MMA-053223-Q3

500-3200 MHz Fully Matched High Dynamic Range Amplifier
Preliminary Data Sheet
January 2007

Features:

- **Ideal for 500 – 3200 MHz High Linearity / High Dynamic Range Applications**
- **Excellent RF Performance:**
  - **42 dBm OIP3**
  - **24 dBm P1dB**
  - **68 dBc ACPR @ channel power 11dBm**
  - **13 dB SSG @ 900 - 2700 MHz**
  - **3 dB NF @ 900- 2700 MHz**
- **Single +6V Supply**
- **MTTF > 100 years @ 85ºC ambient temperature**
- **Lead Free RoHS Compliant Surface-Mount QFN 3X3mm Package**

Description:

The MMA-053223-Q3 is a high linearity broadband MMIC amplifier utilizing MwT's proprietary linear MESFET technology. Packaged in low cost QFN 3X3mm lead-free Green Package, the MMIC is ideally suited for high linearity driver and high dynamic range LNA applications. The applications include 2G, 2.5G, and 3G wireless infrastructure standards, such as GSM, TDMA, CDMA, EDGE, CDMA2000, WCDMA, TD-SCDMA, and UMTS base stations. The third order intercept point performance is excellent, typically 18 dB above the 1 dB gain compression point.

Electrical Specifications: *@ Vds=6.0V, Ids=150mA, Ta=25 ℃ Z0=50 ohm*

Parameter	Units	Typical Data	
Frequency Range	MHz	900-2700	500-3200
Gain (Typ / Min)	dB	13 / 11	12 / -
Gain Flatness (Typ / Min)	+/-dB	0.8 / 1.2	1.5 / -
Input Return Loss (Typ)	dB	10	10
Output Return Loss (Typ)	dB	10	10
Output P1dB (Typ)	dBm	24	23
Output IP3 (Typ / Min)(1)	dBm	42 / 38	42 / -
Noise Figure	dB	3.0	3.5
Operating Current Range(Min / Max)	mA	120 / 200	
Thermal Resistance (Typ)	°C /W	30	

