

# MMA-495930-Q4 4.9-5.9GHz Fully Matched Medium Power Amplifier

## Features:

- Ideal for 4900 –5900 MHz High Linearity / High Dynamic Range WiMax/WLAN and Point-To-Point Radio Applications
- Excellent RF Performance:
  - 45 dBm OIP3
  - 30 dBm P1dB
  - 22 dBm Pout @ 2.0% EVM (Testing signal: 802.16/64 QAM)
  - 20 dB Gain
- Vdd =+7.5V
- Input and Output are Matched to 50 Ω
- MTTF > 100 years @ 85°C ambient temperature
- Surface-Mount QFN 4X4mm Package

## Description:

The MMA-495930-Q4 is a high linearity GaAs FET broadband MMIC amplifier utilizing MWT’s proprietary linear device technology. It is packaged in a low cost QFN 4X4mm surface mount package. Applications include the driver and the output stage of power amplifiers for WLAN and WiMax infrastructure base stations and access points. The third order intercept performance of the MMA-495930-Q4 is excellent and is typically 15 dB above the 1 dB gain compression point.

## Typical RF Performance: *Vds=7.5V, Vgs=-0.9V, Ids=450mA, Ta=25 °C Z0=50 ohm*

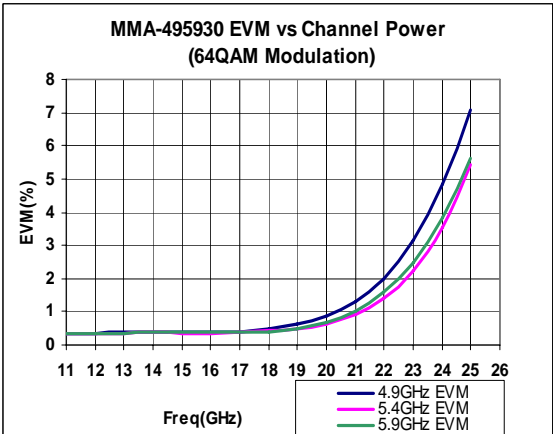
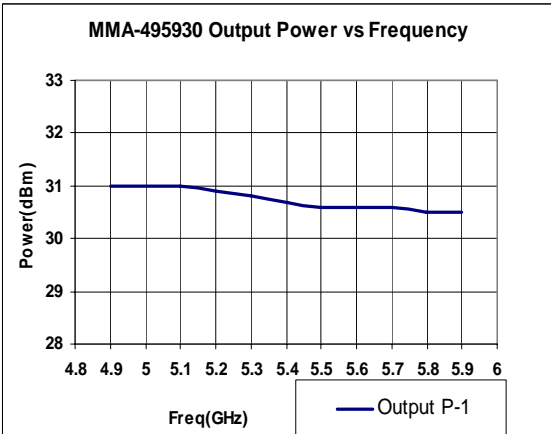
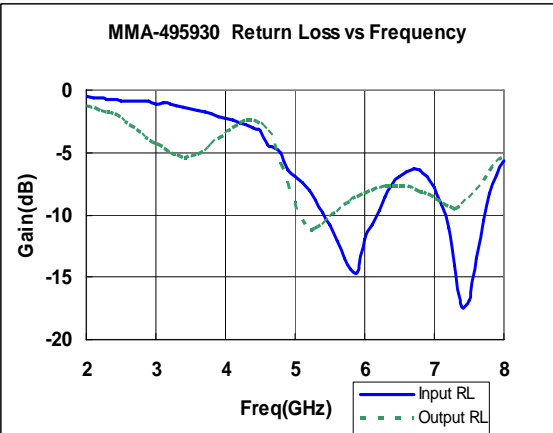
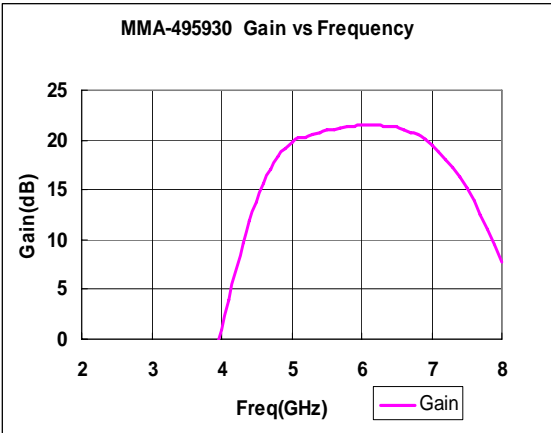
Parameter	Units	Typical Data
Frequency Range	MHz	4900-5900
Gain (Typ / Min)	dB	20 / 18
Gain Flatness (Typ / Max)	+/-dB	1.0 / 1.2
Input Return Loss	dB	8
Output Return Loss	dB	8
Output P1dB	dBm	30
Output IP3 <sup>(1)</sup>	dBm	45
Pout @ 2.0% EVM	dBm	22
Operating Current Range (Typ / Max)	mA	450 / 500
Thermal Resistance	°C /W	20

(1) Output IP3 is measured with two tones at output power of 13 dBm/tone separated by 10 MHz.

