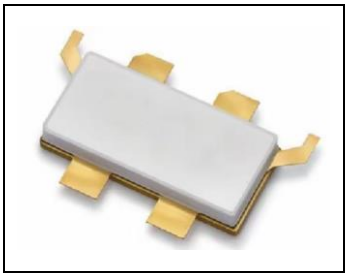
2.0-6.0GHz, 60W, GaN Fully matched PA Module



Description

The XMAH2040-60B4V is a 60-watt,single stage integrated Power Amplifier Module, designed For application with frequencies from 2.0 to 4.0GHz..

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

There is no guarantee when device used outside the stated bands

V_{DS} = 28V , V_{GS}= -2.41V , I_{dq} = 200mA,100us/10%

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
2000	37.59	49.5	88.3	0.53	11.9	59.9
2500	39.74	49.1	80.6	0.60	9.3	48.0
3000	40.58	48.8	75.3	0.72	8.2	37.5
3500	36.64	48.6	72.8	0.48	12.0	54.1
4000	38.84	48.0	63.3	0.47	9.2	48.2

Product Features

- Operating Frequency Range: 2.0-4.0GHz
- Operating Drain Voltage(Recommended): +28V (Up to 32V)
- 50 Ω Input/Output (External DC block capacitor needed)
- Psat⩾60W (Pulsed CW)
- Small signal gain:>12dB, Power gain:>8dB
- Minimum Psat efficiency:>35%
- 20*10 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- Power Amplifiers within S band
- Test Instrumentation
- EMC Amplifier Drivers
- 2-way Radios

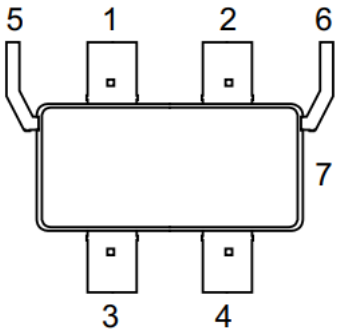
Table 1. Maximum Ratings

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

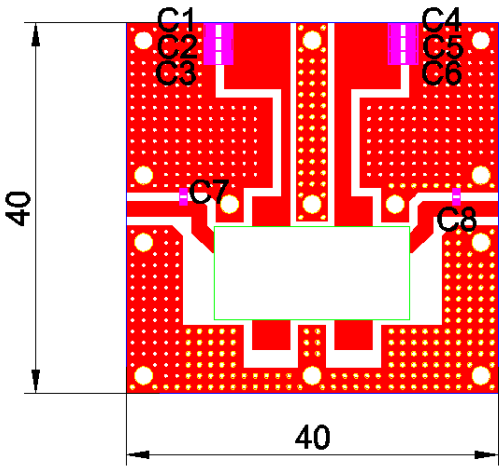
Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case T_C= 25°C, Pout=60W Pulsed CW at 4GHz, FEA	RθJC	TBD	°C/W

