



2.0-6.0GHz, 40W, GaN Fully matched PA Module

Description

The GMAH2060-40B4V (A or B) is a 40-watt, single stage integrated Power Amplifier Module, design

For application with frequencies from 2.0 to 6.0GHz. **Within 2-4GHz, it can deliver 50W CW**.

The module is 50 Ω input/output matched and requires minimal external components.

There is no guarantee when device used outside the stated bands

Report using GMAH2060-40B4V (A+B) combined to reach 2-6GHz >70W upon request

$V_{DS} = 28V$, $V_{GS} = -2.45V$, $I_{dq} = 200mA$, CW

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)	2 nd Harmonic	3 rd Harmonic
2000	38.40	48.70	74.1	4.82	10.30	54.9	-19.4	-13.0
2500	38.60	48.02	63.4	4.63	9.42	48.9	-13.4	-17.8
2800	39.15	47.37	54.6	5.10	8.22	38.2	-13.7	-34.7
3000	39.45	47.86	61.1	5.54	8.41	39.4	-13.6	-40.6
3500	36.70	48.70	74.1	4.74	12.00	55.9	-16.2	-40.0
4000	37.02	47.87	61.2	4.08	10.85	53.6	-36.1	-57.0
4500	38.55	46.65	46.2	4.69	8.10	35.2	-	-
5000	39.25	47.00	50.1	5.10	7.75	35.1	-	-
5500	38.25	47.12	51.5	4.35	8.87	42.3	-	-
6000	38.45	46.72	47.0	3.88	8.27	43.3	-	-

Product Features

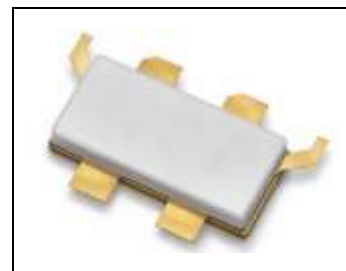
- Operating Frequency Range: 2.0-6.0GHz
- Operating Drain Voltage(Recommended): +28V (Up to 32V)
- 50 Ω Input/Output (External DC block capacitor needed)
- $P_{sat} \geq 40W$ (CW)
- Small signal gain: >12dB, Power gain: >8dB
- Minimum P_{sat} efficiency: >35%
- 20*10 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- Power Amplifiers within L/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



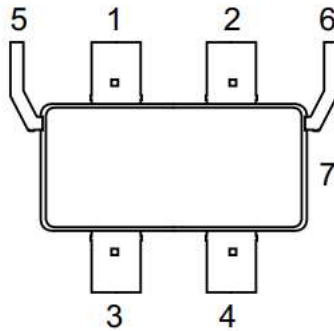


Operating Junction Temperature	T_j	+225	°C
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Table 2. Thermal Characteristics

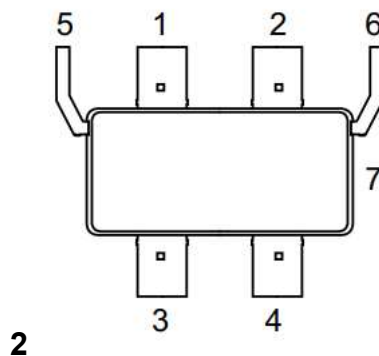
Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case $T_c = 25^{\circ}\text{C}$, $P_{out} = 40\text{W}$ at 5GHz, FEA	$R_{\theta JC}$	2.0	°C/W

Pin Definition of GMAH2060-40B4V(A)



Pin No.	Symbol	Description
5	Pin	RF Input
6	Pout	RF Output
1	Vgs	Gate Bias
2	Vds	Drain Bias
3,4	NC	No connection
7	Source	Source, grounding

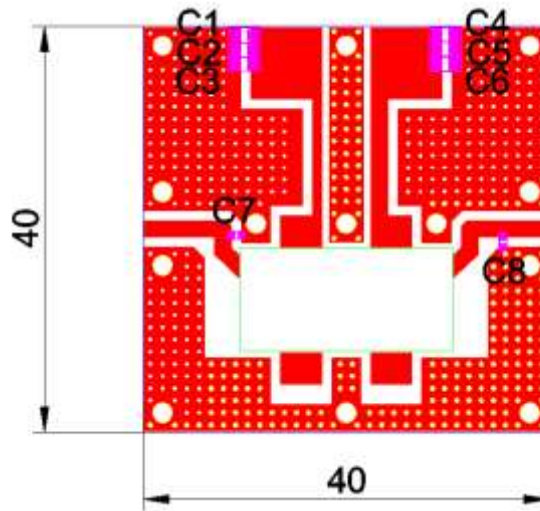
Pin Definition of GMAH2060-40B4V(B)



