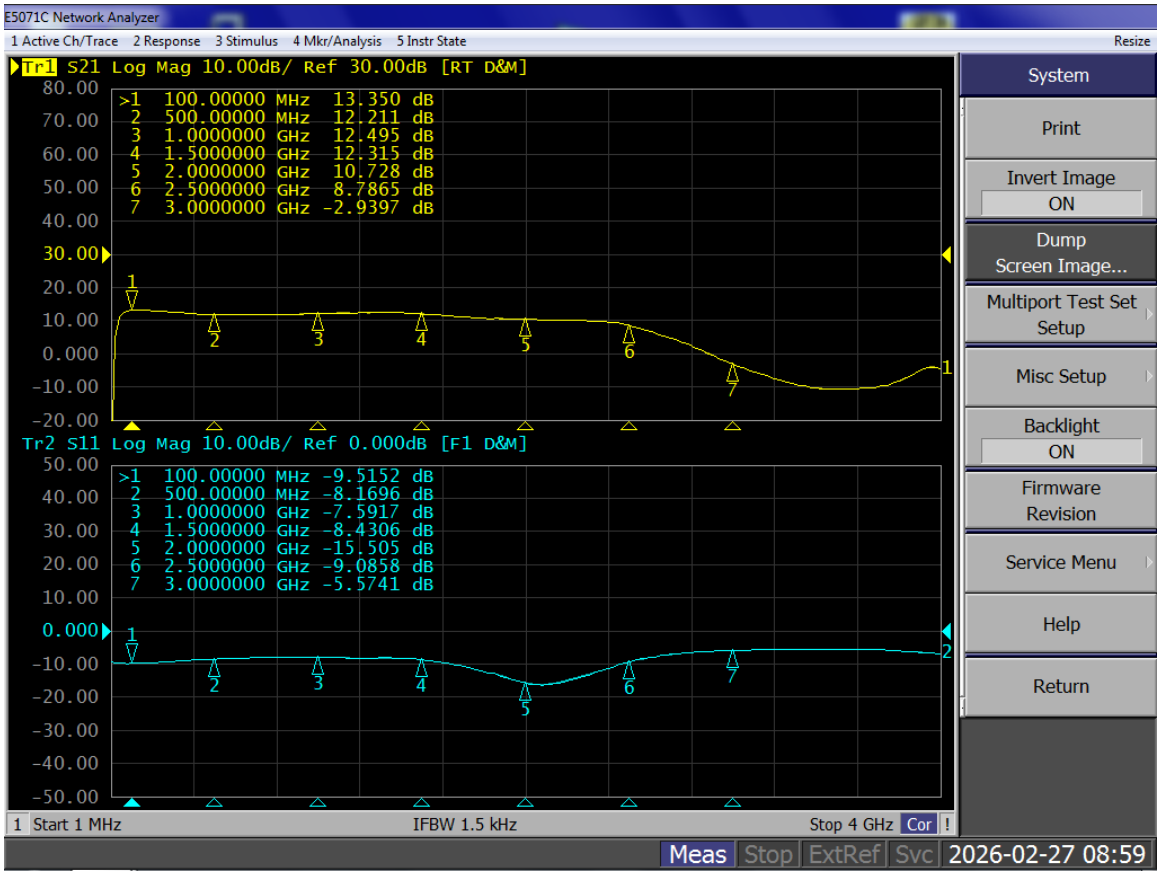
Reference Circuit of Test Fixture Assembly Diagram



Component	Description	Suggested Manufacturer
C1~C4	1uF 0805	/
C5,C6	120pF MQ300805	
C7~C12	1pF MQ400805	
C13	470uF/63V	/
R1	18Ω 1206	/
L1	Wire diameter 0.8mm,inner diameter 2.5mm 14turns	DIY
PCB	20mil Rogers 4350B	

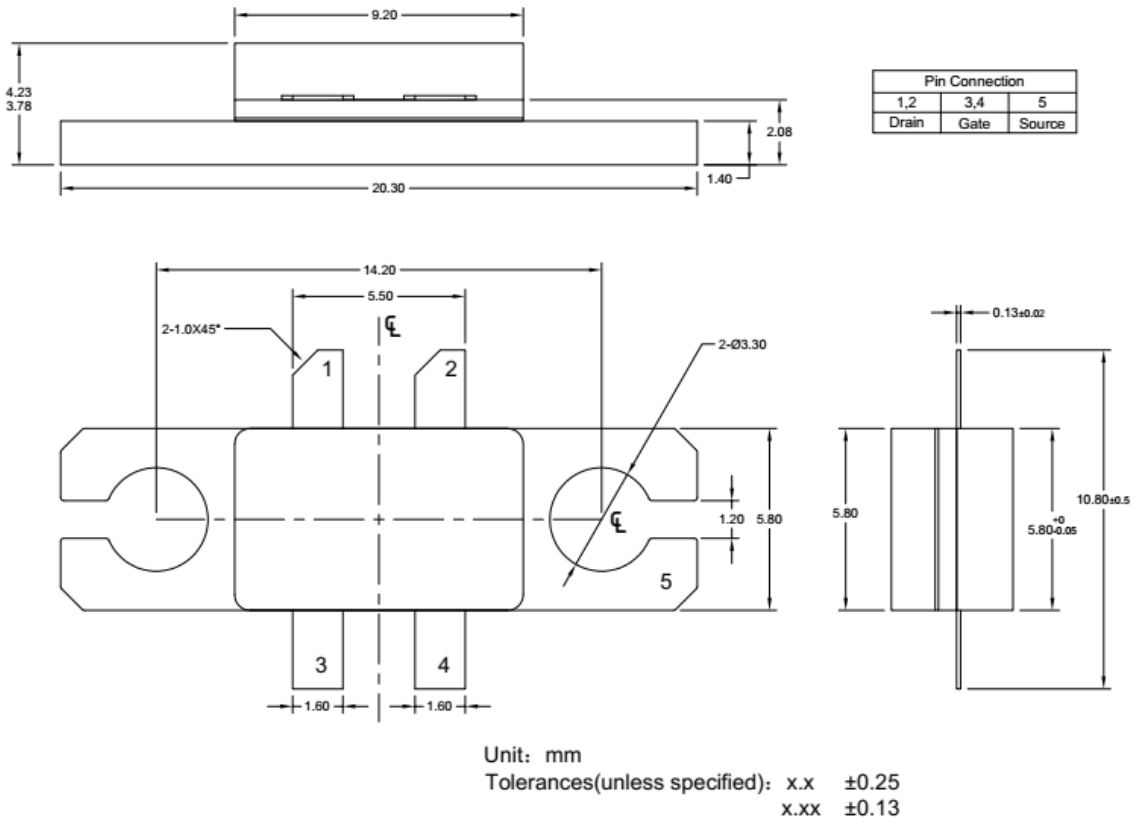
TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Pin=0dBm) @28V



Package Outline

Flanged ceramic package; 2 mounting holes; 4 leads



OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-G4E					2018/01/19

Figure 1. Package Outline PKG-G4E

Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2026/2/27	V1.0	Production datasheet

Application data based on HL-26-06

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