Pin Definition



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

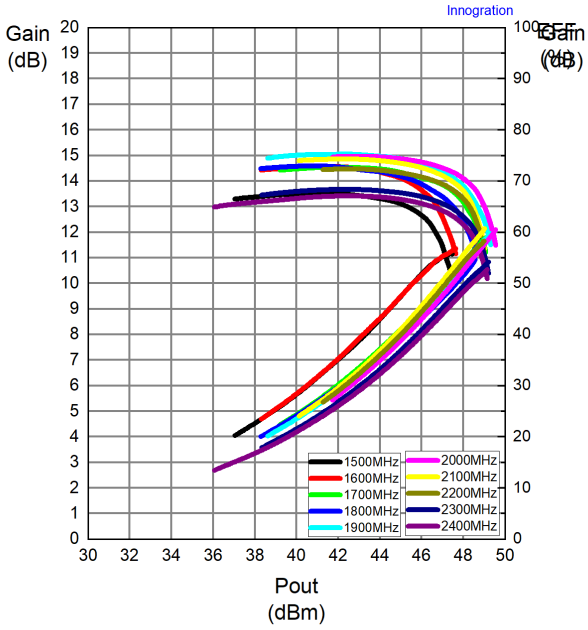
Typical application circuit

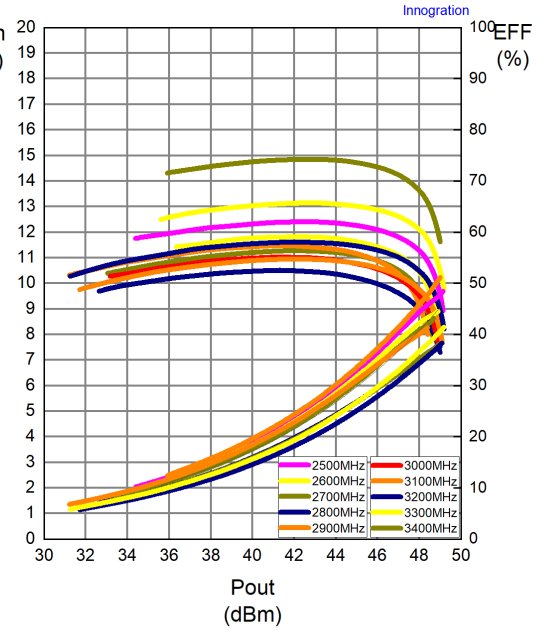


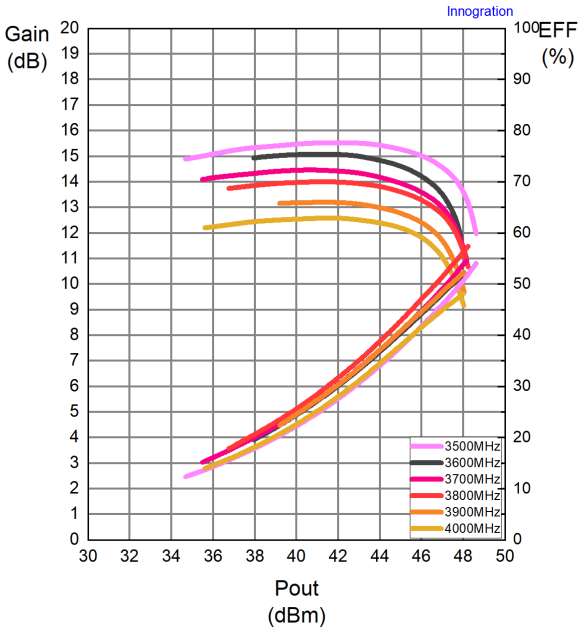
Component	Description	Suggested Manufacturer / Series Number
C1 C4	10 uF	TDK
C2 C5	120 pF	MQ301111
C3 C6	8.2 pF	MQ301111
C7,C8	0.3 pF	ATC 600F
PCB	30Mil Rogers 4350	Rogers

Typical performance

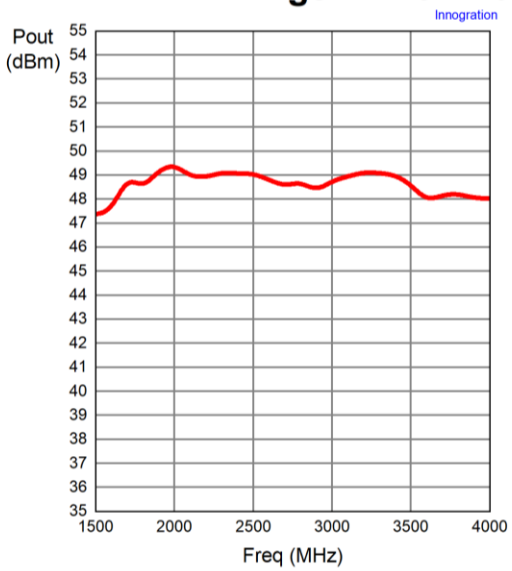
XMAH2040-60BY4V Pulse 100us 10%
Vgs=-2.46V Vds=28V Idq=100mA