Pin No.	Symbol	Description
6	Pin	RF Input
5	Pout	RF Output
2	Vgs	Gate Bias
1	Vds	Drain Bias
3,4	NC	No connection
7	Source	Source, grounding



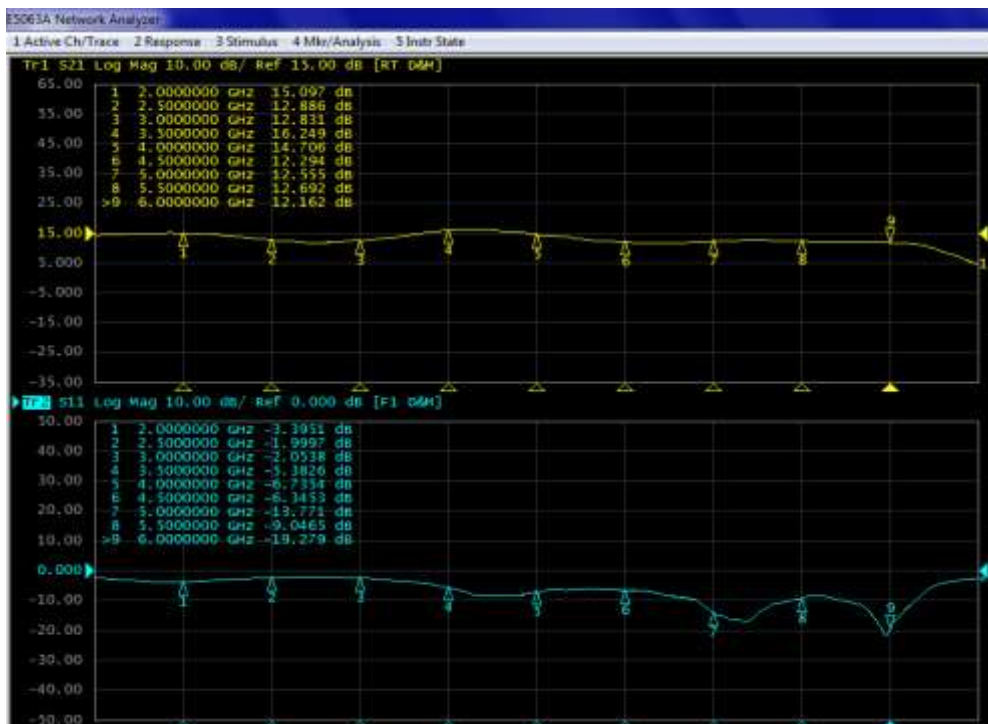
Typical application circuit



Component	Description	Suggested Manufacturer / Series Number
C1 C4	10 uF	TDK
C2 C5	120 pF	MQ301111
C3 C6	8.2 pF	MQ301111
C7	0.3 pF	ATC 600F
C8	0.2 pF	ATC 600F
PCB	30Mil Rogers 4350	Rogers

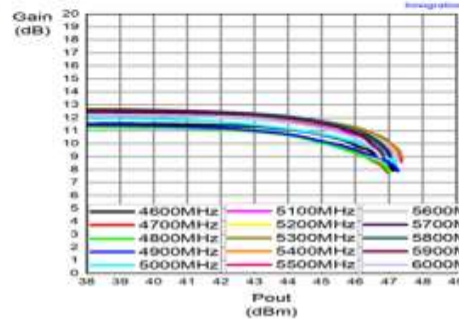
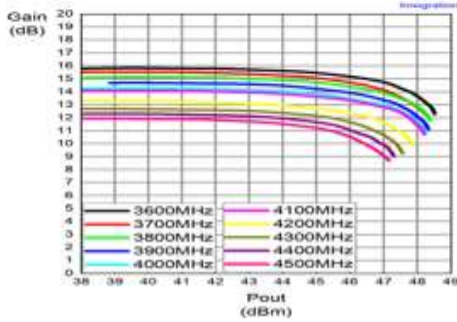
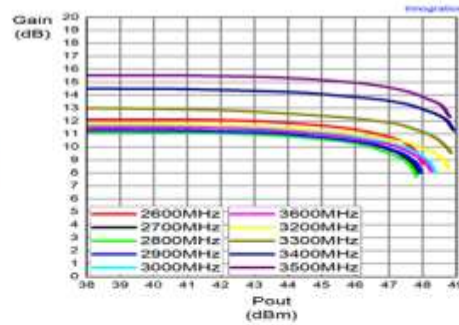
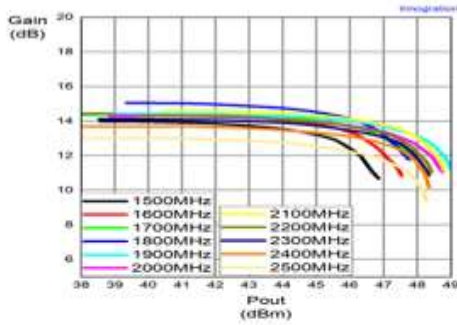
Typical performance

