

MGA-718540-HP3 7.1 – 8.5 GHz 10W High Efficiency GaN Power Amplifier

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:

The 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.

Typical RF Performance: $V_{ds}=28V, V_{gs}=-2.3V, I_{dq}=200mA, T_a=+25^\circ C, Z_0=50\ ohm$

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	A	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.

Typical RF Performance: $V_{ds}=28.0V$, $I_{dq}=200mA$ and $400mA$, $Z_0=50\ ohm$, $T_a=+25\ ^\circ C$

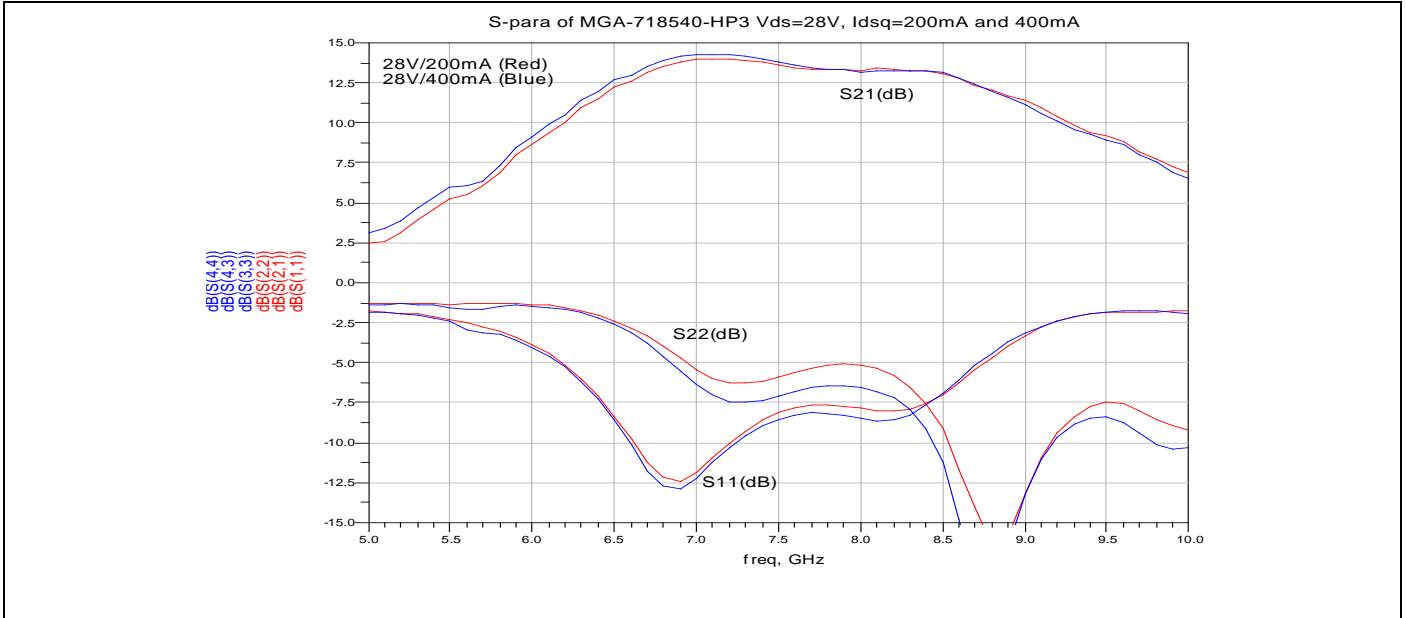


Figure 1 SSG Response $V_{ds}=28V$, $I_{dq}=200mA$ and $400mA$

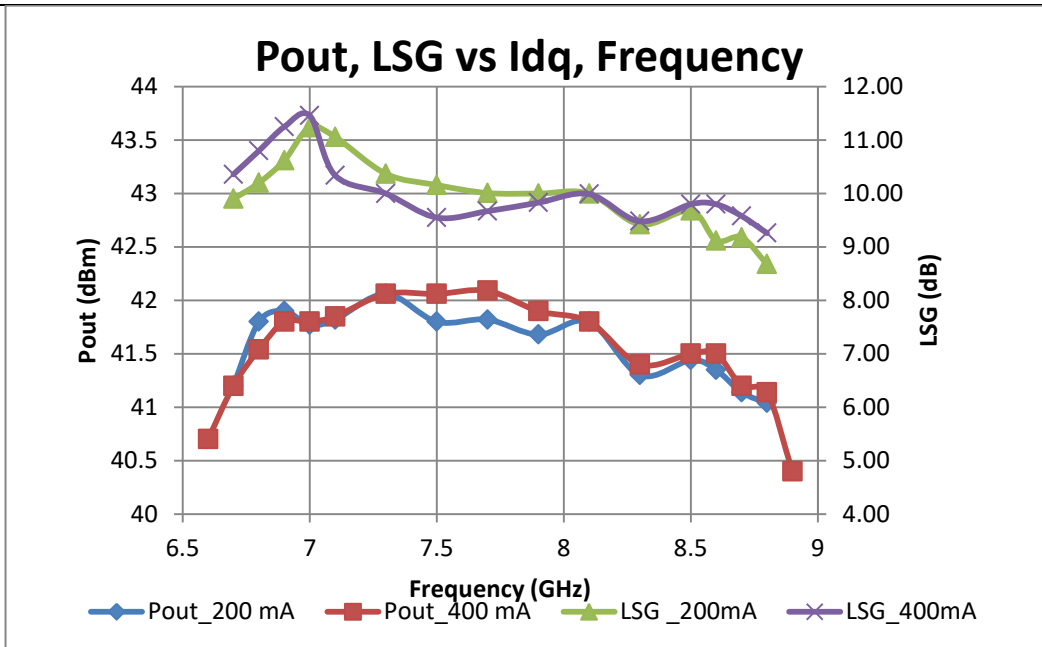


Figure 1 Typical RF Power (CW) Performance $V_{ds}=28V$, $I_{dq}=200mA$ and $400mA$