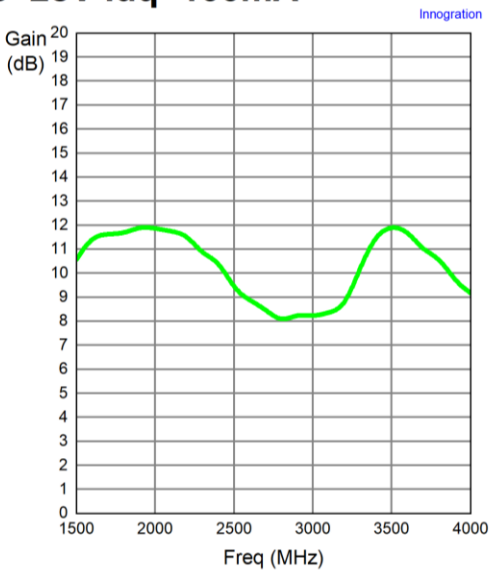


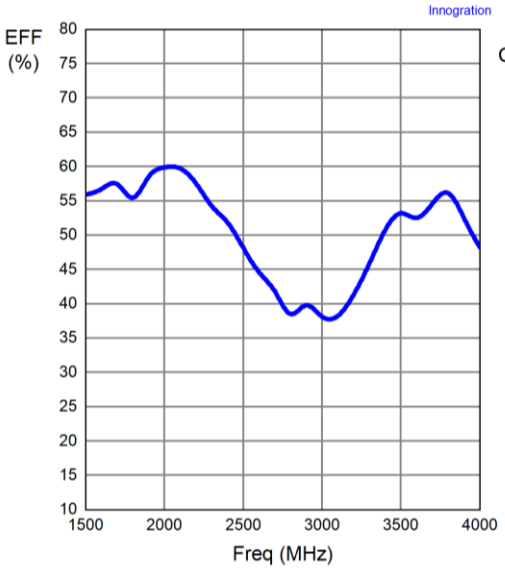


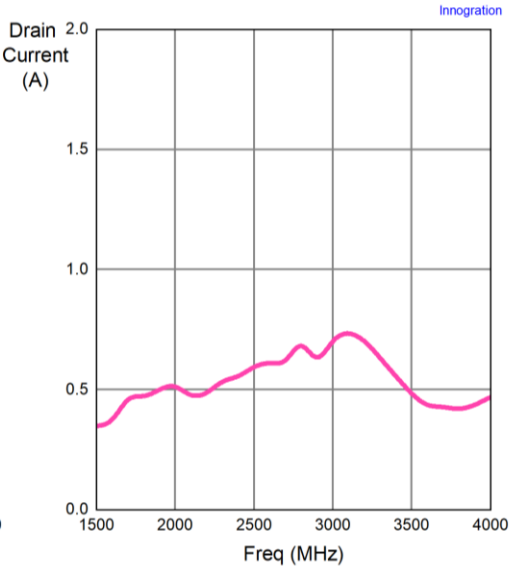


XMAH2040-60B4V Pusle Test 100us 10%
Vgs=-2.46V Vds=28V Idq=100mA

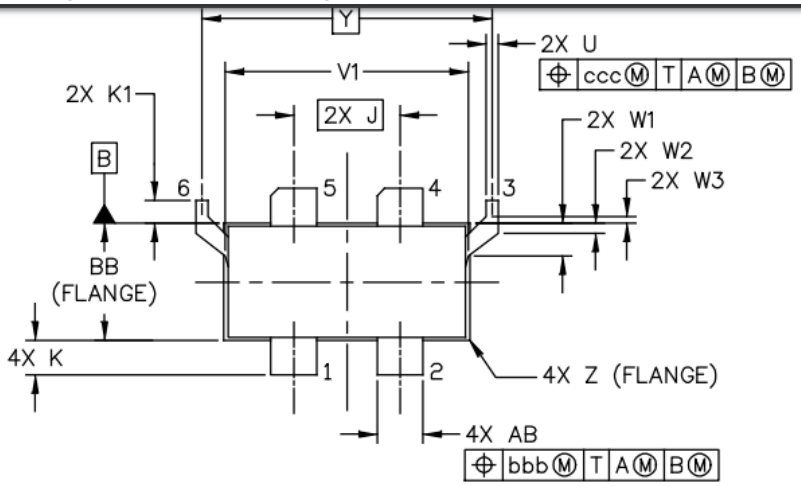


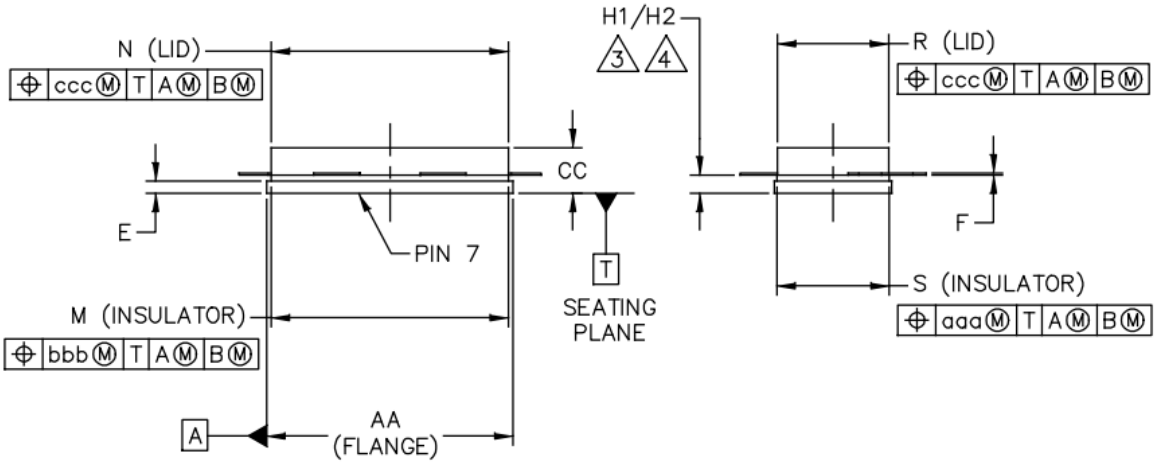






Earless Flanged Ceramic Package; 6 leads- BY4V





DIM	INCH MIN	INCH MAX	MILLIMETER MIN	MILLIMETER MAX	DIM	INCH MIN	INCH MAX	MILLIMETER MIN	MILLIMETER 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
2025/9/17	Rev 1.0	Advanced Datasheet

Application data based on JF-25-27 (16.8)

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