Network analyzer output S21/S11, Vds=28V, Idq=200mA

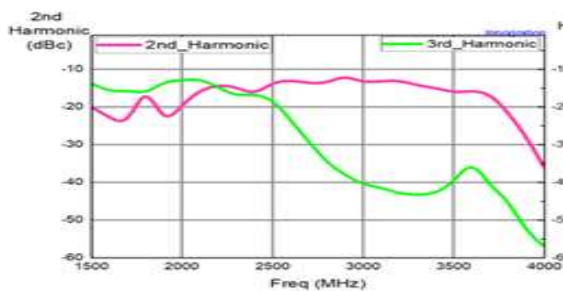
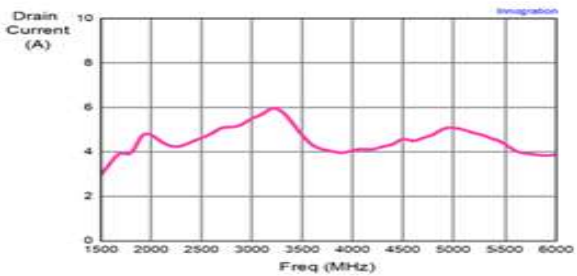
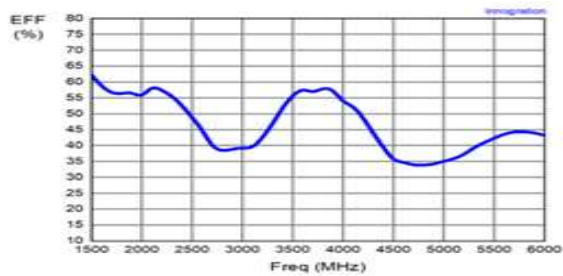
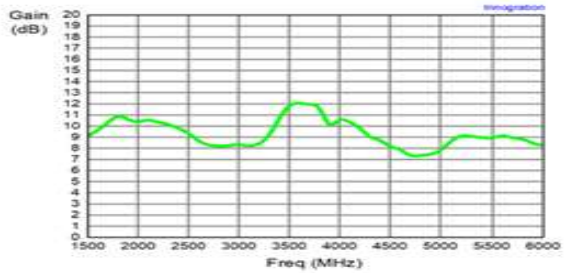
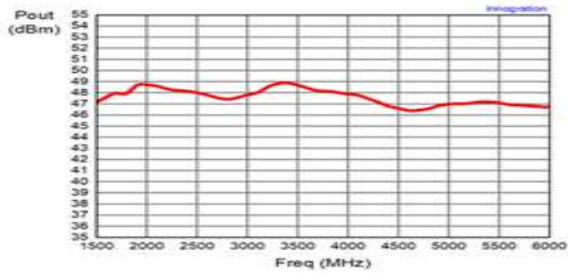




