

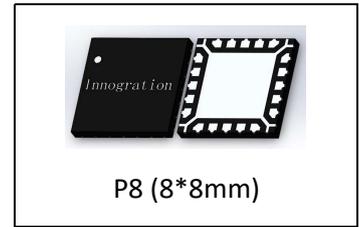


4.8-5.0GHz, 15W, 28V GaN PA Module

Description

The GMAH4850-15P8 is a 28V 15-watt peak power, integrated 2-stage Power Amplifier Module, designed for small cell applications, with frequencies from 4.8 to 5.0 GHz. The module is 50 Ω input and output, it requires minimal external components. The module offers a much smaller footprint than traditional discrete component solutions.

This module is assembled in 8*8mm with 20 pins over molded plastic package, with complete thermally enhanced metal flange to dissipate heat effectively, while maintaining high RF performance.



•Typical Performance of 1 Carrier WCDMA (On Innogrations fixture with device soldered):

VDS= 28V, Idq1=4mA, Idq2=40mA,Vpeak=-4.5V					
Pout(dBm)	Freq (MHz)	Ppeak(dBm)	ACPR (dBc)	Gain(dB)	EFF (%)
33	4800	42.42	-32.2	27.9	38.3
	4900	42.14	-32.9	27.8	38.3
	5000	42.09	-33.0	27.6	38.1

VDS= 32V, Idq1=4mA, Idq2=40mA,Vpeak=-4.7V					
Pout(dBm)	Freq (MHz)	Ppeak(dBm)	ACPR (dBc)	Gain(dB)	EFF (%)
34	4800	43.33	-32.7	28.2	37.4
	4900	43.03	-33.3	28.2	37.7
	5000	43.00	-34.1	28.3	38.0

Note:WCDMA signal: 3GPP test model 1; 1 to 64 DPCH; Channel Bandwidth=3.84MHz,PAR =10.5 dB at 0.01 % probability on CCDF.

Features

- Industry leading RF performance for N79 5G Small cell, for instance
- ✓ 4*400mW / 160MHz
- 50 Ω Input/output matched,
- Integrated Doherty Final and driver Stage
- 8*8 mm Surface Mount Package, full copper flange underneath for grounding and heat dissipation

Pin Configuration and Description (Top view)

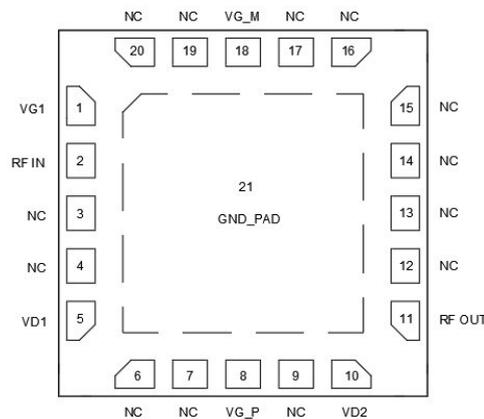




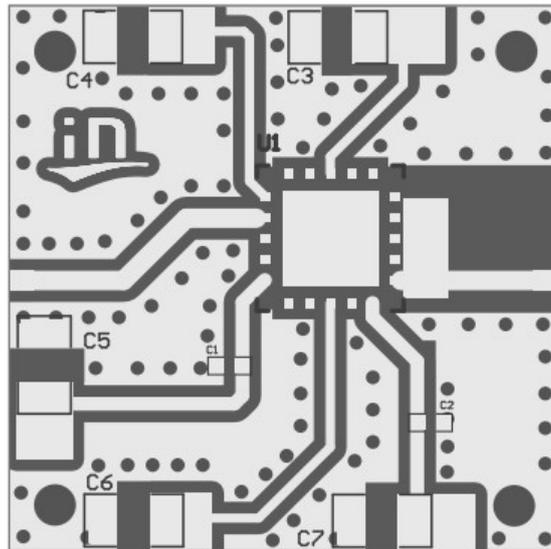
Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+40	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 $T_c=87^\circ\text{C}$, $T_j=200^\circ\text{C}$, DC test	$R_{\theta JC}$	12	°C/W