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

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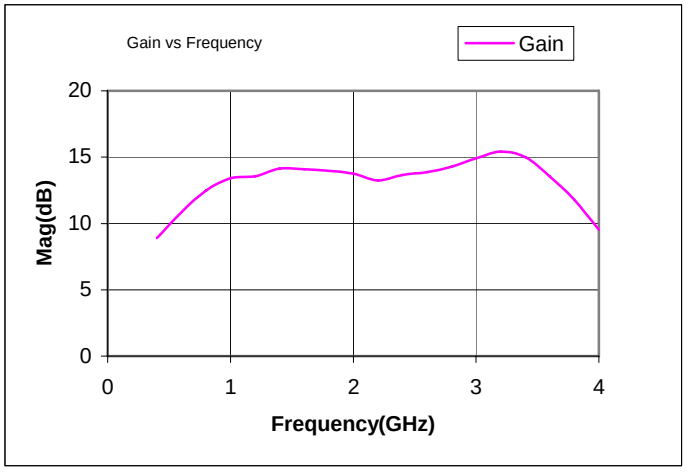
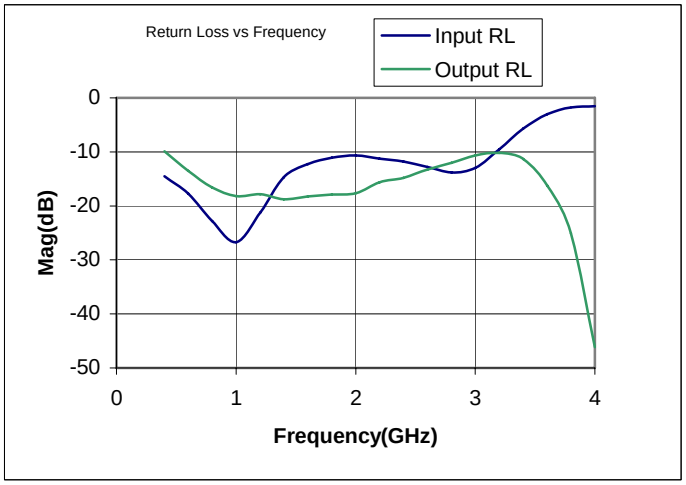
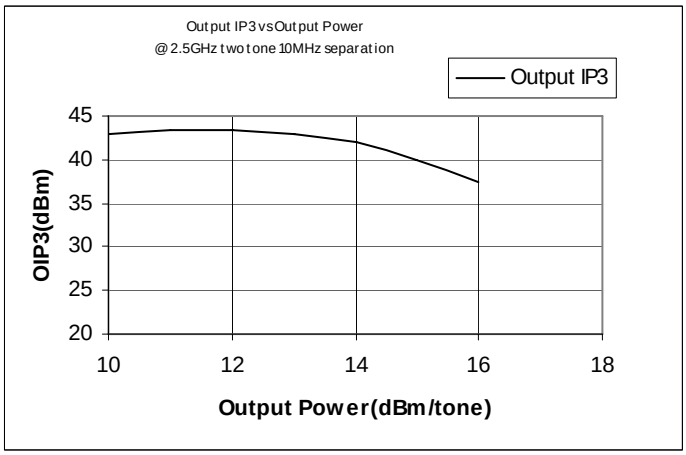
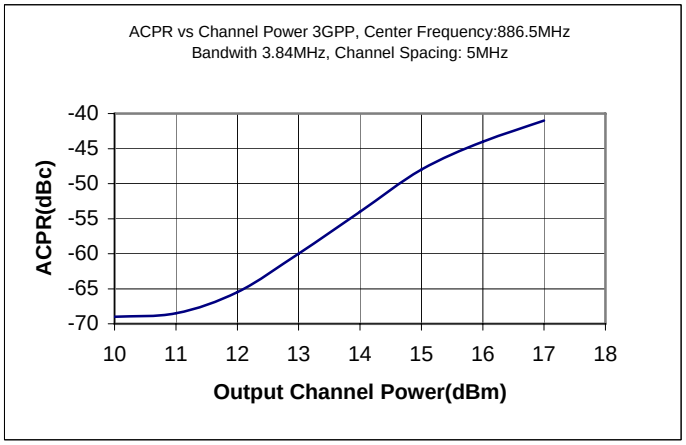
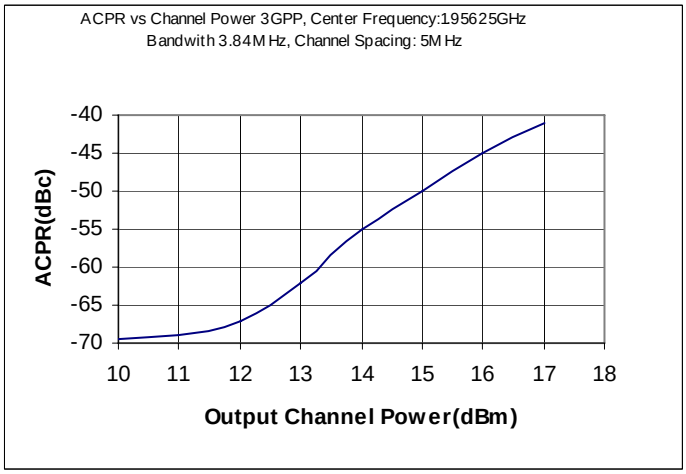
Typical RF Performance: *Vds=6V, Ids=150mA, Ta=25 ℃ 50 Ohm system*

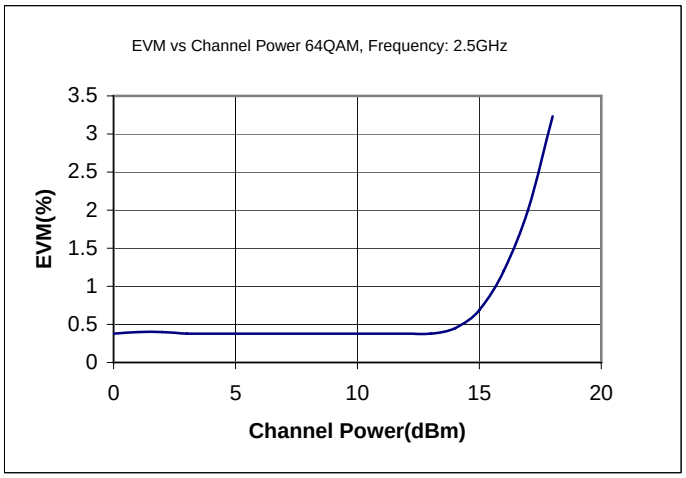












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Typical Scattering Parameters:

