



3.5-8GHz, 45W, GaN Fully matched PA Module

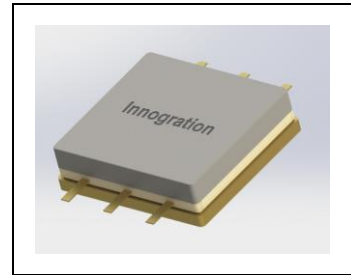
Description

The XMAH3580-45H2C is a 45-watt, **dual path**, single stage integrated Power Amplifier Module, single path of this module is 50 Ω input/output matched and requires minimal external components, and **with external combination, it can reach >45W CW within 3.5-8GHz full band and >60W CW within 4-6GHz full band**

Please read carefully the soldering notice for H2C package on last page

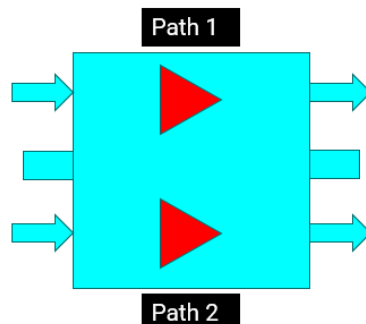
$V_{gs} = -2.3\text{ V}$; $V_{ds} = 28\text{ V}$; $I_{dq} = 320\text{ mA}$, CW

Freq(MHz)	Pin(dBm)	Psat(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)	2 nd Harmonic	3 rd Harmonic
3000	41	46.65	46.2	4.39	5.65	37.6	-7.1	-16.4
3100	41	47.34	54.2	4.88	6.34	39.7	-11.1	-19.9
3500	41	47.87	61.2	5.69	6.87	38.4	-11.6	-29.4
4000	40.40	48.27	67.1	6.63	7.87	36.2	-10.2	-33.1
4500	36.50	48.65	73.3	5.18	12.15	50.5	-15.7	-47.1
5000	41.00	48.59	72.3	5.15	7.59	50.1	-19.9	-44.1
5500	41.00	48.07	64.1	6.43	7.07	35.6	-41.7	-55.5
6000	39.50	48.47	70.3	5.55	8.97	45.2		
6500	40.57	47.07	50.9	5.23	6.50	34.8		
7000	40.10	47.22	52.7	5.18	7.12	36.4		
7500	40.00	47.52	56.5	5.16	7.52	39.1		
8000	41.00	47.10	51.3	5.18	6.10	35.4		8000



Product Features

- Operating Frequency Range: 4-8GHz
- Operating Drain Voltage(Recommended): +28V (Up to 32V)
- 50 Ω Input/Output (External DC block capacitor needed)
- $Psat \geq 45\text{ W}$ (CW)
- Small signal gain:>9dB, Power gain:>6dB
- Minimum Psat efficiency:>30%
- 18*17 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC



Applications

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

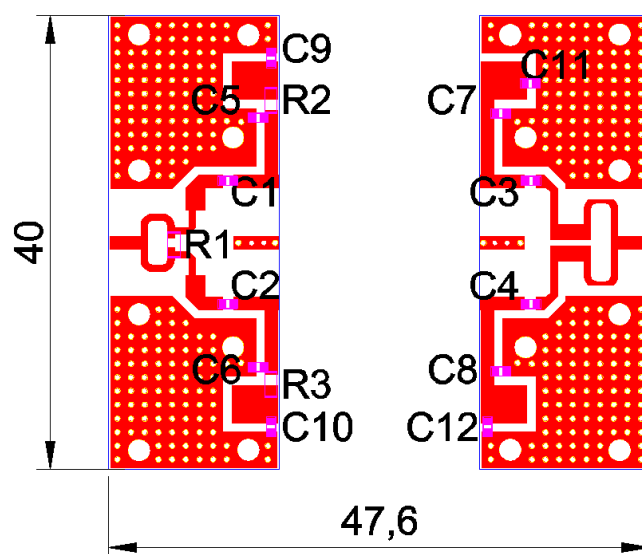
Table 1. Maximum Ratings

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 $T_c = 25^\circ\text{C}$, $P_{out} = 45\text{W}$, FEA	$R_{\theta JC}$	1.2	°C/W