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**Typical RF Performance:**  $V_{ds}=7.5V$ ,  $V_{gs}=-0.9V$ ,  $I_{ds}=450mA$ ,  $Z_0=50\text{ ohm}$ ,  $T_a=25\text{ }^\circ\text{C}$



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

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	8.5
Vgs	Gate-Source Voltage	V	-6 to +0.8
Ids	Drain Current	mA	500
Igs	Gate Current	mA	5.0
Pdiss	DC Power Dissipation	W	4.0
Pin max	RF Input Power	dBm	+24.0
Toper	Operating Temperature	°C	-40 to +85
Tch	Channel Temperature	°C	150.0
Tstg	Storage Temperature	°C	-60.0 to 150.0

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

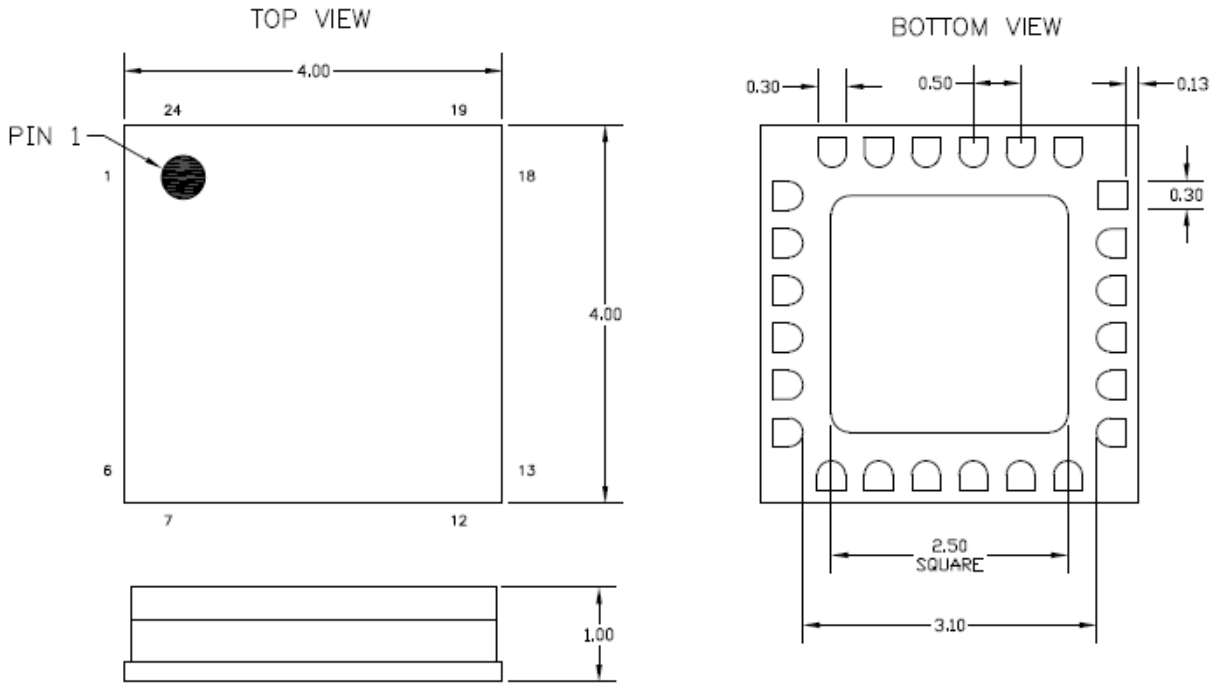
### Typical Scattering Parameters: $V_{ds}=7.5V$ , $V_{gs}=-0.9V$ , $I_{ds}=450mA$ , $Z_0=50\text{ ohm}$ , $T_a=25\text{ }^\circ\text{C}$

Freq [GHz]	S11		S21		S21		S21	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
4.0	0.772	101	1.11	38.5	0.00598	165	0.67	-98.4
4.2	0.742	64.6	2.22	13.6	0.0075	138	0.734	-146
4.4	0.71	27.2	3.9	-27.7	0.0083	106	0.76	167
4.6	0.677	-11	6.05	-75.5	0.00796	77.8	0.688	123
4.8	0.528	-49.5	8.25	-127	0.00642	49.8	0.504	85.8
5.0	0.468	-86.9	9.67	-179	0.00641	32.8	0.351	60.8
5.2	0.425	-121	10.4	133	0.00586	11.4	0.277	49.3
5.4	0.407	-151	10.9	86.8	0.00576	-9.05	0.289	35.8
5.6	0.312	-172	11.3	42.7	0.00524	-39.6	0.324	13.3
5.8	0.241	180	11.7	-0.471	0.00447	-72	0.359	-15.2
6.0	0.253	180	11.8	-44.3	0.00304	-108	0.386	-47.1
6.2	0.33	167	11.9	-87.9	0.00204	-164	0.406	-80.7
6.4	0.417	143	11.7	-132	0.00191	109	0.413	-115
6.6	0.474	111	11.3	-178	0.00336	42	0.413	-149
6.8	0.476	75.9	10.6	136	0.00497	-0.827	0.392	-179
7.0	0.407	37.4	9.4	88.8	0.00659	-39.1	0.367	156
7.2	0.278	-8.24	8.06	41.3	0.00763	-74.7	0.342	138
7.4	0.137	-87.7	6.52	-5.59	0.00823	-109	0.35	128
7.6	0.213	164	4.96	-51.9	0.00741	-141	0.398	116
7.8	0.382	111	3.55	-95.5	0.00696	-170	0.468	102
8.0	0.522	72.4	2.44	-136	0.00561	167	0.54	84.2

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## Mechanical Information:



All dimensions are in mm

Pin Assignment			
Pin #	Function	Pin #	Function
1	N/C	13	N/C
2	N/C	14	N/C
3	RF in	15	RF out
4	RF in	16	RF out
5	N/C	17	N/C
6	N/C	18	N/C
7	N/C	19	N/C
8	N/C	20	N/C
9	N/C	21	N/C
10	Vdd	22	Vgs
11	N/C	23	N/C
12	N/C	24	N/C

# **MMA-495930-Q4**

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### **Contact Information**

For additional information please visit [www.cmlmicro.com](http://www.cmlmicro.com) or contact a sales office.

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