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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Features:

- P1dB: +25 dBm
- OIP3: +40 dBm
- Pave: +18.5 dBm @ 2.5% EVM 802.16 / 64QAM
- Gain: 17 dB
- Single +8V Supply
- MTTF > 100 years @ 85°C ambient temperature
- RoHS Compliant Surface-Mount QFN 3X3mm Package

## Applications:

- WiMax
- Instrumentation
- Point-to-Point Microwave Radio

## Description:

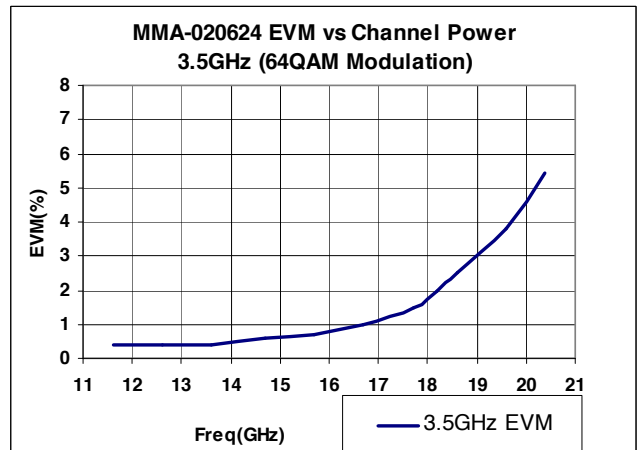
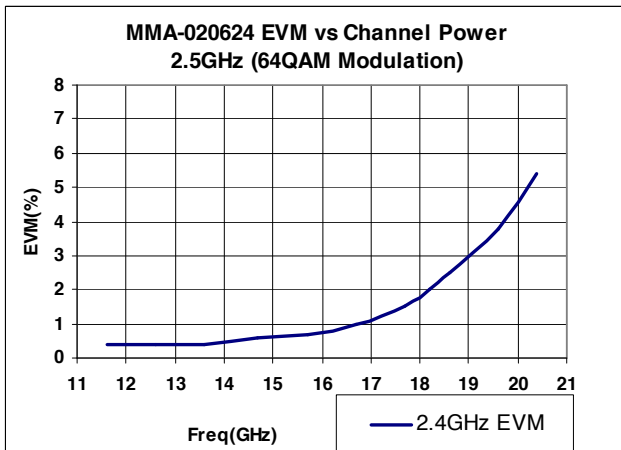
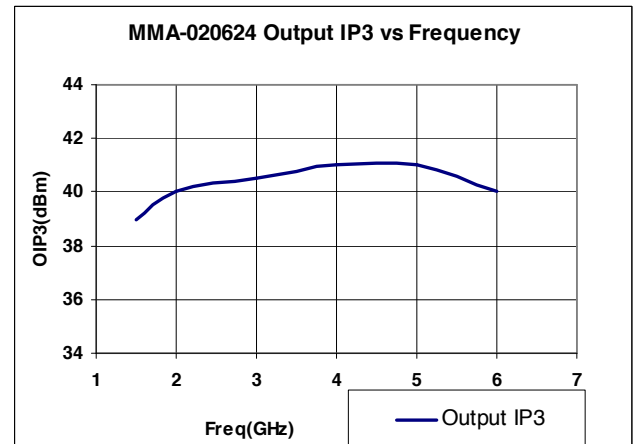
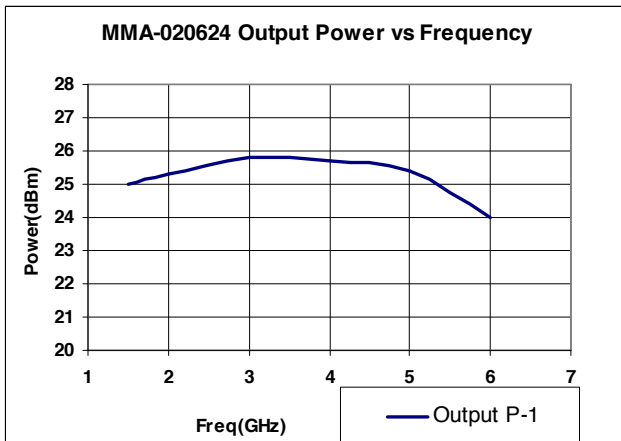
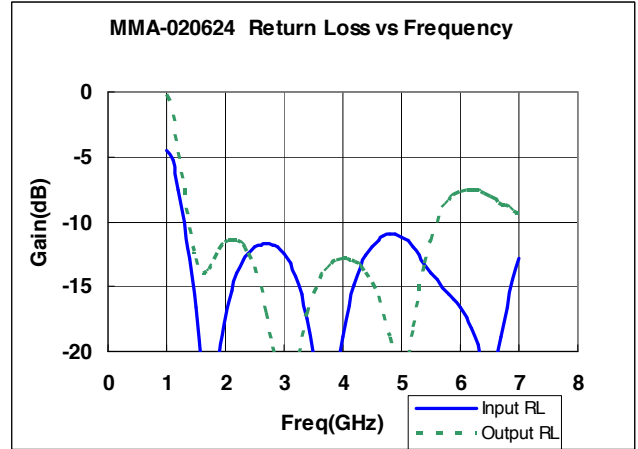
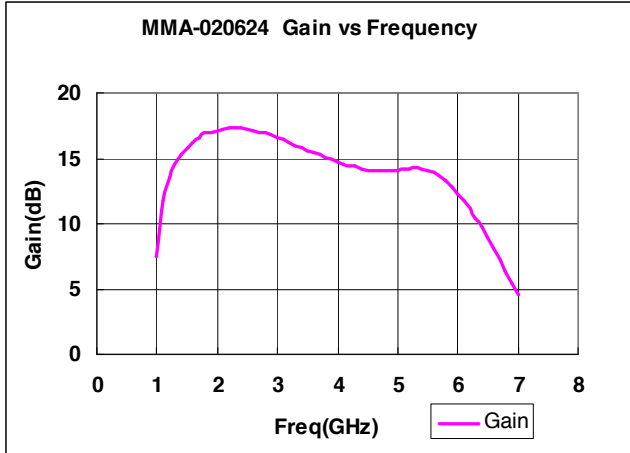
The MMA-020624-P3 is a high linearity GaAs MESFET MMIC amplifier utilizing MwT's proprietary linear device technology. Applications include the driver amplifiers in 3G cellular and WiMax/WLAN infrastructure base stations, access points and gain-block amplifiers in 2-6 GHz range. The third order intercept performance of the MMA-020624-P3 is excellent, typically 15 dB above the Output power at 1 dB gain compression point. It provides +25 dBm P1dB, +40 dBm OIP3, +18.5 dBm Pave @ 2.5% EVM under 802.16/64 QAM input signal and 17 dB gain.

