



## Features:

- 12 dB Gain
- 44 dBm and LSG  $\geq 7.0$  dB CW
- OIP3  $\geq 54$  dBm at 38 dBm per tone
- PAE 32% at 44 dBm
- Matched Input and Output for Easy Cascade
- Surface Mount Package with RoHS Compliance
- Thermal Resistance is 2.0°C/W
- MTTF > 100 years @ 85°C ambient temperature

## Applications:

- Point-To-Point Radio
- Wireless Connectivity

## Description:

MwT's MGA-718544-HP3 is a 25W GaN power amplifier. Operating from 7.1 to 8.5 GHz, the amplifier's CW RF power output is 25W typical and PAE of 32%. The amplifier's RF input and output are matched to 50  $\Omega$ . External bias tees are required. The OIP3 is 54 dBm (38 dBm per tone).

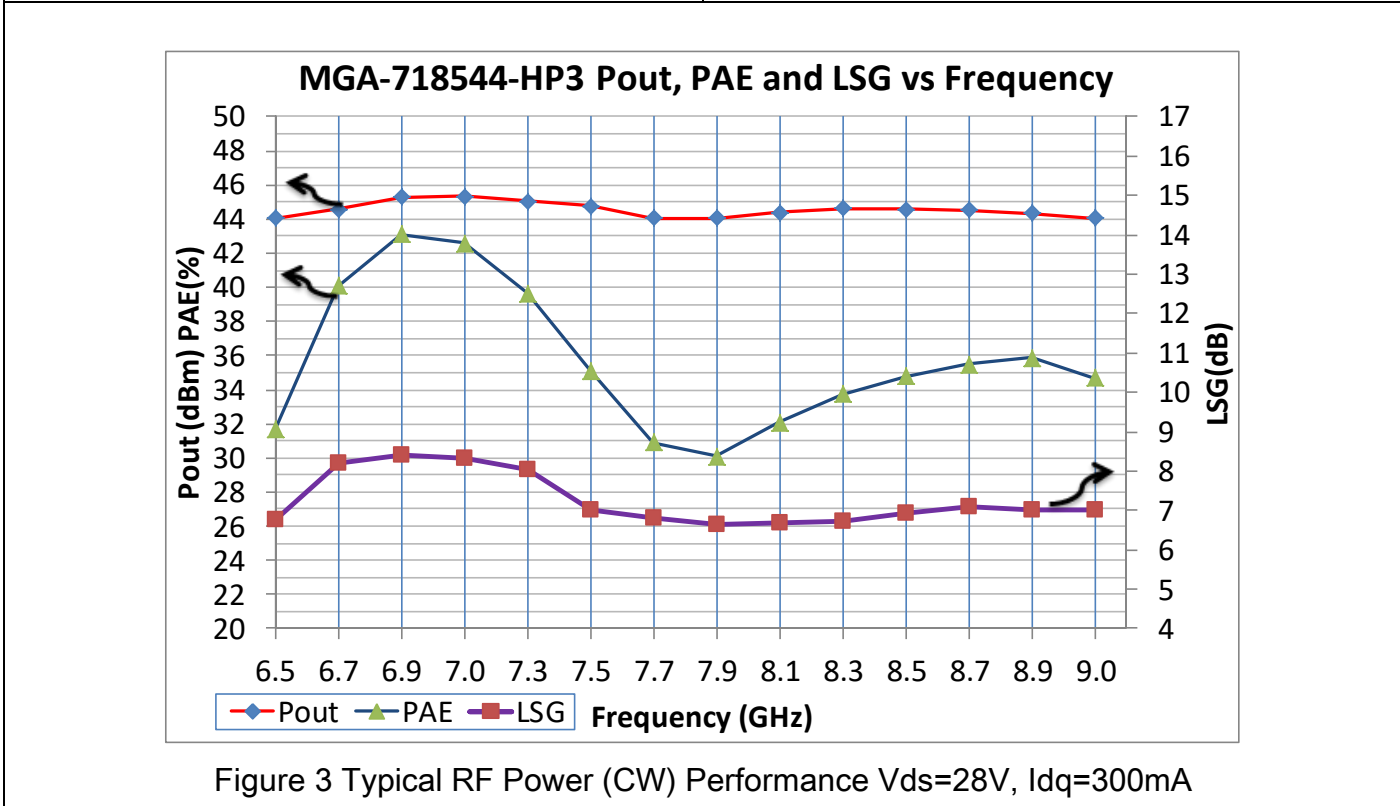
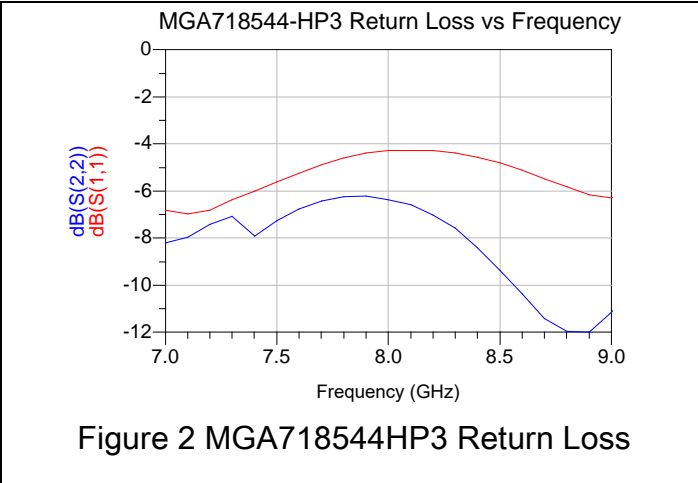
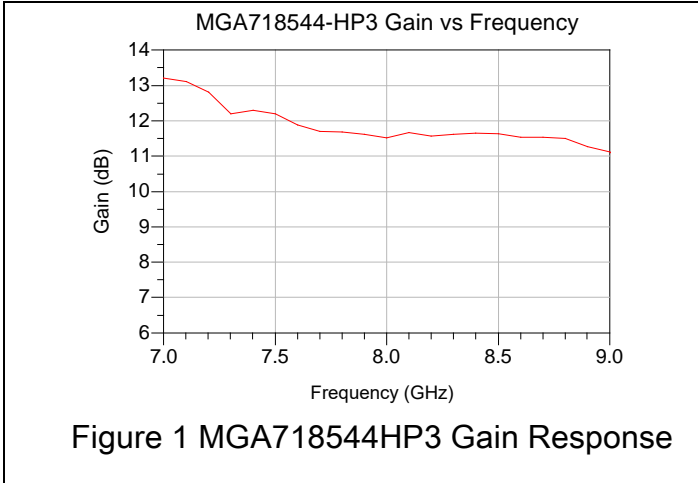
The MGA-718544-HP3 packaged base is a solid copper offering superior thermal management. The overall Rth is 2.0°C/W.

