

MGA-718544-HP3 7.1 – 8.5 GHz 25W GaN Power Amplifier

Features:

- 12 dB Gain
- 44 dBm and LSG ≥ 7.0 dB CW
- OIP3 ≥ 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 Ω . 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.

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

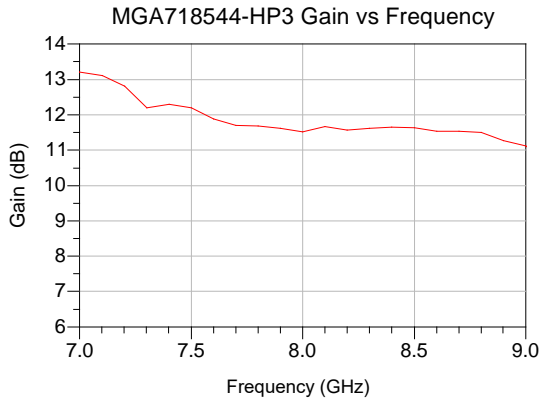


Figure 1 MGA718544HP3 Gain Response

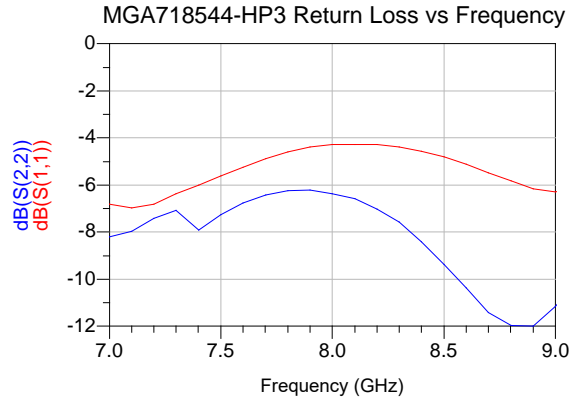


Figure 2 MGA718544HP3 Return Loss

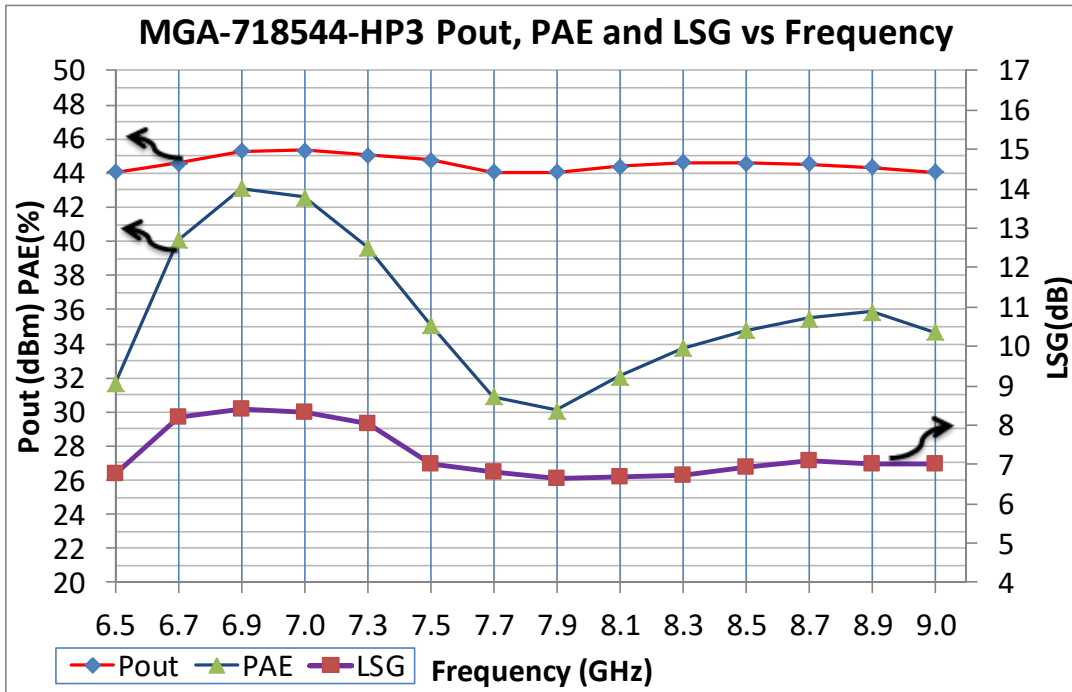


Figure 3 Typical RF Power (CW) Performance $V_{ds}=28V$, $I_{dq}=300mA$

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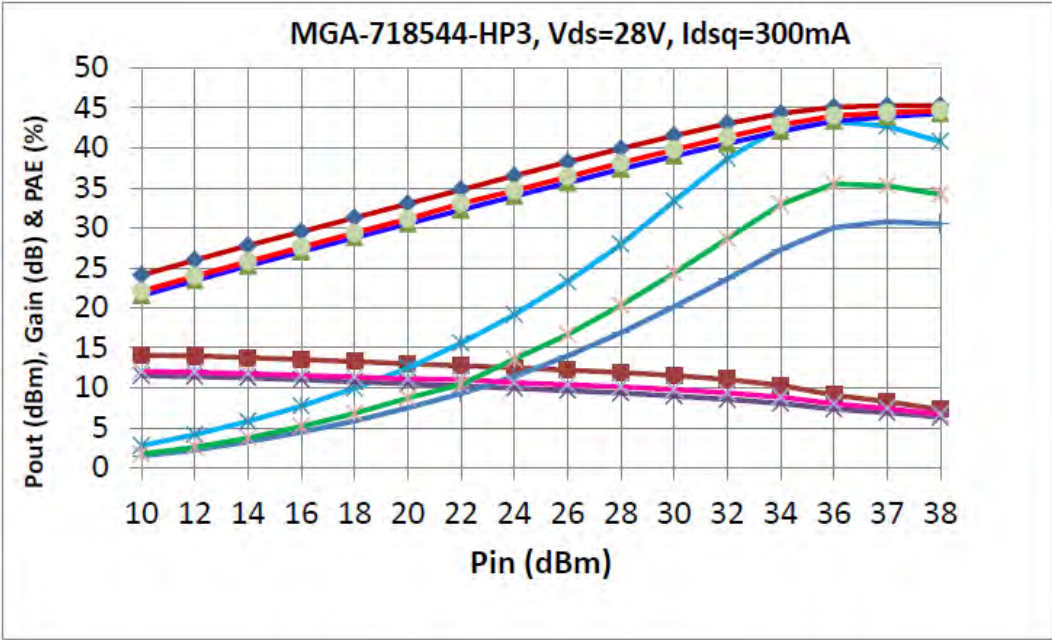