MGA-718540-HP3

7.1 – 8.5 GHz 10W High Efficiency
GaN Power Amplifier

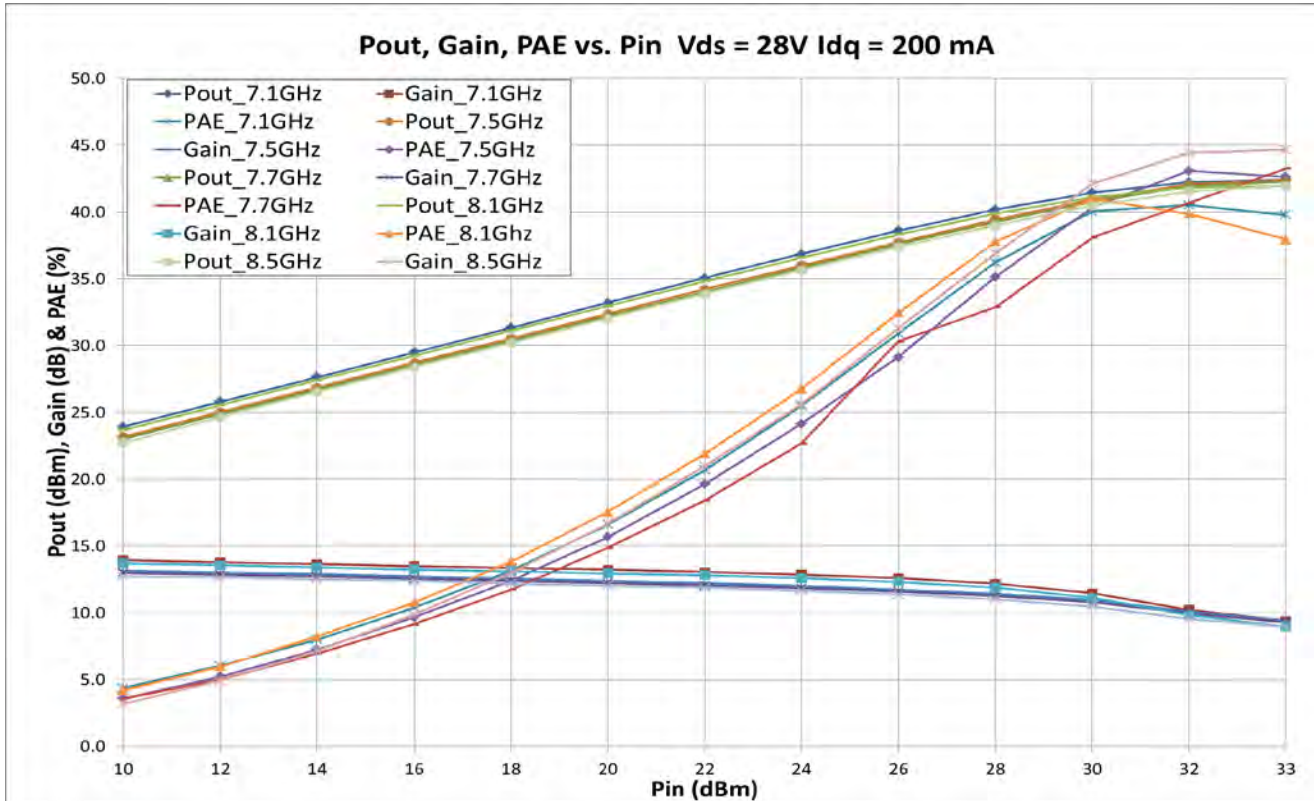


Figure 3 Pout, Gain, and PAE vs. Pin

Absolute Maximum Ratings: (Ta= 25 °C)*

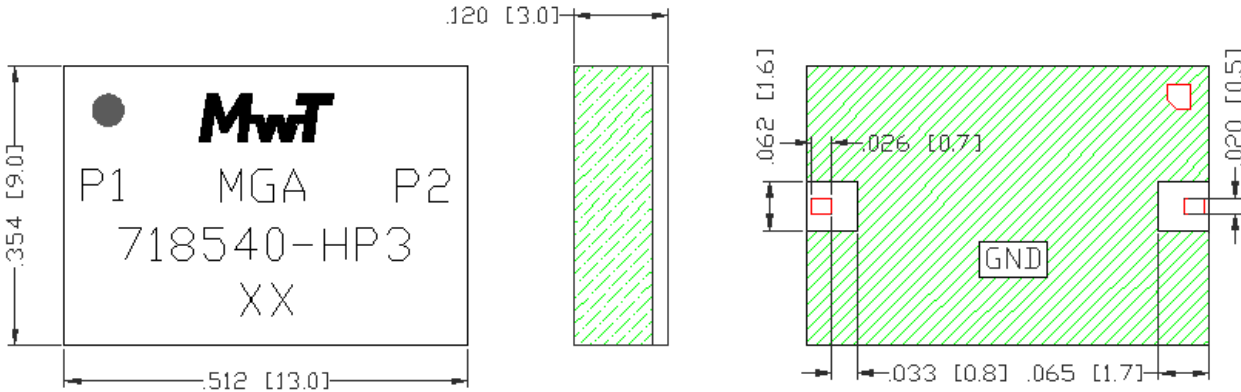
SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	29
Id	Drain Current	mA	2500
Ig	Gate Current	mA	2.0
Pdiss	DC Power Dissipation	W	60
Pin max	RF Input Power	dBm	+36
Tch	Channel Temperature	°C	225
Tstg	Storage Temperature	°C	-55 to 125

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

MGA-718540-HP3

7.1 – 8.5 GHz 10W High Efficiency
GaN Power Amplifier

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

MGA-718540-HP3

7.1 – 8.5 GHz 10W High Efficiency
GaN Power Amplifier

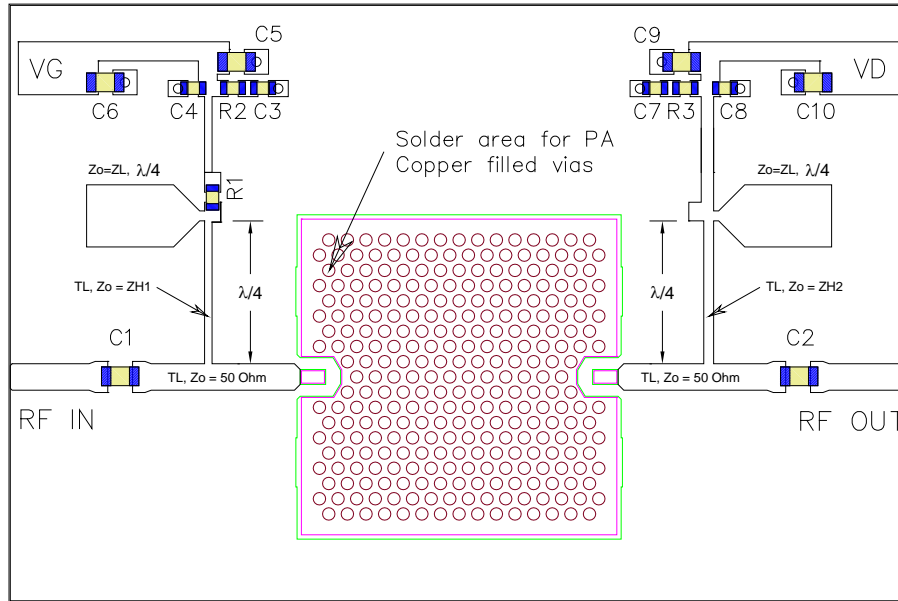


Figure 6 Evaluation Board

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

MGA-718540-HP3

**7.1 – 8.5 GHz 10W High Efficiency
GaN Power Amplifier**

Contact Information

For additional information please visit www.cmlmicro.com or contact a sales office.

Europe	America	Asia
<ul style="list-style-type: none">• Maldon, UK• Tel +44 (0) 1621 875500• sales@cmlmicro.com	<ul style="list-style-type: none">• Winston-Salem, NC• Tel +1 336 744 5050• us.sales@cmlmicro.com	<ul style="list-style-type: none">• Singapore• Tel +65 6288129• sg.sales@cmlmicro.com

Although the information contained in this document is believed to be accurate, no responsibility is assumed by CML for its use. The product and product information is subject to change at any time without notice. CML has a policy of testing every product shipped using calibrated test equipment to ensure compliance with product specification.

© 2020 CML Microsystems Plc