## Typical RF Performance: $V_{ds}=28V, V_{gs}=-2.27V, I_{dq}=300mA, T_a=+25^\circ C (2), Z_0=50\ ohm$

Parameter	Units	Typical Data
Frequency Range	MHz	7100-8500
Gain (Typ / Min)	dB	13.5 / 11
Gain Flatness (Typ / Max)	+/-dB	1.0 / 1.5
Input Return Loss	dB	4.5
Output Return Loss	dB	6.0
Output P3dB	dBm	44.0
OIP3(1)	dBm	54
Operating Current Range	A	2.4
Thermal Resistance	$^\circ C / W$	2.0

(1) Output IP3 is measured with two tones at output power of 36 dBm/tone separated by 10 MHz.

**Typical RF Performance:**  $V_{ds}=28.0V$ ,  $I_{dq}=250mA$   $Z_0=50\ ohm$ ,  $T_a=+25\ ^\circ C$



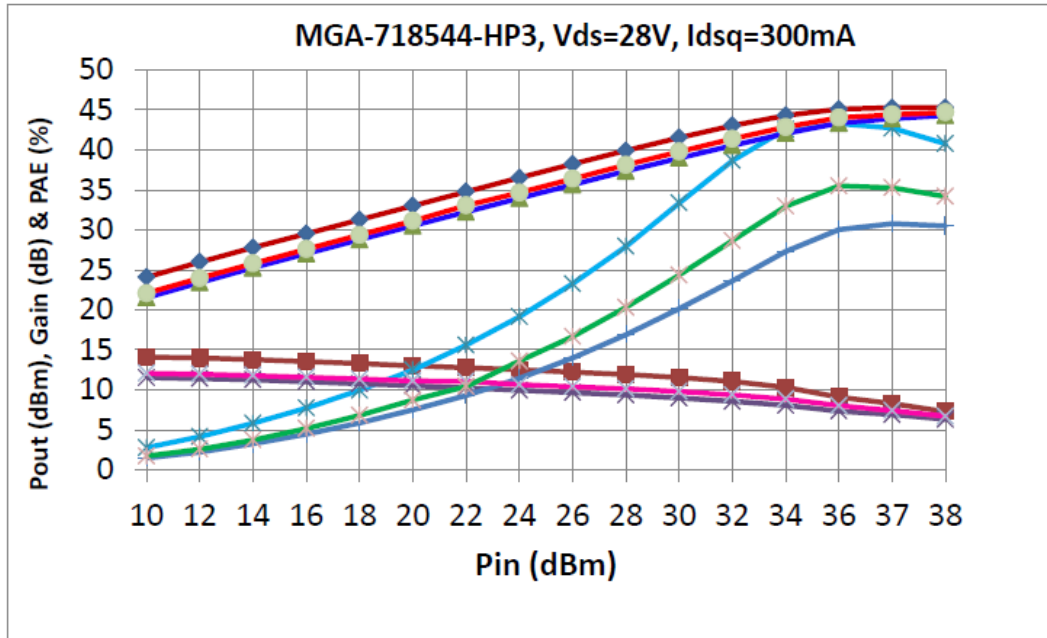


Figure 4 Pout, Gain, and PAE vs Pin

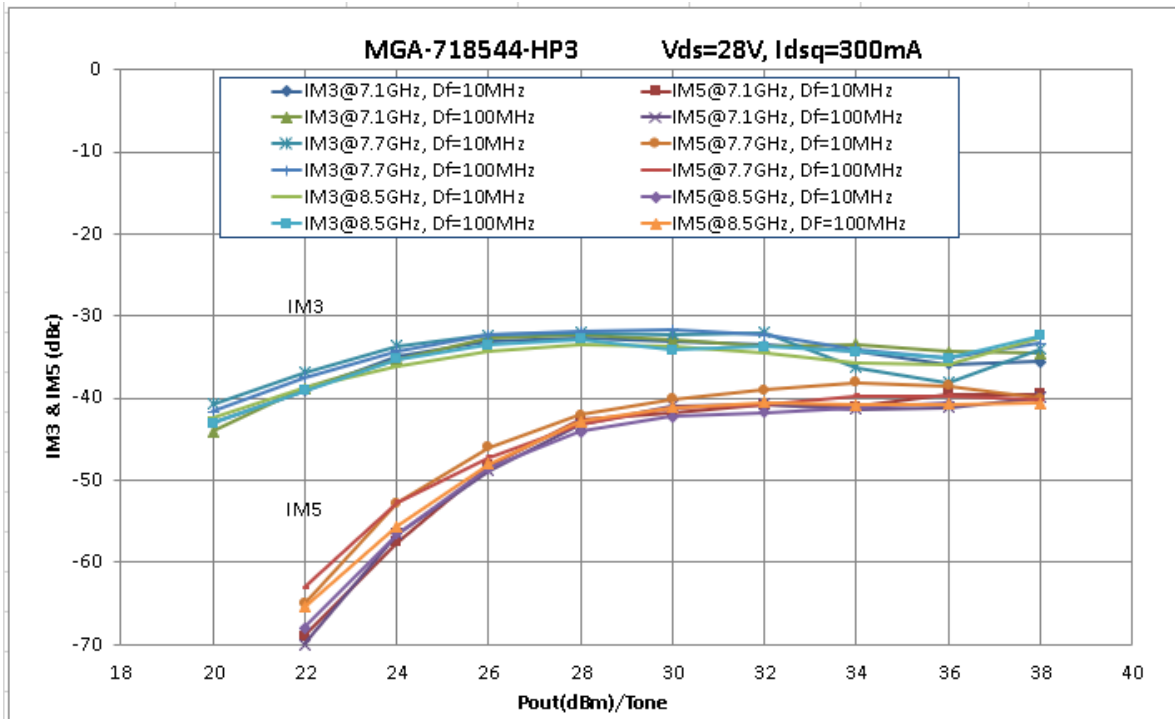
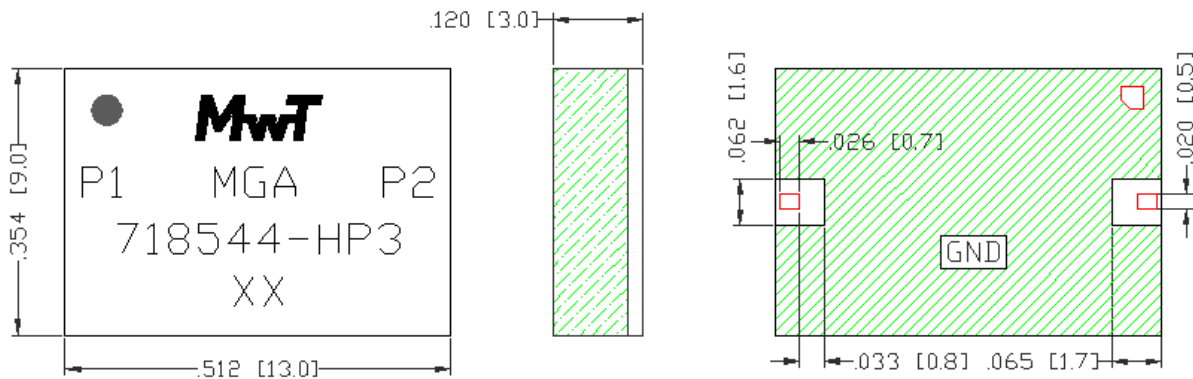


Figure 5 IMD3 and IMD5 vs Power per Tone Vdd=28V Idq=300mA



**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

**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	5500
Ig	Gate Current	mA	3.0
Pdiss	DC Power Dissipation	W	83
Pin max	RF Input Power	dBm	+38
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.

## Application Circuit and Board Design