Figure 4 Pout, Gain, and PAE vs Pin

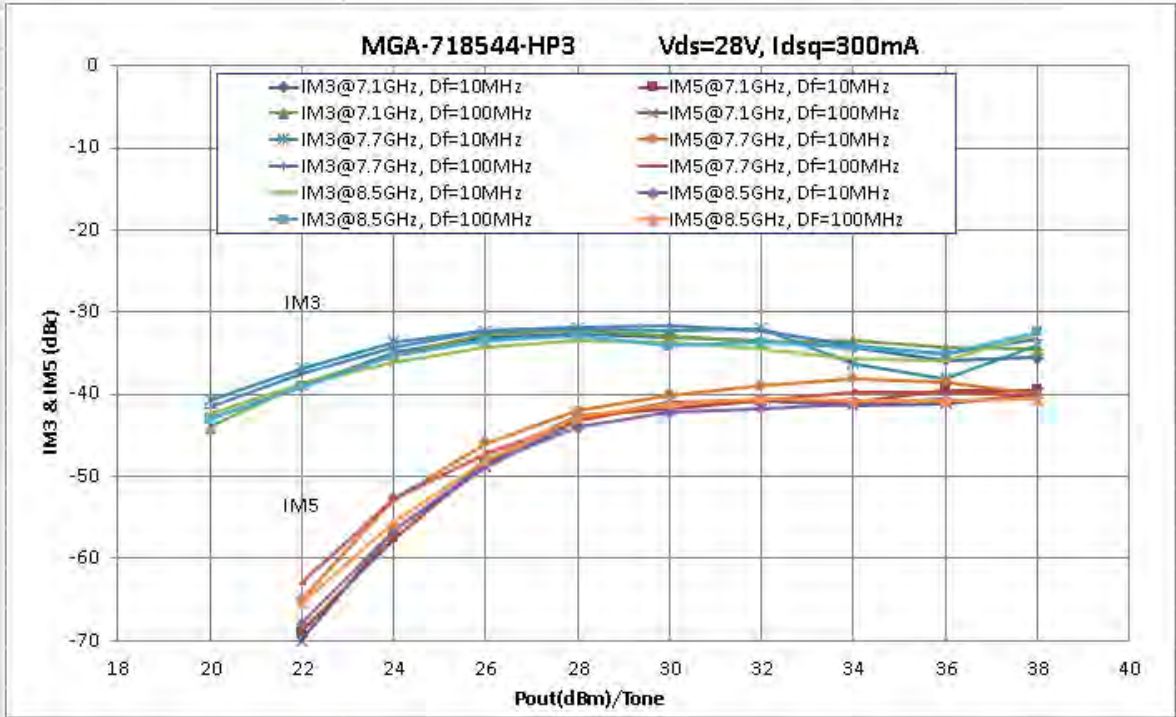
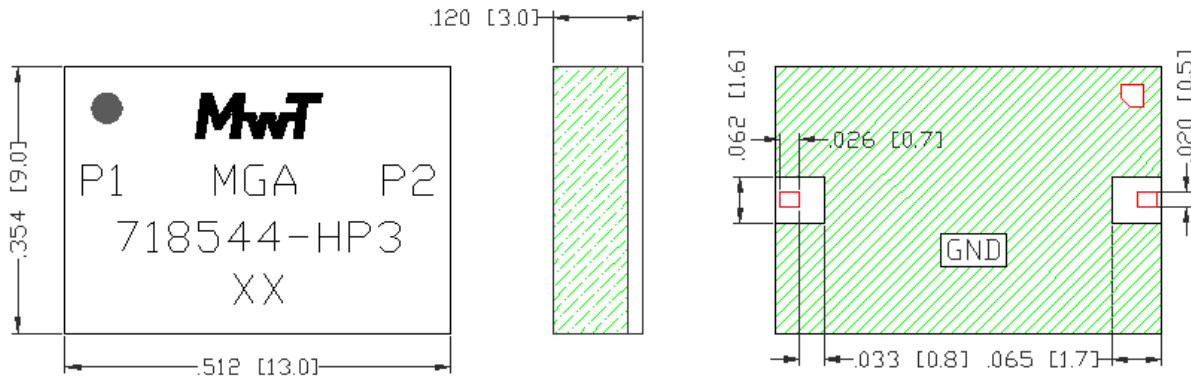


Figure 5 IMD3 and IMD5 vs Power per Tone Vdd=28V Idq=300mA

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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