Reference Circuit of Test Fixture Assembly Diagram

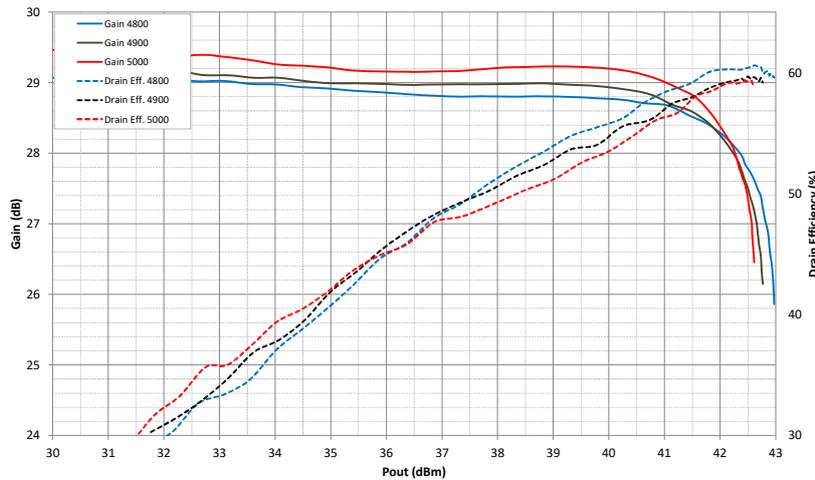
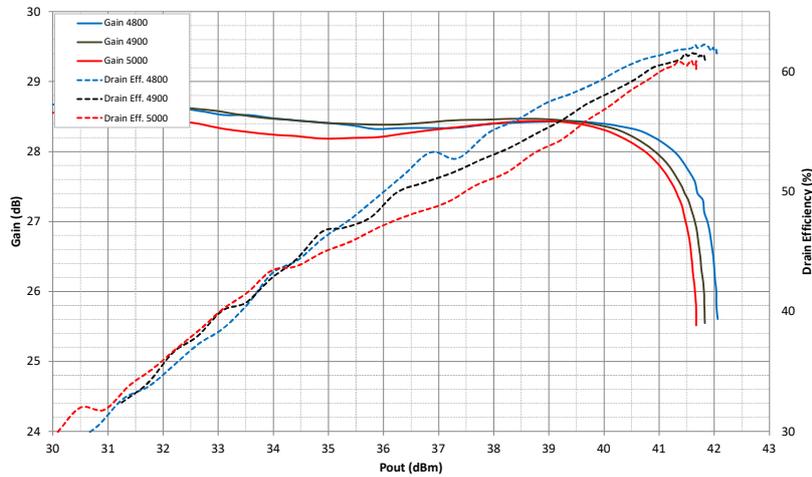


Component	Value	Description
U1	GMAH4850_15P8	PA (8*8mm)
C1、C2	3.9pF	ATC600S
C3、C4、C5、C6、C7	10uF	TDK1206
PCB	20mil	RO4350B



TYPICAL CHARACTERISTICS

Figure 1. Power Gain and Drain Efficiency as Function of Pulse Output Power (VDS=28/32V,Pulse:20us/10%)



VDS= 28V, Idq1=4mA, Idq2=40mA,Vpeak=-4.5V					
Freq (MHz)	P1(dBm)	P1 Gain(dB)	P3dB(dBm)	P3dB(W)	EFF (%)
4800	41.57	27.7	42.06	16.1	61.6
4900	41.39	27.5	41.83	15.3	61.0
5000	41.27	27.5	41.67	14.7	60.2

