MMA-020624

2000-6000 MHz Fully Matched High Dynamic Range Amplifier
Preliminary Data Sheet
June 2007

Features:

- **Ideal for 2000 – 6000 MHz High Linearity / High Dynamic Range Applications**
- **Excellent RF Performance:**
  - **40 dBm OIP3**
  - **25 dBm P1dB**
  - **18 dBm Pout @ 2.0% EVM (Testing signal: 802.16/64 QAM)**
  - **17 dB Gain @ 2000-4000 MHz**
    13 dB Gain @ 4000-6000 MHz
- **Single +8V Supply**
- **MTTF > 100 years @ 85ºC ambient temperature**
- **RoHS Compliant Surface-Mount QFN 3X3mm Package**

Description:

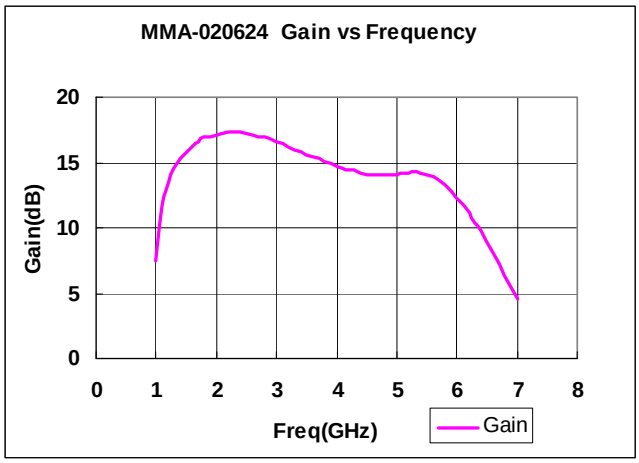
The MMA-020624-Q3 is a high linearity GaAs FET broadband MMIC amplifier utilizing MwT's proprietary linear device technology. It is in a low cost QFN 3X3mm Green Package. Applications include the driver amplifiers in 3G cellular and WiMax/WLAN infrastructure base stations and access points. The third order intercept performance of the MMA-020624-Q3 is excellent, typically 15 dB above the 1 dB gain compression point.

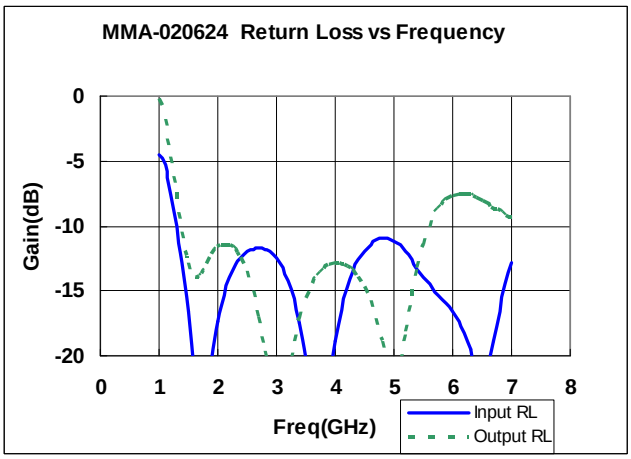
Typical RF Performance: *Vds=8.0V, Ids=250mA, Ta=25 ºC Z0=50 ohm*

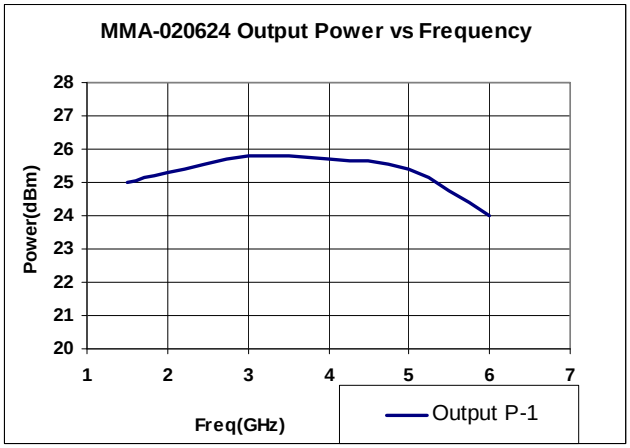
Parameter	Units	Typical Data	
Frequency Range	MHz	2000-4000	4000-6000
Gain (Typ / Min)	dB	17 / 15	13 / 11.5
Gain Flatness (Typ / Max)	+/-dB	1.0 / 1.5	1.3 / 1.5
Input Return Loss	dB	12	12
Output Return Loss	dB	12	10
Output P1dB	dBm	25	24
Output IP3 (1)	dBm	40	40
Pout @ 2.0% EVM	dBm	18	
Noise Figure	dB	3.5	
Operating Current Range (Typ / Max)	mA	250 / 300	
Thermal Resistance	°C /W	30	

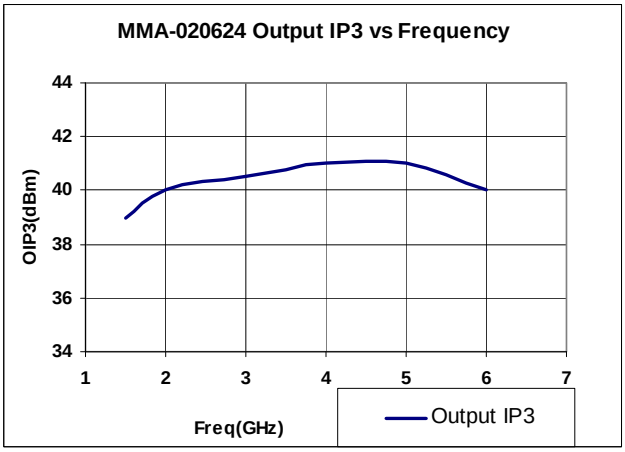
(1) Output IP3 is measured with two tones at output power of 13 dBm/tone separated by 10 MHz.

