



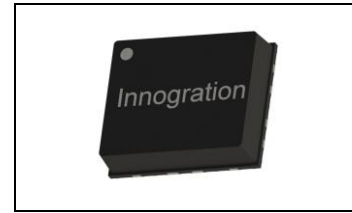
2.0-6.0GHz, 10W, 28V GaN Fully matched PA Module

Description

The GMAH2060-10C9 is a 10-watt ,single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 2 to 6GHz. The module is 50 Ω input/output matched and requires minimal external components. It can work at higher voltage like 32V with increased power capability

The module implements wideband power amplifier in form of multi chips, housed in cost effective plastic open cavity package, offers a much lower cost than traditional MMIC solutions.

V_{ds}=28V, I_{dq}=25mA,



Pulse Power (50us, 20%)					
Freq(MHz)	P-1(dBm)	P-1Gain(dB)	Psat(dBm)	Psat(W)	EFF (%)
2000	39.11	12.6	40.42	11.0	51.4
3000	40.08	15.1	41.73	14.9	60.3
4000	40.37	14.9	42.43	17.5	55.5
5000	39.90	12.6	41.77	15.0	67.5
6000	39.03	12.4	40.91	12.3	55.9

CW Power					
Freq(MHz)	P-1(dBm)	P-1Gain(dB)	Psat(dBm)	Psat(W)	EFF (%)
2000	38.81	12.6	40.20	10.5	50.0
3000	39.54	14.9	41.48	14.1	58.7
4000	39.53	14.8	42.22	16.7	54.4
5000	39.42	12.6	41.57	14.4	65.1
6000	38.28	12.4	40.69	11.7	54.6

Product Features

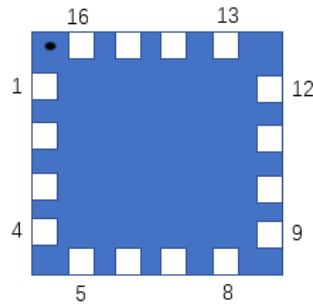
- Operating Frequency Range: 2-6GHz
- Operating Drain Voltage: +28 V
- 50 Ω Input/Output
- Psat ≥ 40 dBm
- Small signal gain: >13dB, Power gain: >9dB
- Minimum efficiency: >45%
- 12x10 mm Surface Mount Package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- Ultra Broadband Amplifiers
- Fiber Drivers
- Test Instrumentation
- EMC Amplifier Drivers
- 2-way Radios



Pin Configuration and Description (Top view)



Pin No.	Symbol	Description
4	RF IN	RF Input
9	RF OUT	RF Output
6	Vgs	Gate bias
7	Vdd	Drain bias
Others	NC	No connection
Package Base	GND	DC/RF Ground. Proposed to be soldered to heatsink plane directly for the best CW thermal and RF performance. Soldered through high density vias or copper coin also allowed ,but will result in excessive junction temperatures and different RF performance

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	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 $T_c=87^\circ\text{C}$, $T_j=175^\circ\text{C}$, DC test	$R_{\theta JC}$	6	°C/W

Table 3. Electrical Characteristics

Parameter	Condition	Min	Typ	Max	Unit
Frequency Range		2000		6000	MHz
Power Gain @ Psat		9			dB
P_{SAT}	Pulse	40			dBm
Drain Efficiency @ P_{SAT}		45			%

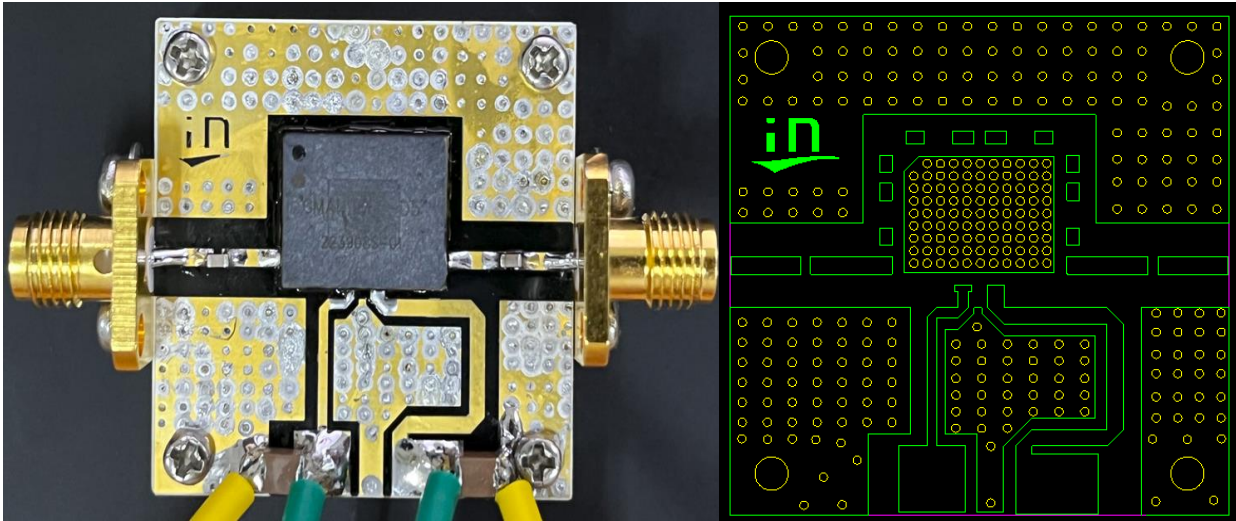
Unless otherwise noted: $T_A = 25^\circ\text{C}$, $V_{DD} = 28\text{ V}$, Pulse Width=50 us, Duty cycle=20%

Load Mismatch of per Section (On Test Fixture, 50 ohm system): $V_{DD} = 28\text{ V}$, $I_{DQ} = 25\text{ mA}$, $f = 3.5\text{ GHz}$

VSWR 10:1 at Psat pulse CW Output Power	No Device Degradation
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Reference Circuit of Test Fixture Assembly Diagram

Figure 1. Test Circuit Component Layout



TYPICAL CHARACTERISTICS

Figure 2. Network analyzer output S11/S21 (Pin=0dBm)

