



MGA-718540-HP3

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

Features:

- 13 dB Gain
- 40 dBm and LSG \geq 10 dB CW
- OIP3 \geq 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.

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 $400mA$, $Z_0=50\ ohm$, $T_a=+25\ ^\circ C$

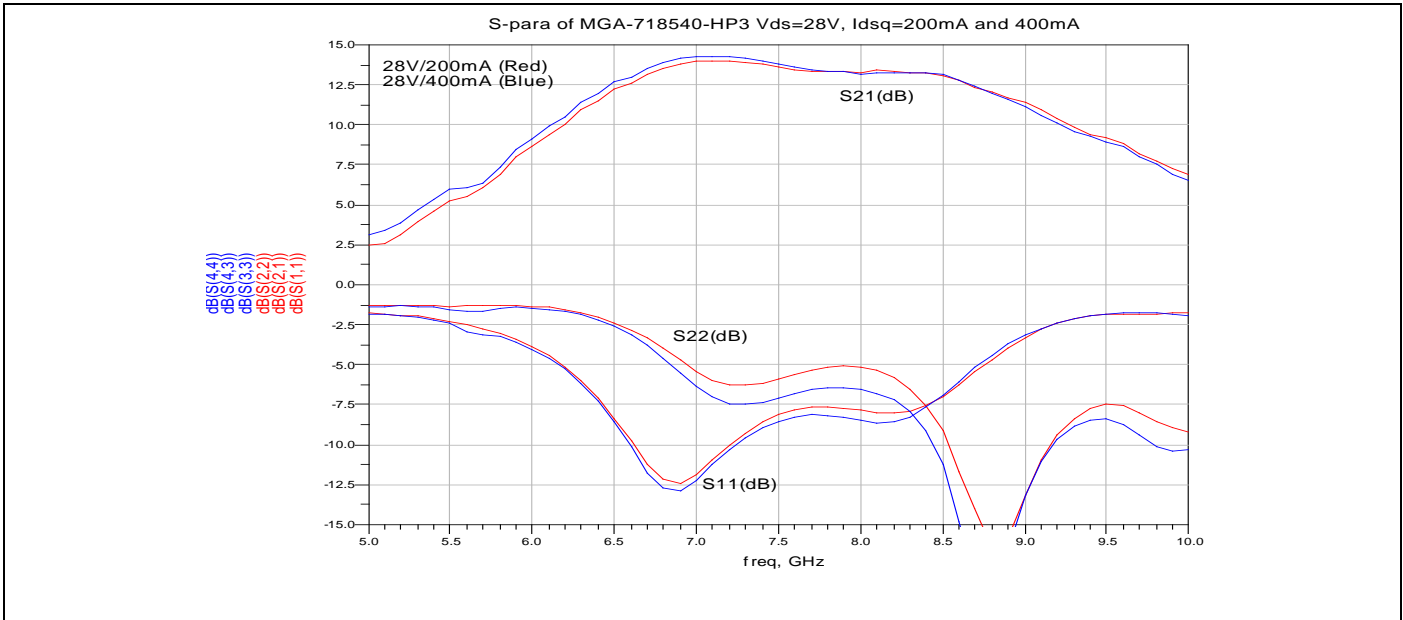


Figure 1 SSG Response $V_{ds}=28V$, $I_{dq}=200mA$ and $400mA$

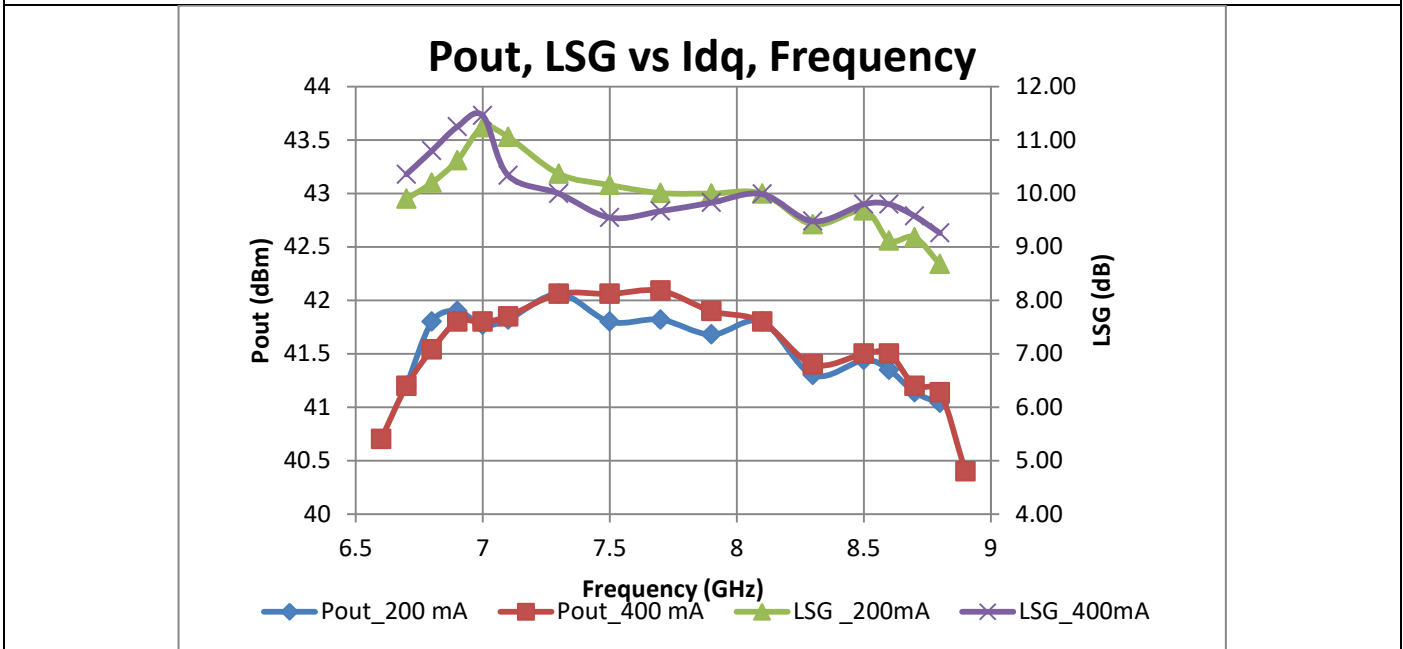


Figure 1 Typical RF Power (CW) Performance $V_{ds}=28V$, $I_{dq}=200mA$ and $400mA$