VDS= 32V, Idq1=4mA, Idq2=40mA,Vpeak=-4.7V					
Freq (MHz)	P1(dBm)	P1 Gain(dB)	P3dB(dBm)	P3dB(W)	EFF (%)
4800	42.37	28.0	42.97	19.8	59.6
4900	42.29	27.9	42.77	18.9	59.2
5000	42.07	28.3	42.61	18.3	58.9

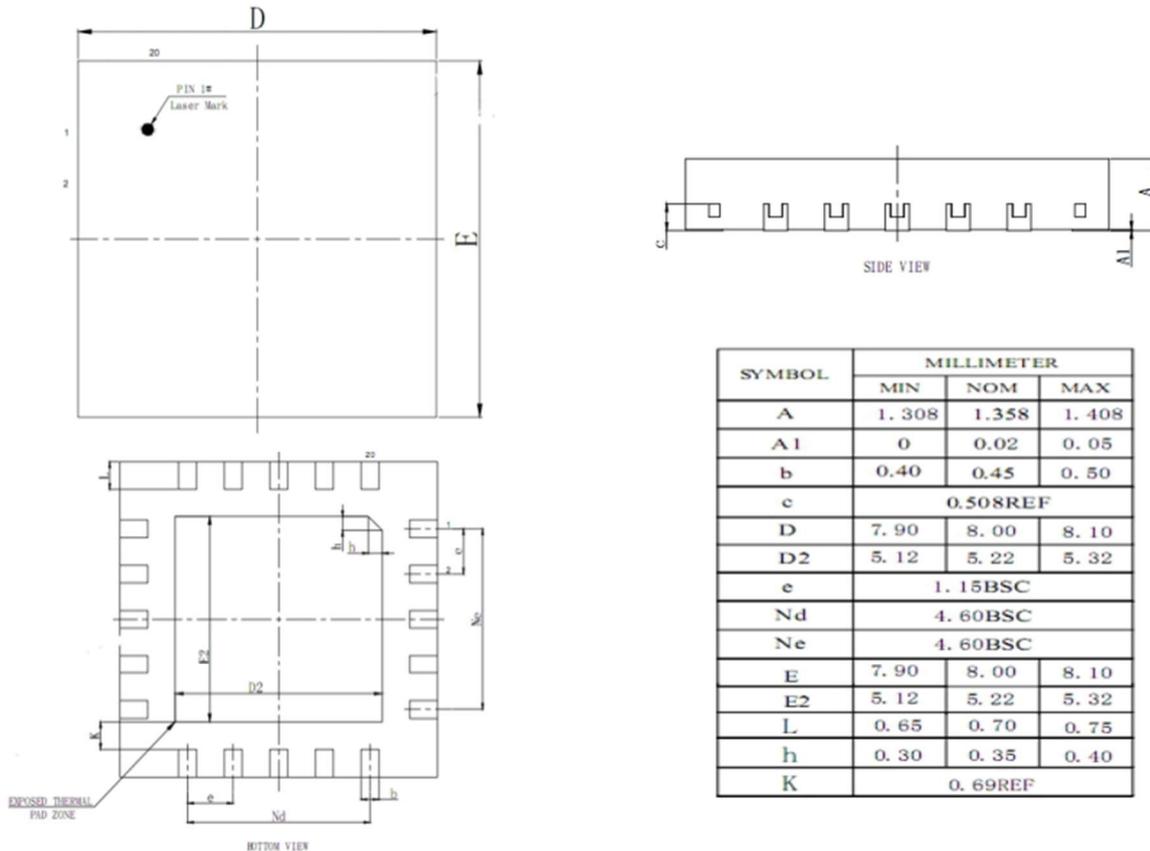


Figure 2. Network analyzer output S11/S21





Package Dimensions



Revision history

Table 3. Document revision history

Date	Revision	Datasheet Status
2021/6/1	Rev 1.0	Preliminary Datasheet
2021/12/28	Rev 1.1	Modify according to last assembly result

Application data based on HJ-21-08/20

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