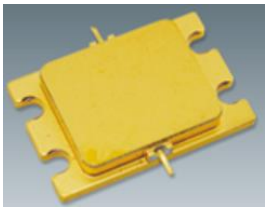
3.1-3.5GHz, 32V 300W, GaN Fully matched PA Module



Description

The GMAH3135-300H2 is a 300-watt,single stage integrated Power Amplifier Module, designed for broad band applications, with frequencies from 3.1 to 3.5GHz.

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

The module implements multiple GaN active dice and its matching network within highly compact 24*17mm metal RF package with excellent capability for heat dissipation.

It is recommended to use it only for pulsed application

V_{DS}= 32V, I_{DQ}=300mA(Vgs=-2.6V), 20us,10%

Freq (MHz)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)	P1dB Gain(dB)	P4dB (dBm)	P4dB (W)	P4dB Eff(%)
3100	55.5	355.0	51.9	13.82	55.52	356.2	52.2
3200	55.5	355.0	54.3	14.01	55.58	361.1	54.9
3300	55.32	340.7	54.0	14.25	55.41	347.8	54.7
3400	55.23	333.1	52.8	14.31	55.32	340.2	53.4
3500	55.24	334.6	52.1	13.87	55.34	342.0	52.9

V_{DS}= 28V, I_{DQ}=300mA(Vgs=-2.6V), 20us,10%

Freq (MHz)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)	P1dB Gain(dB)	P4dB (dBm)	P4dB (W)	P4dB Eff(%)
3100	54.8	302.0	54.3	13.66	54.83	304.1	54.9
3200	54.71	295.6	56.1	13.73	54.8	301.9	57.1
3300	54.4	275.2	54.9	13.91	54.59	287.5	56.2
3400	54.31	269.7	53.7	13.89	54.48	280.6	54.9
3500	54.38	274.1	53.4	13.5	54.53	283.9	54.7

Product Features

- Operating Frequency Range: 3.1-3.5GHz
- Operating Drain Voltage(Recommended): +32V (28V with decreased power capability)
- 50 Ω Input/Output (External DC block capacitor needed)
- Psat⩾300W (Pulse)
- Small signal gain:>14dB, Power gain:>10dB @300W
- Minimum Psat efficiency:>50%
- 24*17 mm metal RF package
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Applications

- S band pulsed amplifier

Table 1. Maximum Ratings

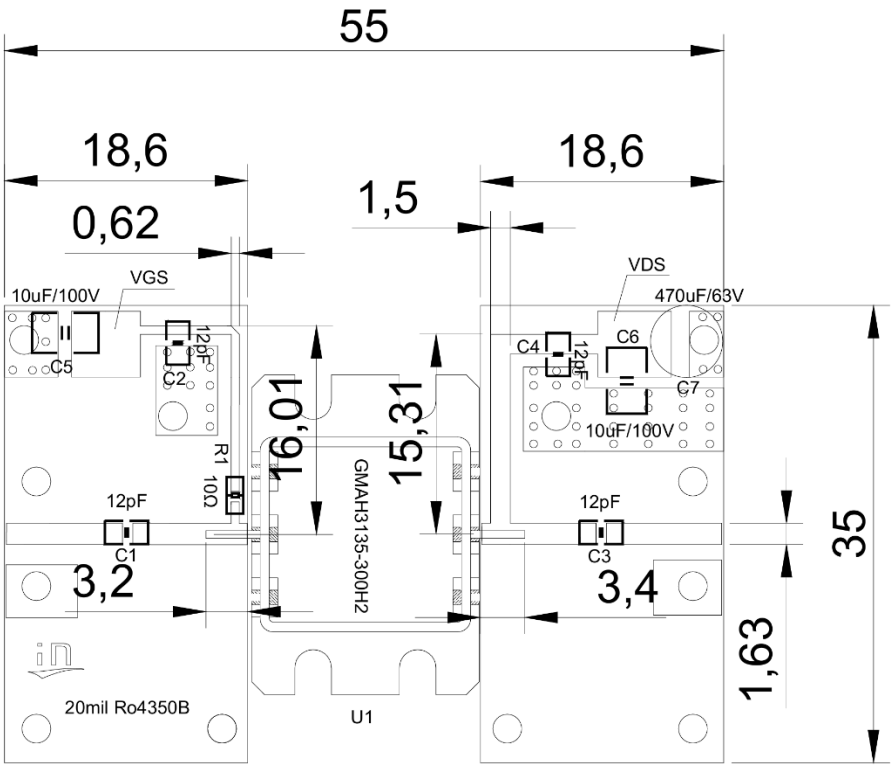
Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+36	Vdc
Storage Temperature Range	Tstg	-65 to +150	°C

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=300W, FEA	$R_{\theta JC}$	0.3	°C/W

Typical application circuit



Reference	Footprint	Value	Quantity
C1, C2, C3, C4	0805	12pF/250V	4
C5, C6	1210	10uF/100V	2
C7		470 uF/63V	1
R1	0603	10R	1
U1	H2	GMAH3135-300H2$^{V7.1}$	1

TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Pin=0dBm), Vds=32V, Idq=800mA

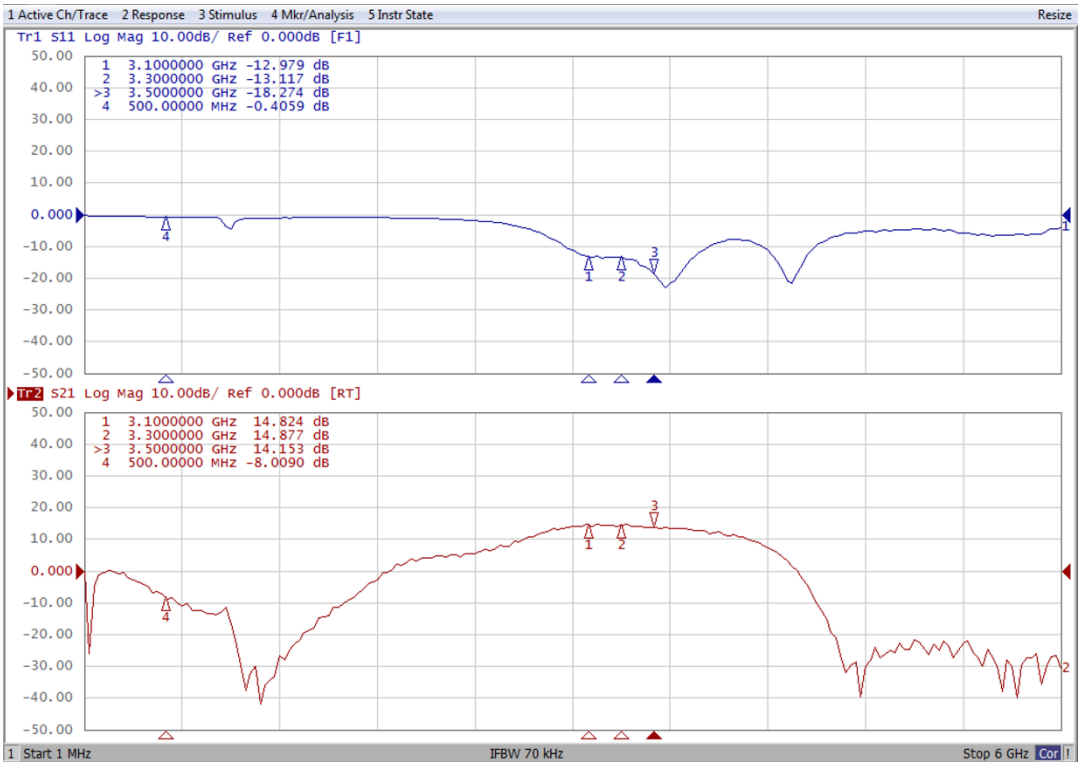


Figure 2. Power Gain, Efficiency as function of Pout at 32V

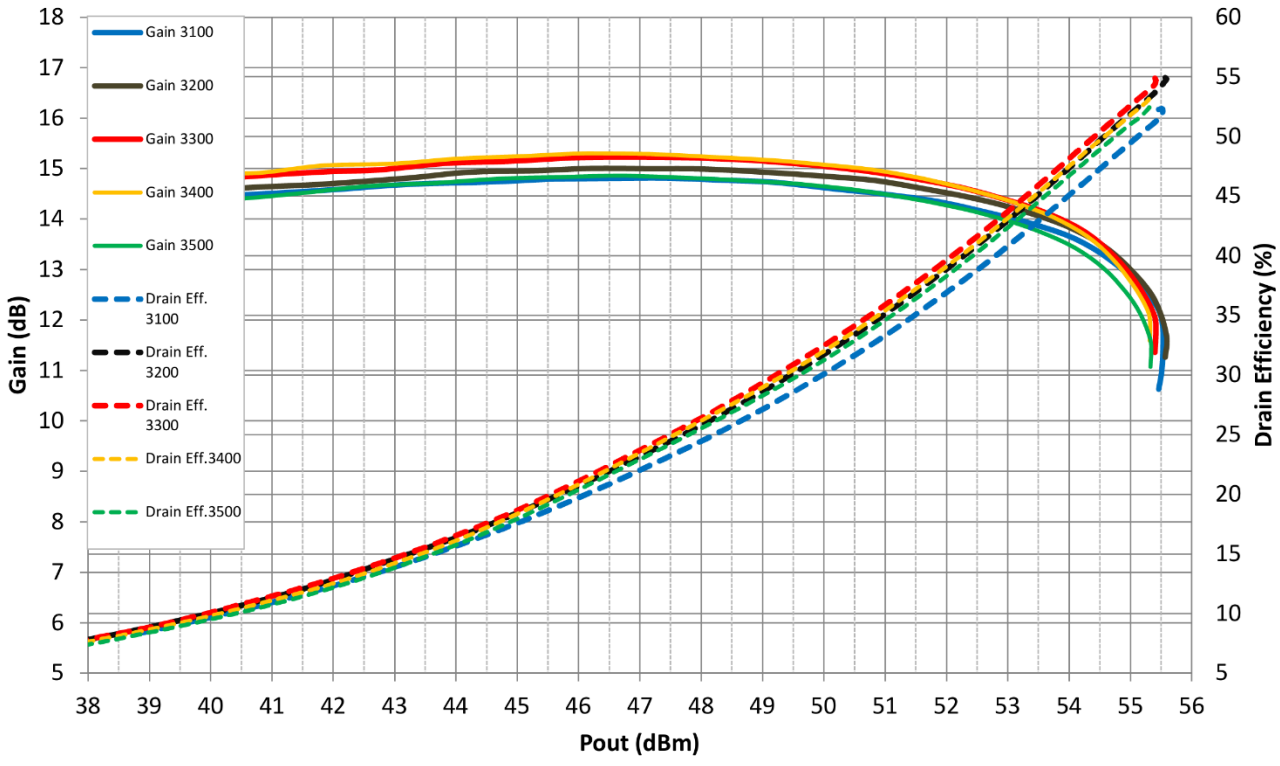
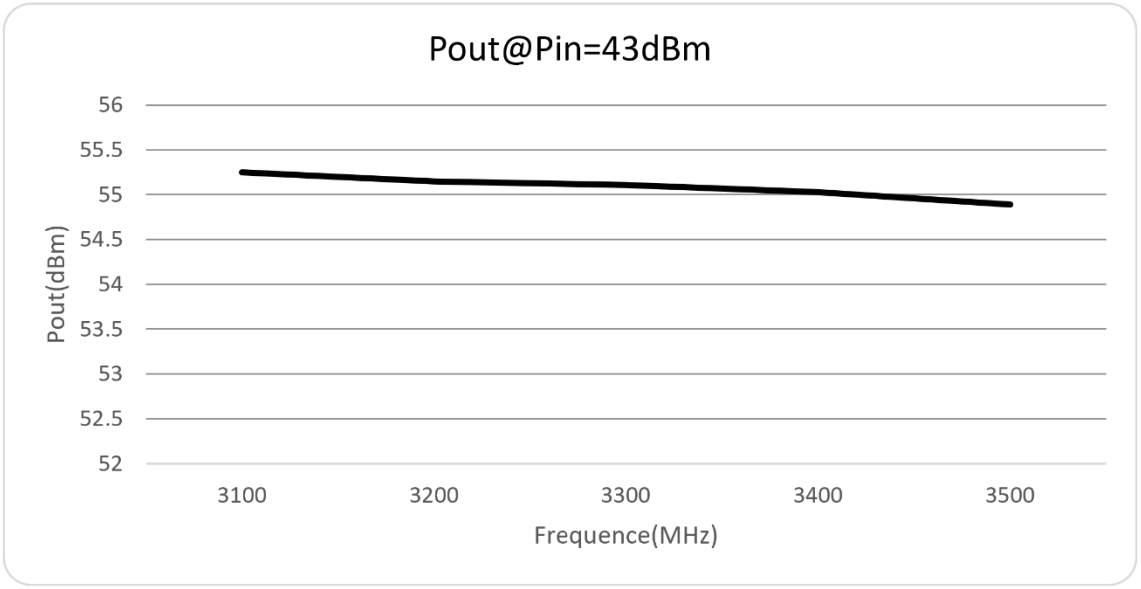
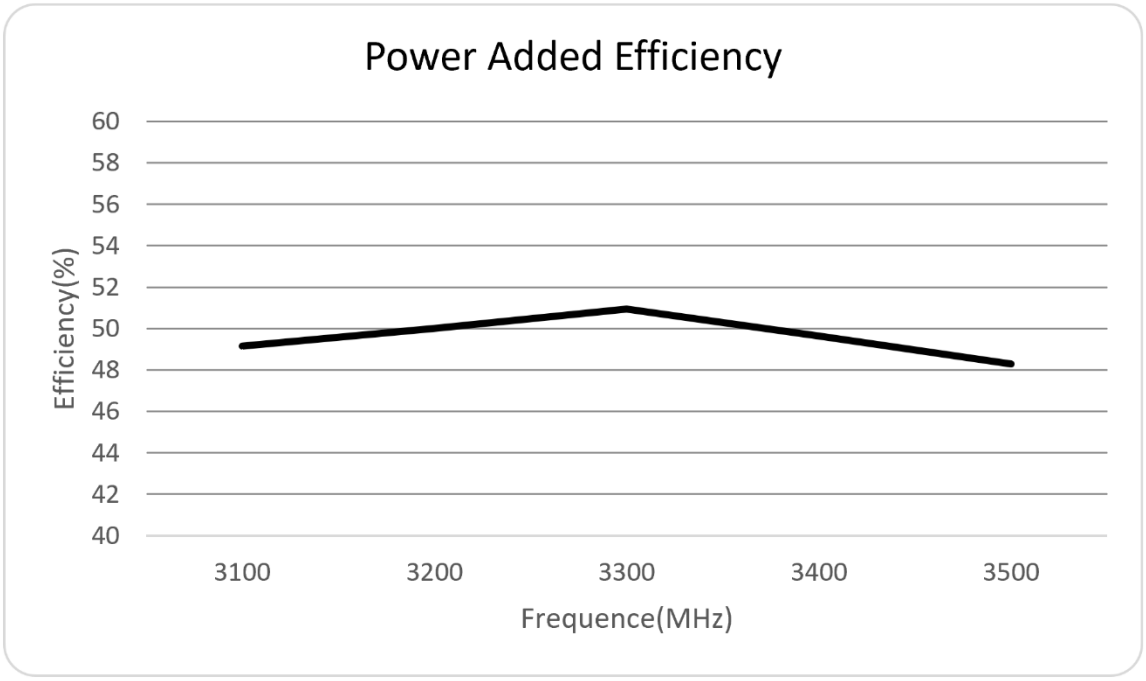