## Typical RF Performance: *V<sub>ds</sub>=8.0V, I<sub>ds</sub>=250mA, T<sub>a</sub>=25 °C Z<sub>0</sub>=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 <sup>(1)</sup>	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:**  $V_{ds}=8V$ ,  $I_{ds}=250mA$ ,  $Z_0=50\text{ ohm}$ ,  $T_a=25\text{ }^\circ\text{C}$



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

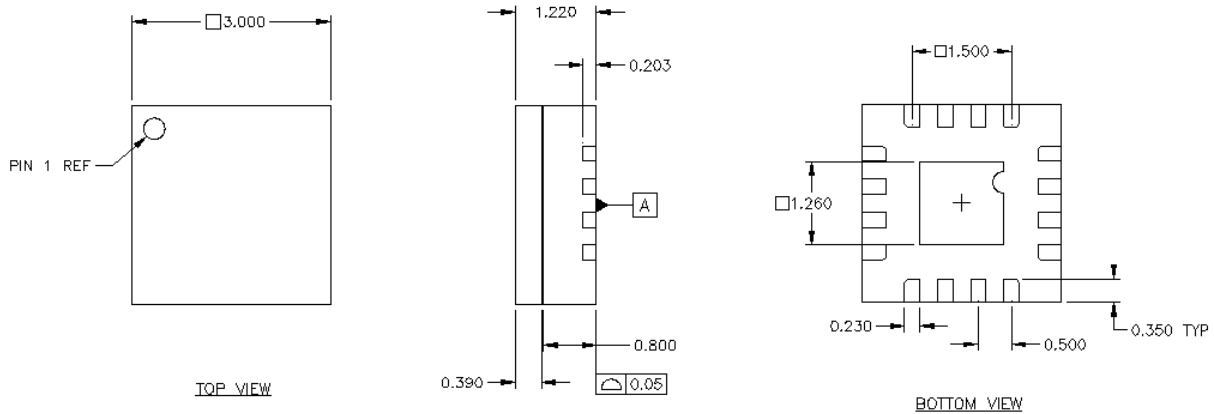
SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vds	Drain-Source Voltage	V	9.0
Ids	Drain Current	mA	300.0
Pdiss	DC Power Dissipation	W	2.7
Pin max	RF Input Power	dBm	+24.0
Tch	Channel Temperature	°C	150.0
Tstg	Storage Temperature	°C	-60.0 to 150.0

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

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

Freq (GHz)	S11		S21		S12		S22	
	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

**Mechanical Information:**  
**QFN 16 LEAD , 3 X 3 mm**  
*This Package is RoHS compliant*



**NOTES**

1. MATERIALS:  
LEAD FRAME: COPPER 194FH, THK = 0.203±0.008  
BODY: SEMICONDUCTOR MOLDING EPOXY, CONTACT MwT FOR DETAILS.
2. FINISH:  
LEAD FRAME: ELECTROLESS NICKEL PER MIL-C-26074, CLASS 1,  
100 TO 300 MICRONS (2.5um - 7.6um) THICK.  
GOLD PLATE PER MIL-G-45204, TYPE 3, GRADE A, CLASS 1  
(40 TO 80 MICRONS (1um - 2um) THICK).  
BODY SURFACE FINISH: VDI 21-24 (1.12-1.6 Ra).
3. PACKAGE CONFORMS TO JEDEC MO-220.

**All dimensions are in mm**

Pin Assignment			
Pin #	Function	Pin #	Function
1	n/c	9	n/c
2	RF in	10	RF out
3	RF in	11	RF out
4	n/c	12	n/c
5	n/c	13	n/c
6	n/c	14	Vdd
7	n/c	15	Vdd
8	n/c	16	n/c