(Vds=6.0V, Ids=150mA, Ta =25°C Reference Planes at Leads)

F [GHz]	S11 Mag - Ang	S21 Mag - Ang	S12 Mag - Ang	S22 Mag - Ang
0.4	0.19 98.66	2.79 176.94	0.01 63.23	0.32 83.88
0.6	0.13 47.98	3.48 136.87	0.01 26.17	0.21 77.22
0.8	0.07 -2.92	4.21 98.46	0.02 -7.36	0.15 59.34
1.0	0.05 -127.00	4.69 59.73	0.02 -40.77	0.12 53.51
1.2	0.09 151.81	4.76 21.49	0.02 -75.24	0.13 35.24
1.4	0.18 109.75	5.09 -13.87	0.03 -106.14	0.11 26.45
1.6	0.24 66.92	5.06 -49.72	0.03 -138.13	0.12 1.20
1.8	0.28 27.21	4.99 -84.02	0.04 -170.03	0.13 -33.37
2.0	0.29 -11.18	4.86 -118.22	0.04 157.74	0.13 -71.80
2.2	0.27 -52.17	4.59 -146.97	0.04 130.96	0.17 -113.51
2.4	0.26 -92.11	4.82 -179.59	0.04 99.51	0.18 -152.37
2.6	0.23 -140.62	4.94 148.31	0.05 68.70	0.22 174.78
2.8	0.20 159.07	5.18 114.91	0.05 36.56	0.25 144.42
3.0	0.22 82.13	5.57 79.84	0.06 3.12	0.29 114.41
3.2	0.33 -3.09	5.90 38.94	0.07 -36.79	0.31 78.48
3.4	0.52 -76.15	5.62 -5.47	0.07 -81.39	0.27 36.78
3.6	0.70 -136.79	4.75 -48.16	0.06 -120.63	0.15 -11.94
3.8	0.81 170.37	3.89 -86.16	0.05 -165.18	0.06 -21.34
4.0	0.84 128.82	3.00 -119.64	0.04 160.57	0.00 119.74

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

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	8
Vgs	Gate-Source Voltage	V	-6 to +0.8
Ids	Drain Current	mA	300
Igs	Gate Current	mA	3
Pdiss	DC Power Dissipation	W	2.4
Pin max	RF Input Power	dBm	+24
Tch	Channel Temperature	°C	150
Tstg	Storage Temperature	°C	-60 to 150

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

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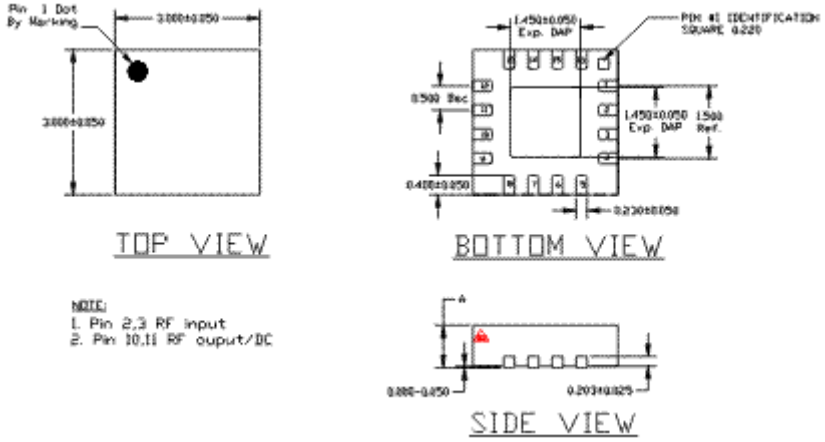
Mechanical Information:

This Package is RoHS-compliant lead free Green Package



(all units are mm)

ORDERING INFORMATION:

The MMA-053223-Q3 is available in both military and commercial versions.

Part Number	**Version**
MMA-053223-Q3	Commercial
MMA-053223-Q3M	Military

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