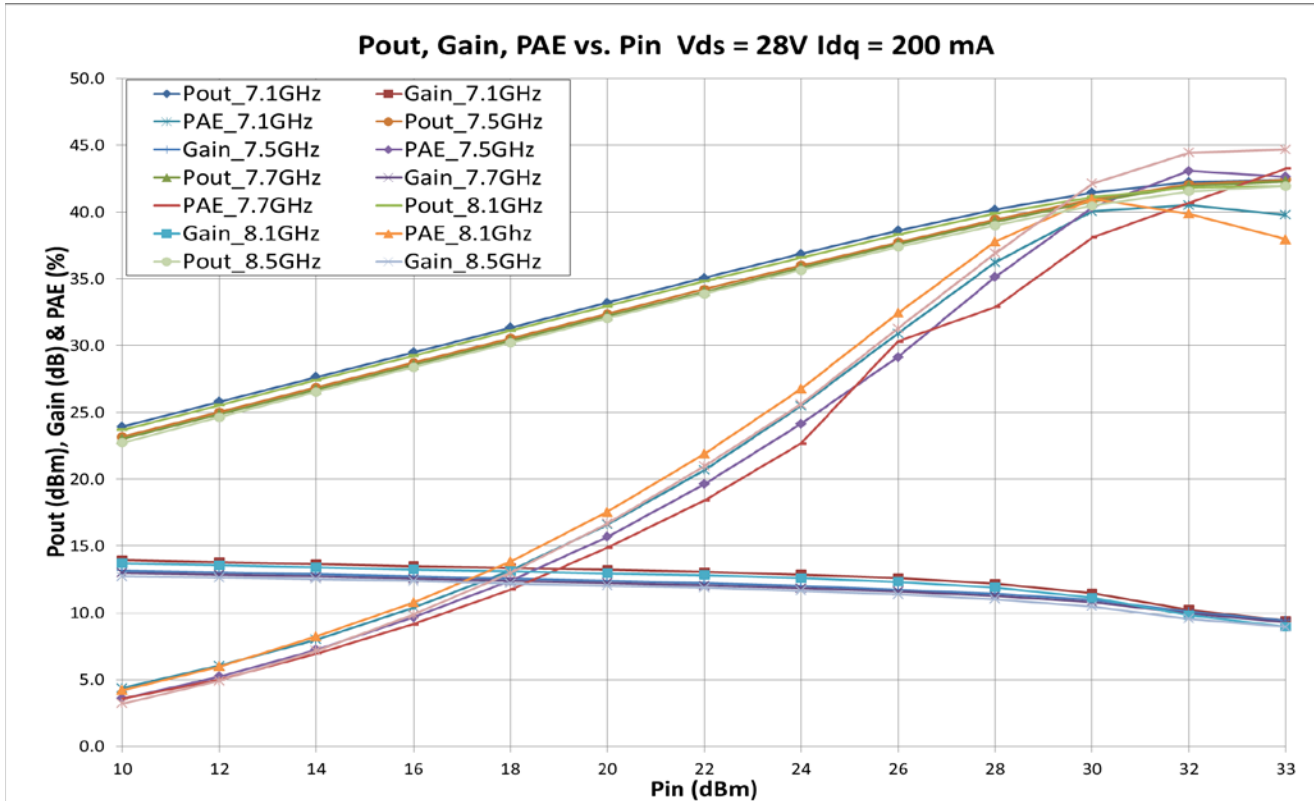


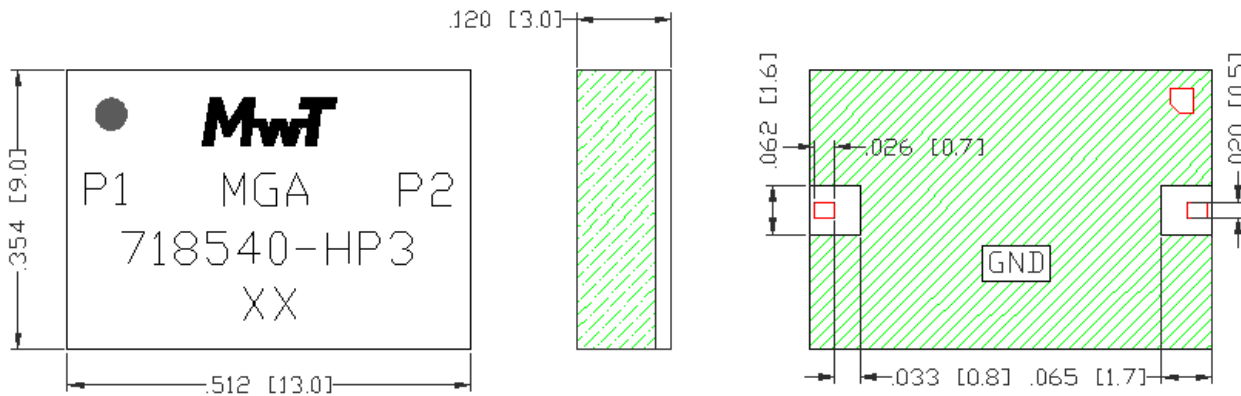
Figure 3 Pout, Gain, and PAE vs. Pin

Absolute Maximum Ratings: ($T_a = 25\text{ }^\circ\text{C}$)*