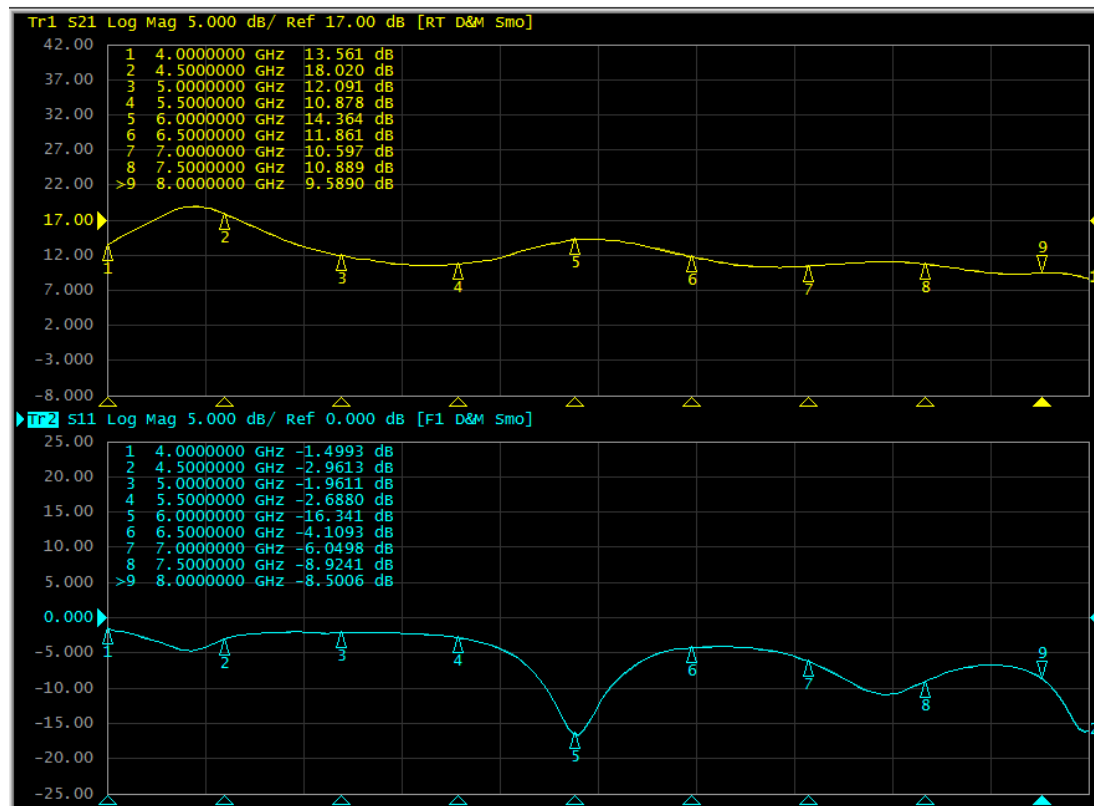
Typical application circuit



Component	Description	Suggested Manufacturer / Series Number
C1 C2 C3 C4	2.2 pF	MQ300805
C5 C6 C7 C8	100 pF	MQ300805
C9 C10 C11 C12	1 uF	Open suppliers
R1	100 Ohm	Open suppliers. 0805 SMD Resistor
R2 R3	10 Ohm	Open suppliers. 1206 SMD Resistor
PCB	20Mil Rogers 4350	Rogers

