



8.5-9.6GHz, 15W, GaN Fully matched PA iModule



Description

The XMAH8596-15F is a 15-watt, single stage integrated Power Amplifier Module, designed For application with frequencies from 8.5-9.6GHz.

The module is 50 Ω input/output matched and requires minimal external components. The total size of die and its matching circuit mounted on a 10*6mm flange with 0.5mm thickness

iModule is a trademark of Innegration, meaning unshielded bare die and its matching attached on flange , to be integrated into customer’s board, additional wire bonding required.

$V_{ds}=28V, V_{gs}=-2.43V, I_{dq}=40mA$					
Pulsed CW and CW					
Freq(MHz)	P-1(dBm)	P-1Gain(dB)	P-3(dBm)	P-3(W)	EFF(%)
8500	42.42	9.3	43.67	23.3	46.3
8600	42.21	10.4	43.19	20.9	51.4
8800	41.35	12.0	42.62	18.3	54.5
9000	41.36	12.0	42.97	19.8	54.9
9200	40.82	11.7	42.55	18.0	52.1
9400	40.67	11.0	42.39	17.3	48.3
9600	41.13	11.2	42.81	19.1	46.6

Product Features

- Operating Frequency Range: 8.5-9.6GHz
- Operating Drain Voltage(Recommended): +28V (Up to 32V)
- 50 Ω Input/Output (External DC block capacitor needed)
- $P_{sat} \geq 15W$ (CW)
- Small signal gain:>10dB, Power gain:>7dB
- Minimum P_{sat} efficiency:>45%
- **10*6*0.5mm flange**
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- Power Amplifiers within X band
- Test Instrumentation
- EMC Amplifier Drivers

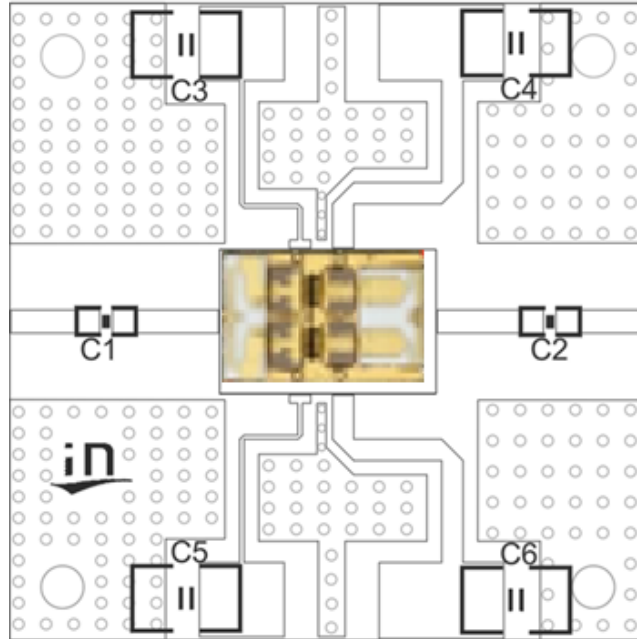
Table 1. Maximum Ratings

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

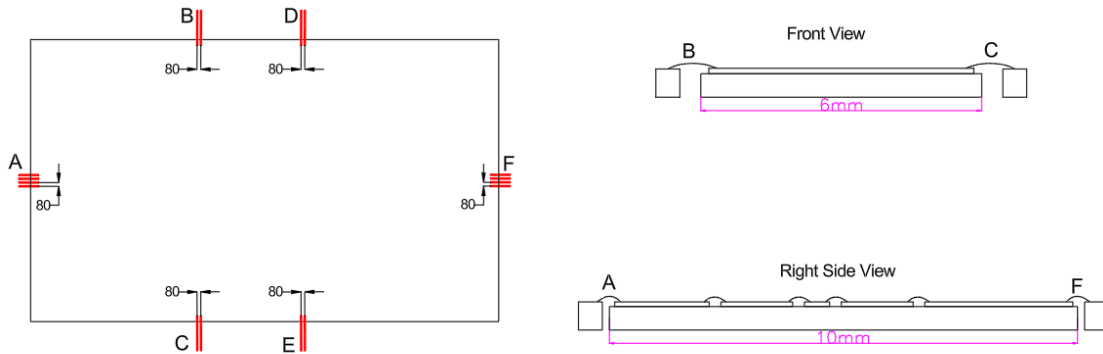
Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case $T_c = 25^\circ\text{C}$, $P_{out} = 20\text{W}$, FEA	$R_{\theta JC}$	3	$^\circ\text{C/W}$

Typical application circuit



Component	Value	Description
U1	XMAH8596-15F	PA 10*6mm
C1、C5	1.1pF	0603
C2、C3、C4、C6	10uF	1206

External wire bonding connection diagram



Wire configuration					
Name	Span (um)	Height (um)	Pitch (um)	Number	WB
A	450	150	80	4	
B	750	150	80	2	
C	750	150	80	2	
D	750	150	80	2	
E	750	150	80	2	
F	450	150	80	4	
			Total NO.	16	

Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2026/3/16	Rev 1.0	Advanced Datasheet

Application data based on HJ-26-03

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