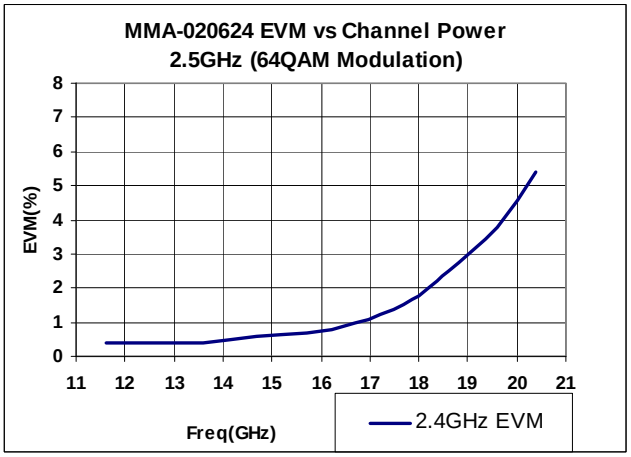
Typical RF Performance: *Vds=8V, Ids=250mA, Z0=50 ohm, Ta=25 ºC*

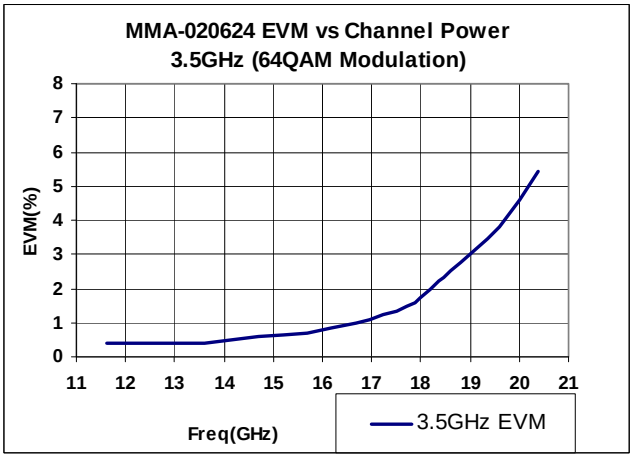












Absolute Maximum Ratings: *(Ta= 25 ºC)**

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	9.0
Ids	Drain Current	mA	300.0
Pdiss	DC Power Dissipation	W	2.7
Pin max	RF Input Power	dBm	+24.0
Tch	Channel Temperature	ºC	150.0
Tstg	Storage Temperature	ºC	-60.0 to 150.0

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

Typical Scattering Parameters: *Vds=8.0V, Ids=250mA, Z0=50 ohm, Ta=25 ºC*

Freq	S11		S21		S12		S22	
(GHz)	Mag - Ang		Mag - Ang		Mag - Ang		Mag - Ang	
2.0	0.842	17.6	0.775	39.5	0.0179	-40.5	0.747	-1.97
2.2	0.805	-13.8	0.918	14.7	0.0198	-68.5	0.654	-38.9
2.4	0.758	-45.4	1.07	-6.5	0.0216	-94.2	0.542	-78.8
2.6	0.675	-76.6	1.38	-26.2	0.0241	-117	0.384	-122
2.8	0.579	-105	2.04	-53.7	0.0303	-139	0.202	-176
3.0	0.483	-127	2.82	-91.9	0.0407	-168	0.0817	65.2
3.2	0.459	-145	3.39	-135	0.0506	154	0.179	-29.5
3.4	0.471	-169	3.61	-175	0.0567	116	0.248	-70.2
3.6	0.467	163	3.71	147	0.0596	79.4	0.286	-99.8
3.8	0.442	131	3.8	111	0.0619	43.7	0.319	-127
4.0	0.396	96.8	3.88	75.8	0.0633	8.36	0.345	-156
4.2	0.328	56.9	3.9	40.4	0.0659	-25.8	0.354	173
4.4	0.25	5.93	3.81	5.06	0.0694	-61.5	0.342	142
4.6	0.206	-66.2	3.76	-30.6	0.0719	-98.3	0.294	111
4.8	0.26	-144	3.6	-67.5	0.0683	-136	0.21	81.2
5.0	0.384	160	3.35	-105	0.0657	-173	0.114	53
5.2	0.499	114	2.98	-142	0.0628	152	0.0246	62.6
5.4	0.584	72.7	2.59	-177	0.0593	118	0.0718	140
5.6	0.646	33.8	2.22	150	0.0559	85.3	0.132	116
5.8	0.69	-3.61	1.89	118	0.0507	53.1	0.177	85.3
6.0	0.732	-39.7	1.61	85.3	0.0458	22.7	0.213	52.4

Outline Drawing: