

MGA-718540-HP3

7.1 – 8.5 GHz 10W High Efficiency GaN Power Amplifier Data Sheet

Features:

- 13 dB Gain
- 40 dBm and LSG ≥ 10 dB CW
- OIP3 ≥ 54 dBm at 34 dBm per tone
- PAE 40% at 40 dBm
- Matched Input and Output for Easy Cascade
- Surface Mount Package with RoHS Compliance
- Thermal Resistance is 3.3°C/W
- MTTF > 100 years @ 85°C ambient temperature

Applications:

- Point-To-Point Radio
- Wireless Connectivity

Description:

MwT's MGA-718540-HP3 is a 10W GaN power amplifier. Operating from 7.1 GHz to 8.5 GHz, the amplifier's CW RF power output is 10W typical and PAE of 40%. The amplifier's RF input and output are matched to 50 Ω . External bias tees are required. The OIP3 is 54 dBm (34 dBm per tone).

The MGA-718540-HP3 packaged base is a solid copper offering superior thermal management. The overall Rth is 3.3°C/W.

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Typical RF Performance: Vds=28V, Vgs=-2.3V, Idq=200mA, Ta=+25 ℃, Z0=50 ohm

Parameter	Units	Typical Data	
Frequency Range	MHz	7100-8500	
Gain (Typ / Min)	dB	14 / 12	
Gain Flatness (Typ / Max)	+/-dB	1.0 / 1.5	
Input Return Loss	dB	10	
Output Return Loss	dB	7	
Output P3dB	dBm	42	
OIP3(1)	dBm	54	
Operating Current Range	Α	1.3	
Thermal Resistance	°C /W	3.3	

⁽¹⁾ Output IP3 is measured with two tones at output power of 34 dBm/tone separated by 10 MHz.



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Typical RF Performance: Vds=28.0V, Idq=200mA and 400mA, Z0=50 ohm, Ta=+25 °C

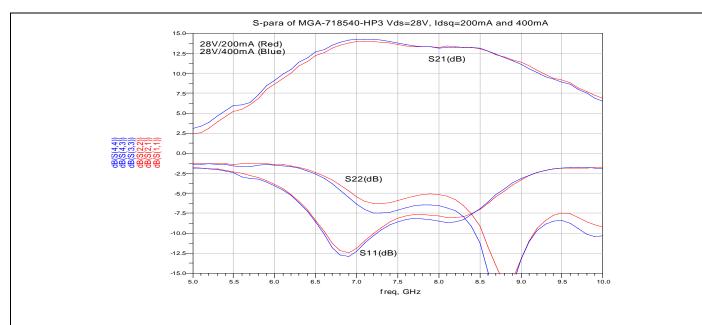


Figure 1 SSG Response Vds=28V, Idq=200mA and 400mA

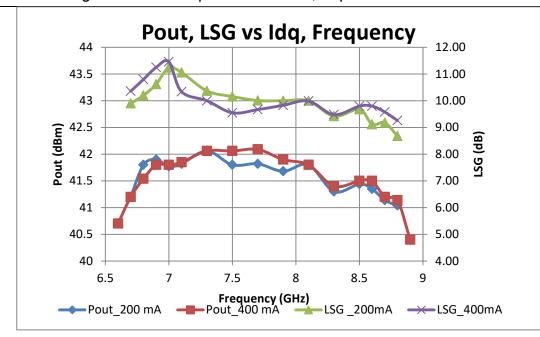


Figure 1 Typical RF Power (CW) Performance Vds=28V, Idq=200mA and 400mA



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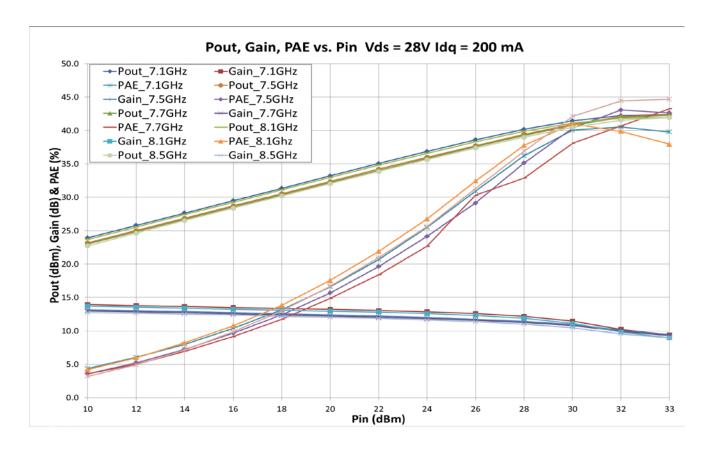


Figure 3 Pout, Gain, and PAE vs. Pin

Absolute Maximum Ratings: (Ta= 25 ℃)*

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	29
ld	Drain Current	mA	2500
lg	Gate Current	mA	2.0
Pdiss	DC Power Dissipation	W	60
Pin max	RF Input Power	dBm	+36
Tch	Channel Temperature	°C	225
Tstg	Storage Temperature	°C	-55 to 125

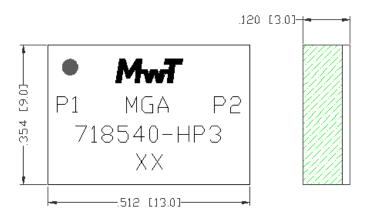
^{*}Operation of this device above any one of these parameters may cause permanent damage.

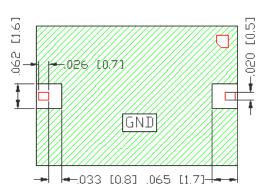


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Mechanical Information: This Package is RoHS compliant





Pin	Functions
1	RF in, Vgs feed in
2	RF out, Vds feed in
GND	The GND area of the bottom should be thermally and electrically
	grounded



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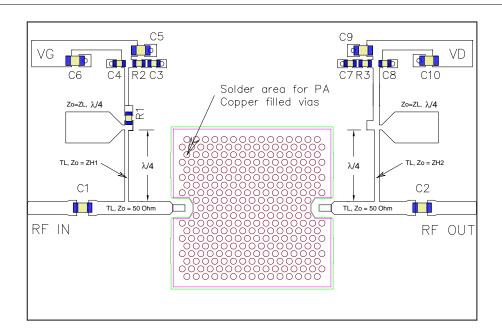


Figure 6 Evaluation Board

Items	Descriptions
R1	12 ohm, 0402, 25V
R2, R3	50 ohm, 0402, 50V
C1, C2	2.0 pF, 0603, 50V, High Q RF Ceramic Capacitors
C3, C7	0.1 uF, 0402, 50V, High Q RF Ceramic Capacitors
C4, C8	1000 pF, 0402, 50V, High Q RF Ceramic Capacitors
C5,C6,C9,C10	0.1 10uF, 0603 or 0402, 50V

Table 2 Evaluation BOM

The evaluation board, Figure 6, can be requested through our sales department