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

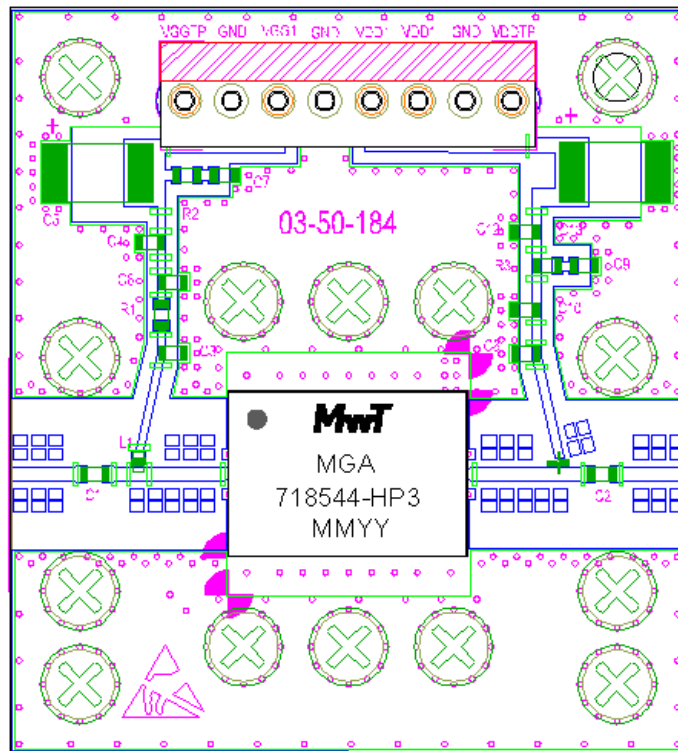
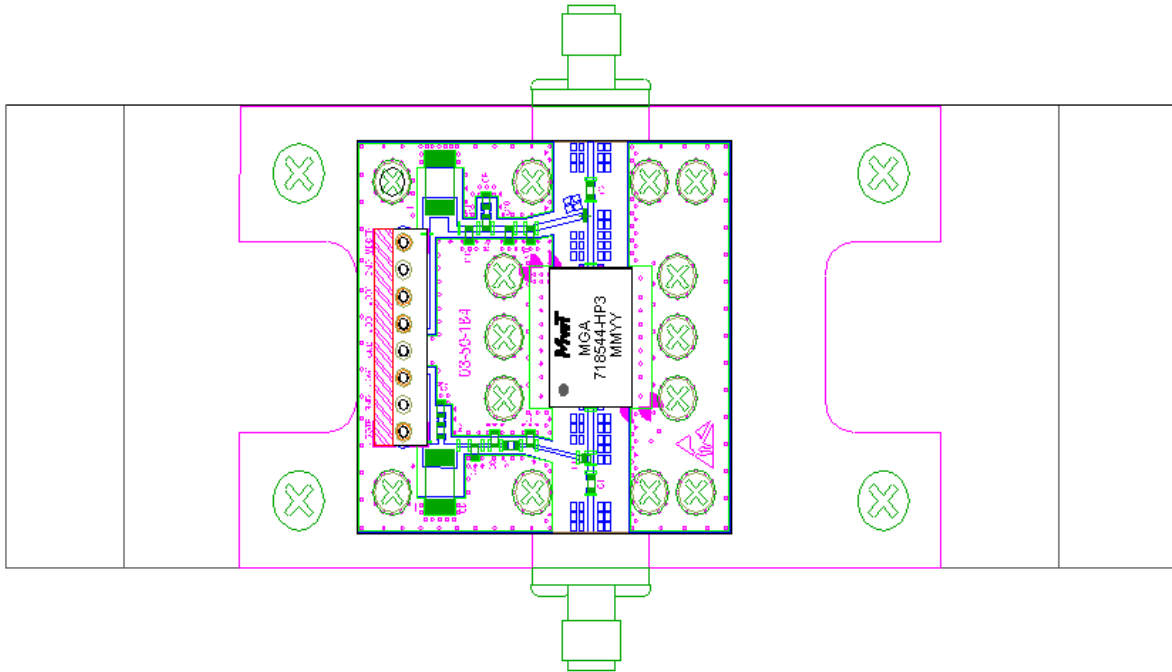
SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	29
Id	Drain Current	mA	5500
Ig	Gate Current	mA	3.0
Pdiss	DC Power Dissipation	W	83
Pin max	RF Input Power	dBm	+38
Tch	Channel Temperature	°C	225
Tstg	Storage Temperature	°C	-55 to 125