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.

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

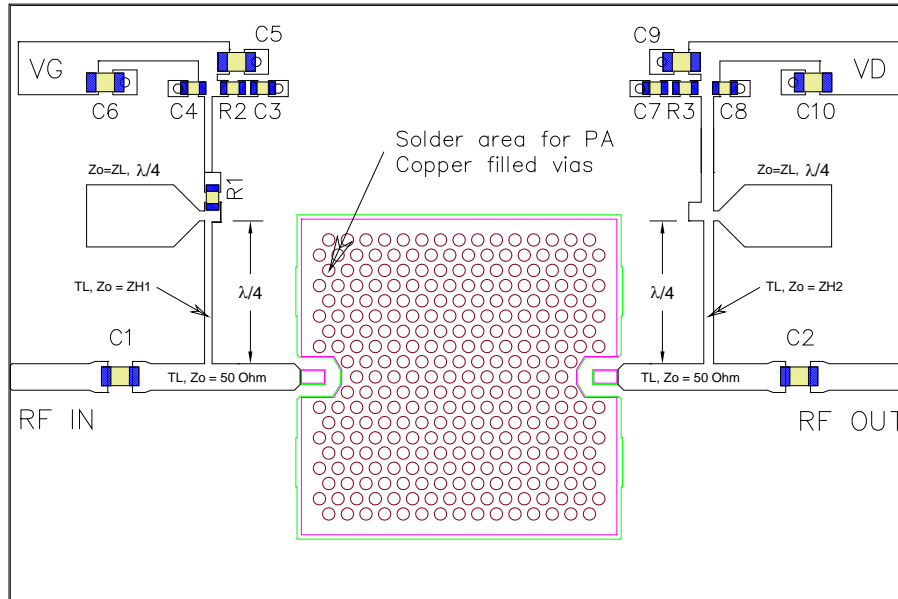


Figure 6 Evaluation Board

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