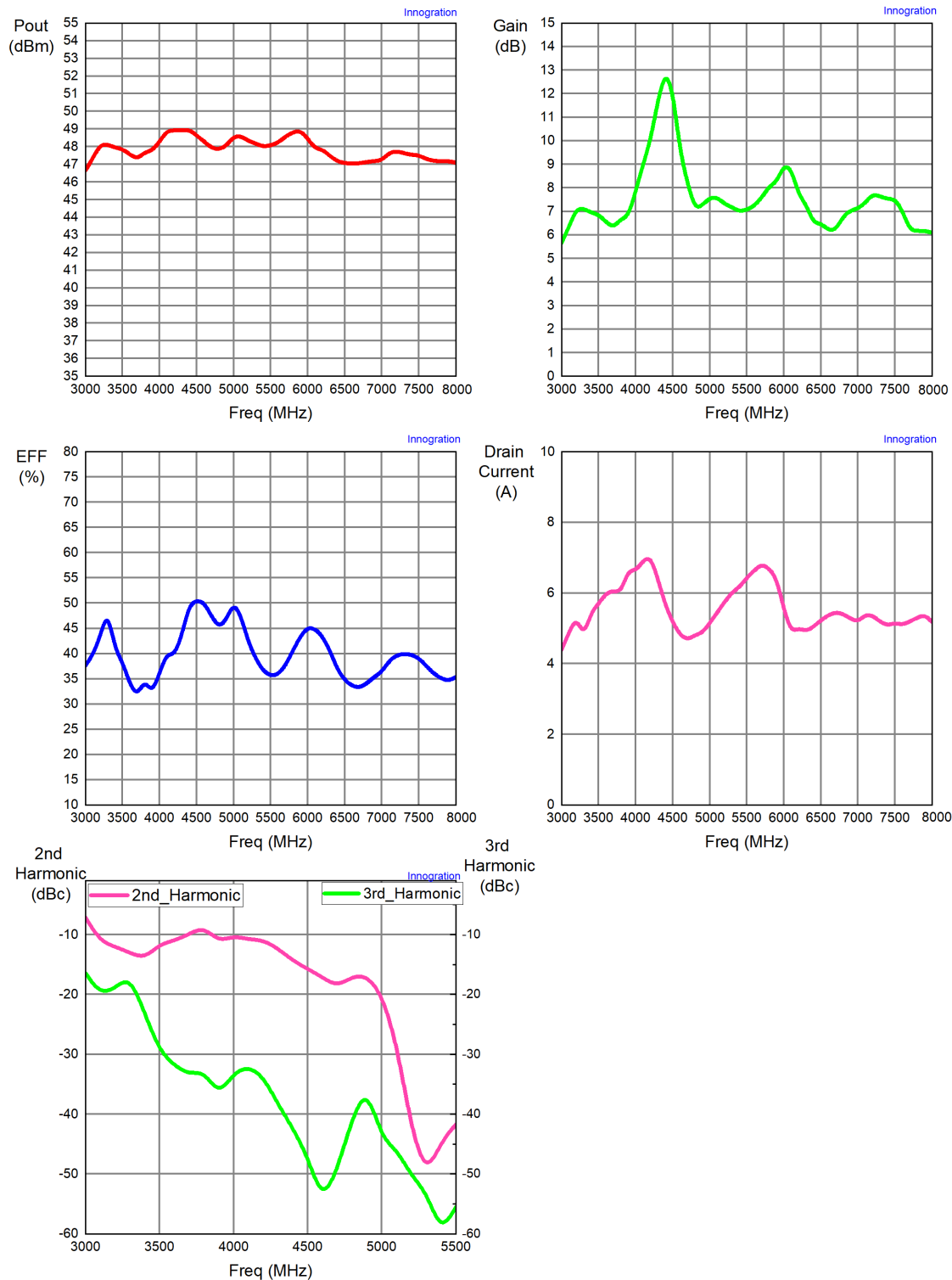


Typical performance



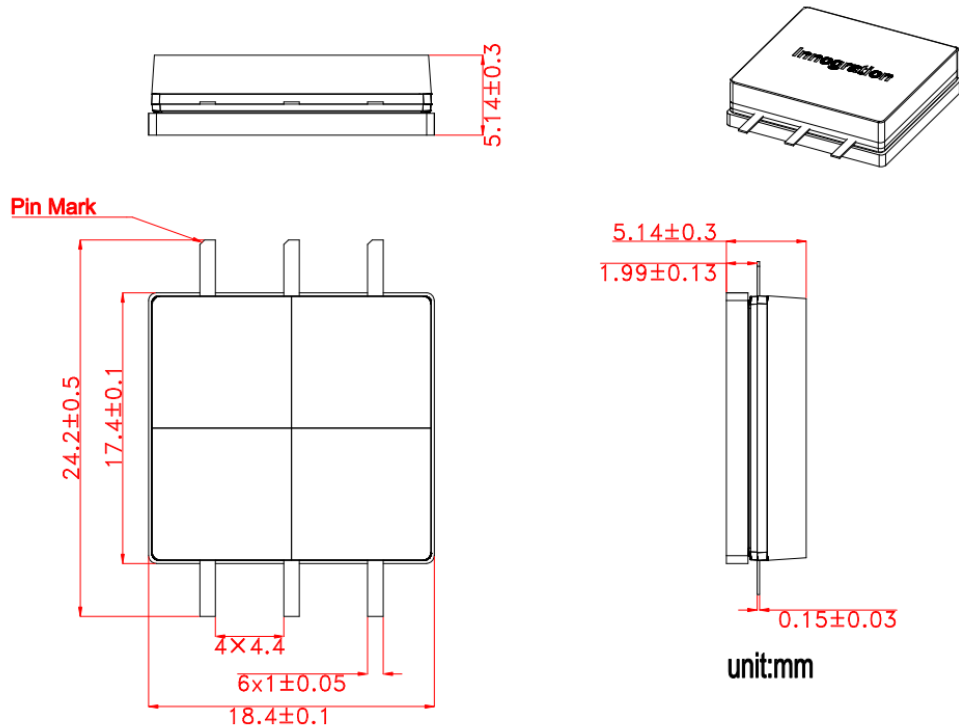


XMAH3580-45A2T_rev0 CW Test
V_{gs}=-2.35V V_{ds}=28V I_{dq}=340mA





Package Dimensions (Unit:mm)



When soldering, the temperature of the iron tip must be below 220℃. The contact time between the iron tip and the pins should be as short as possible, not exceeding 10 seconds. The number of repeated soldering operations must not exceed 3 times. Otherwise, it may damage the bond between the ACP lead frame and the pins, resulting in failure of the component's sealing performance.

Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2026/8/12	Rev 1.0	Advanced Datasheet

Application data based on JF-26-16

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