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

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Application Circuit and Board Design



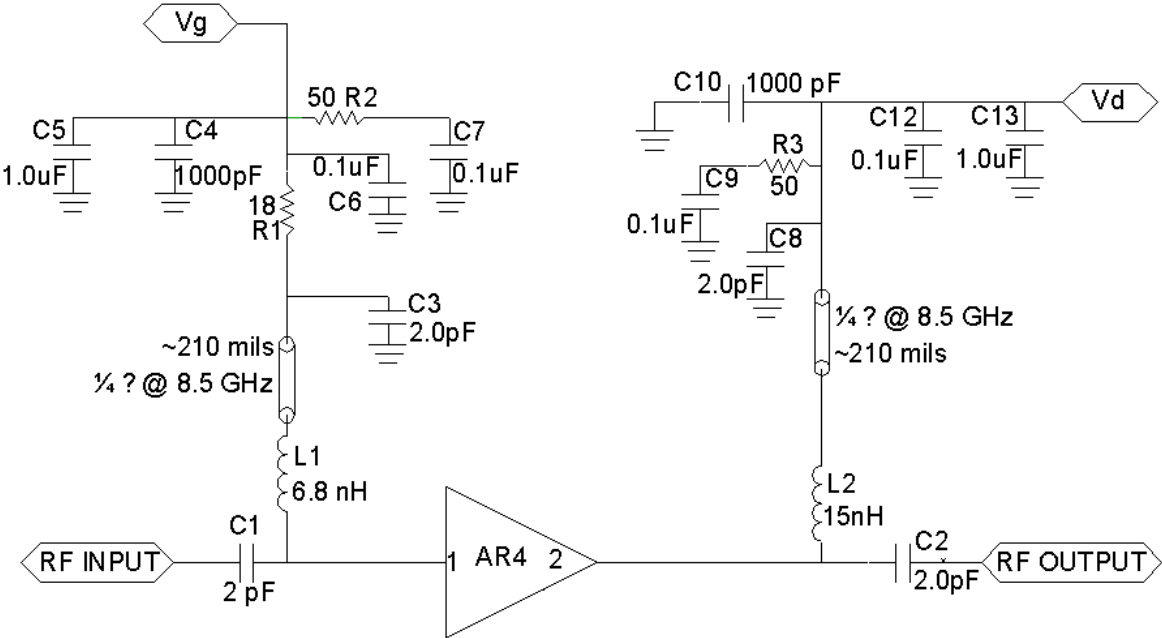
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Item	Quantity	Description	Vendor P/N	Ref No.
1	1	MGA-718544-HP3		
2	1	Connector, 8 pin	640456-8	P1
3	1	Cover		
4	1	Coil 3 Turn	3-5038-A	L2
5	1	Coil 6.8nH	0402DC-6N8X-R	L1
6	4	Capacitor 0.1μF	GRM155R61H104KE19D	C6,7,9,12
7	1	Capacitor 1000pF	C0603C102K5RACTU	C4,10
8	4	Capacitor 2pF	MML03512R08AT2A	C1,2,3,8
9	2	Capacitor 1.0μF	T491C105K050AT	C5, C13
10	2	Resistor 51 Ohms	ERJ-2GEJ510X	R1,2,3
11	1	Pallet Mount		
12	1	Heat Sink		
13	4	Screws 4-40, PHD PHIL		
14	14	Screws 2-56, PHD PHIL		
15	A/R	Solder 60/40		

Bill of materials for MGA-718544-HP3 Application Circuit

Electrical Schematics



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Contact Information

For further information please contact your local CML Micro sales representative.

Contact details can be found at www.cmlmicro.com

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