Figure 3. Pout and Efficiency at fixed input 42dBm

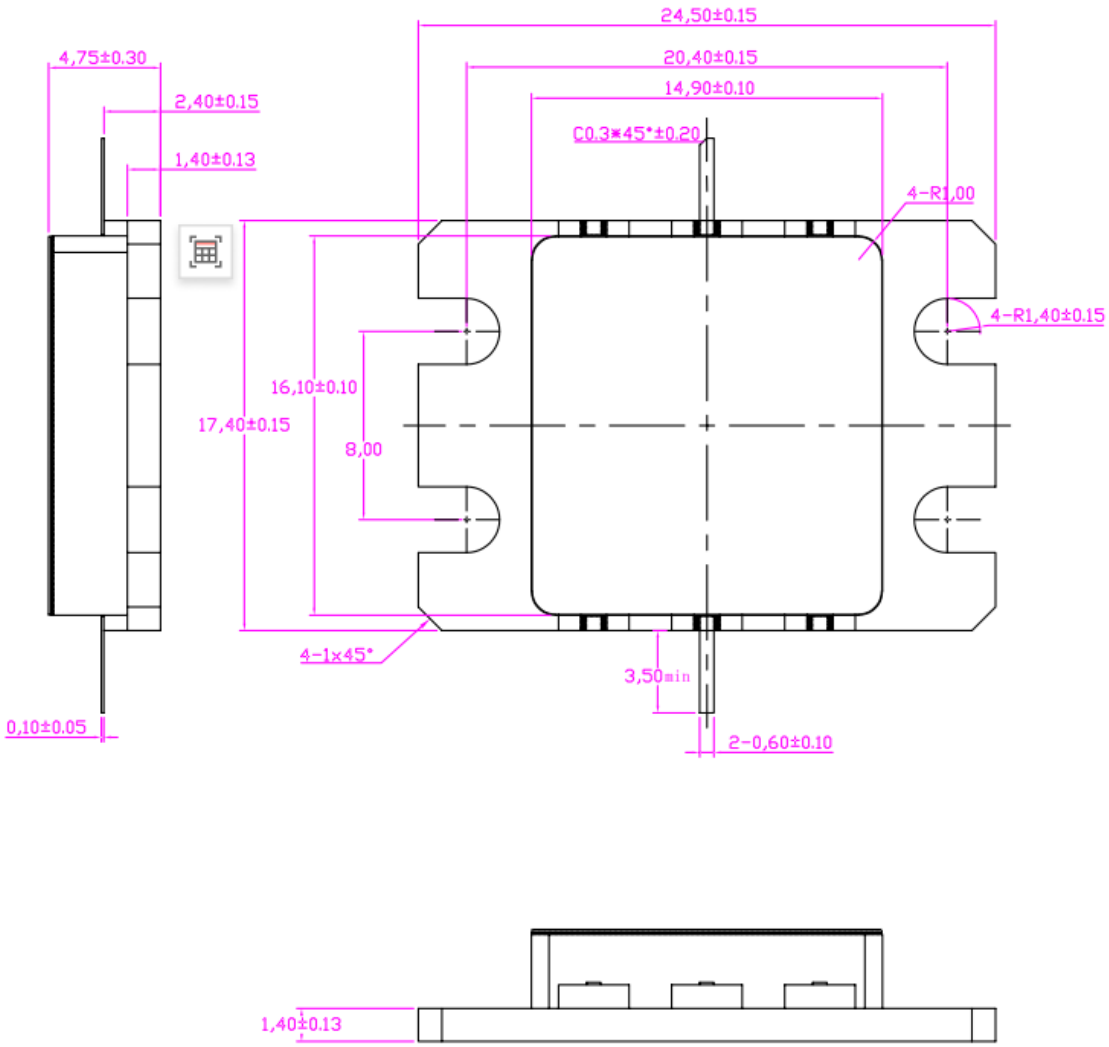


Pout vs Frequency



Efficiency vs Frequency

Package Dimensions （Unit:mm）



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2026/3/9	Rev 1.0	Preliminary Datasheet

Application data based on ZBB-26-03

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