Pulse 100us 10%
Vgs=-2.45V Vds=28V Idq=200mA

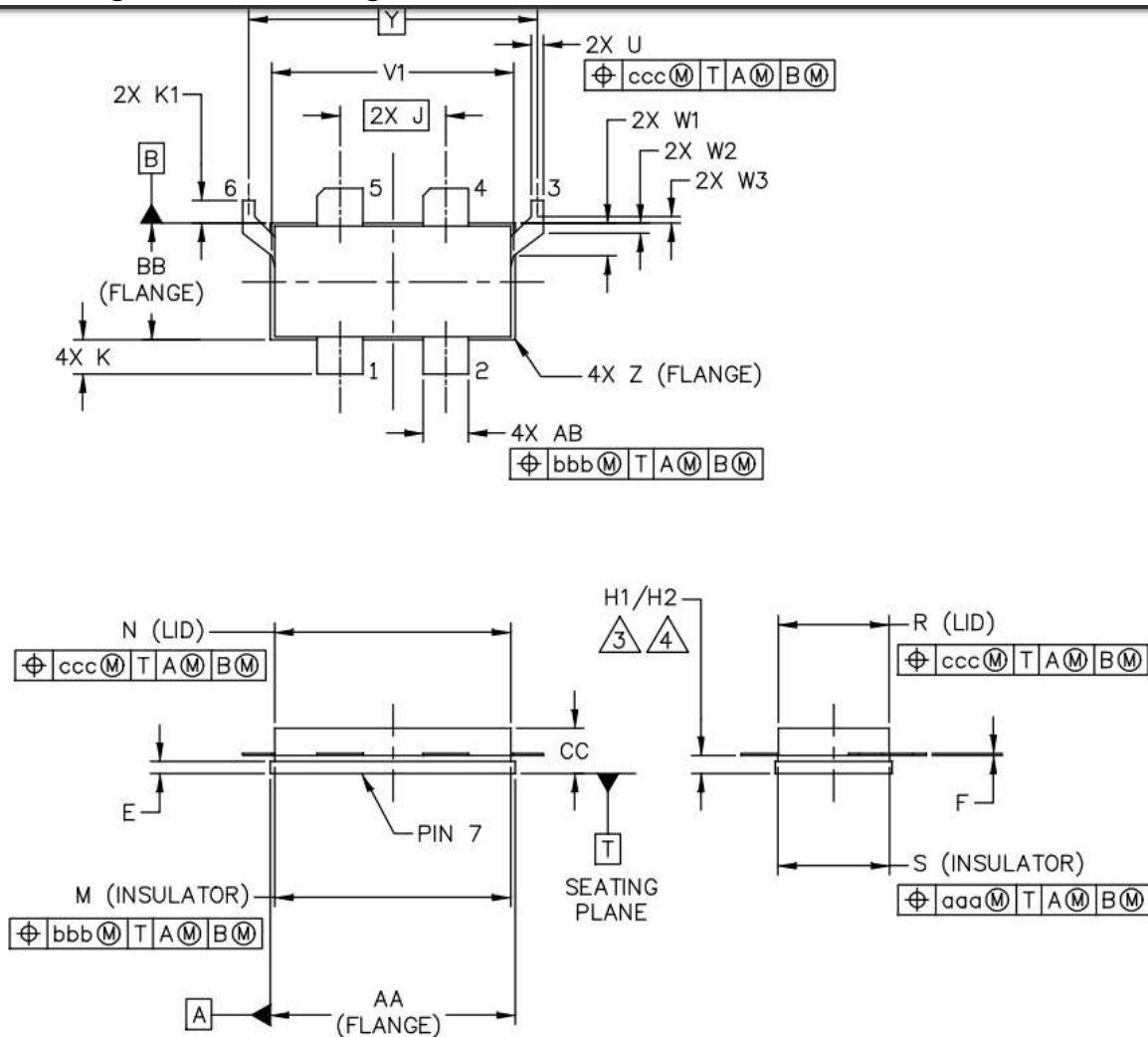


CW Test
Vgs=-2.45V Vds=28V Idq=200mA





Earless Flanged Ceramic Package; 6 leads- BY4V



DIM	INCH		MILLIMETER		DIM	INCH		MILLIMETER	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
AA	.805	.815	20.45	20.70	R	.365	.375	9.27	9.53
BB	.380	.390	9.65	9.91	S	.365	.375	9.27	9.53
CC	.125	.170	3.18	4.32	U	.035	.045	0.89	1.14
E	.035	.045	0.89	1.14	V1	.795	.805	20.19	20.45
F	.004	.007	0.10	0.18	W1	.0975	.1175	2.48	2.98
H1	.057	.067	1.45	1.70	W2	.0225	.0425	0.57	1.08
H2	.054	.070	1.37	1.78	W3	.0125	.0325	0.32	0.83
J	.350 BSC		8.89 BSC		Y	.956 BSC		24.28 BSC	
K	.0995	.1295	2.53	3.29	Z	R.000	R.040	R0.00	R1.02
K1	.070	.090	1.78	2.29	AB	.145	.155	3.68	3.94
M	.774	.786	19.66	19.96	aaa	.005		0.13	
N	.772	.788	19.61	20.02	bbb	.010		0.25	
					ccc	.015		0.38	



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2025/8/14	Rev 1.0	Advanced Datasheet
2025/9/11	Rev 1.0	Preliminary datasheet, finalized from 1.5-6GHz to 2-6GHz , Rth modification
2026/9/29	Rev 1.1	Add highlight of A+B combined

Application data based on JF-25-17/LBG-26-40

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