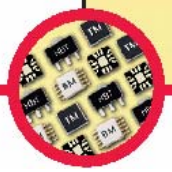
GaAs MMIC Power Amplifier



DESCRIPTION

AMCOM's AM103026MM-BM-R is part of the GaAs HiFET MMIC power amplifier series that is biased at 14V. It has 22 dB gain, 26 dBm output power over the 0.8 to 3.6 GHz band. This MMIC is in a ceramic package with both RF and DC leads at the bottom level of the package to facilitate low-cost SMT assembly to the PC board.

FEATURES

- Wide bandwidth from 0.8 to 3.6 GHz
- High output power, P1dB = 26 dBm
- High gain, 22dB
- Fully matched; 50-ohm input/output impedance

APPLICATIONS

- PCS Base Station
- Instrumentation
- Gain block

TYPICAL PERFORMANCE*

(V_{dd} = +14V, V_{g1} = -2.0V, , V_{g2} = -0.58V, I_{dq1} = 60mA, , I_{dq2} = 140mA, T_a = 25°C)

Parameters	Minimum	Typical	Maximum
Frequency		0.9 – 3.2GHz	0.8 – 3.6GHz
Small Signal Gain	19 dB	22 dB	23 dB
Gain Ripple	-	± 2.0 dB	± 3.0 dB
P1dB	23 dBm	25 dBm	-
Psat	24 dBm	26 dBm	-
IP3	-	43 dBm	-
Input Return Loss	10 dB	15dB	
Output Return Loss	10 dB	15dB	
Thermal Resistance		27 °C/W	

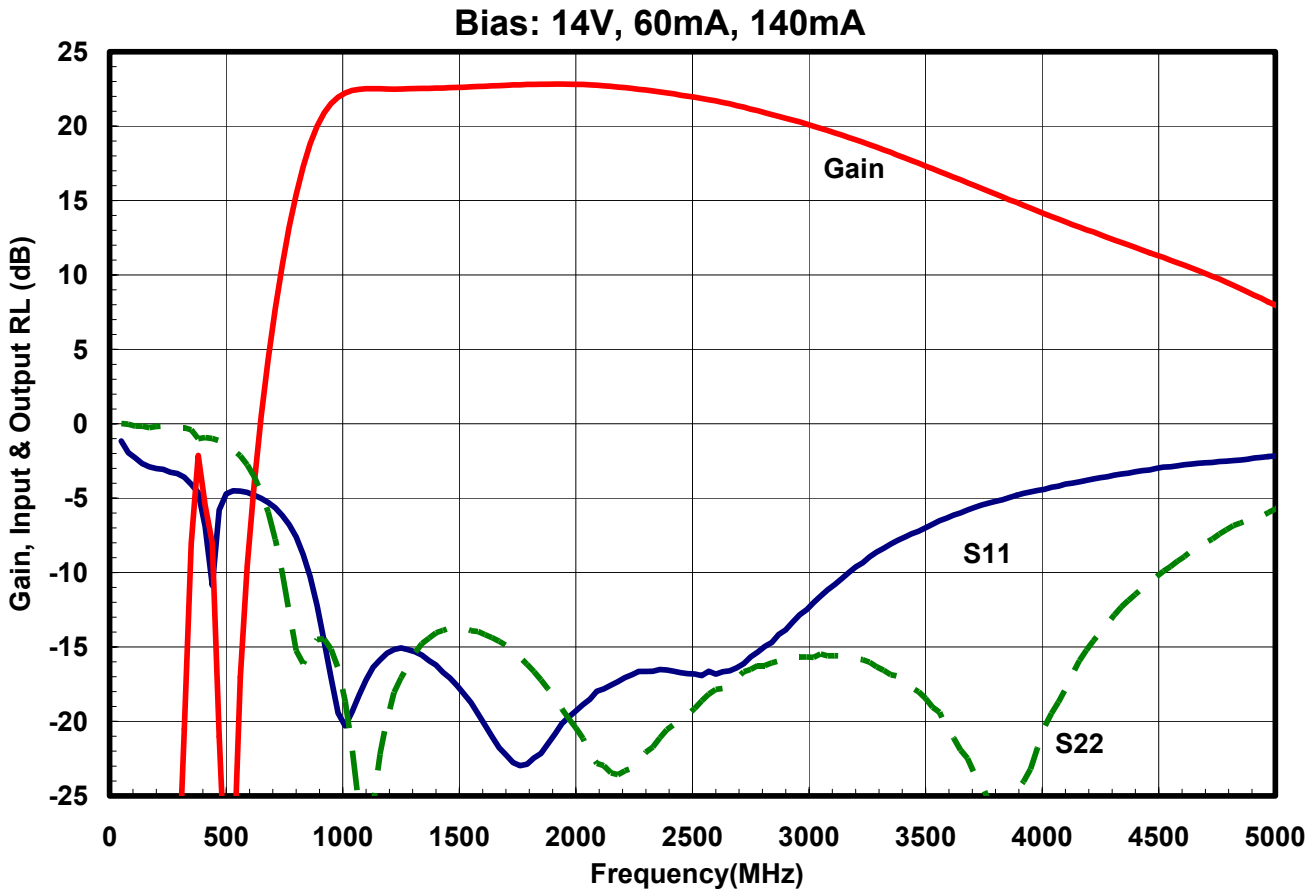
*Specifications subject to change without notice.

ABSOLUTE MAXIMUM RATING

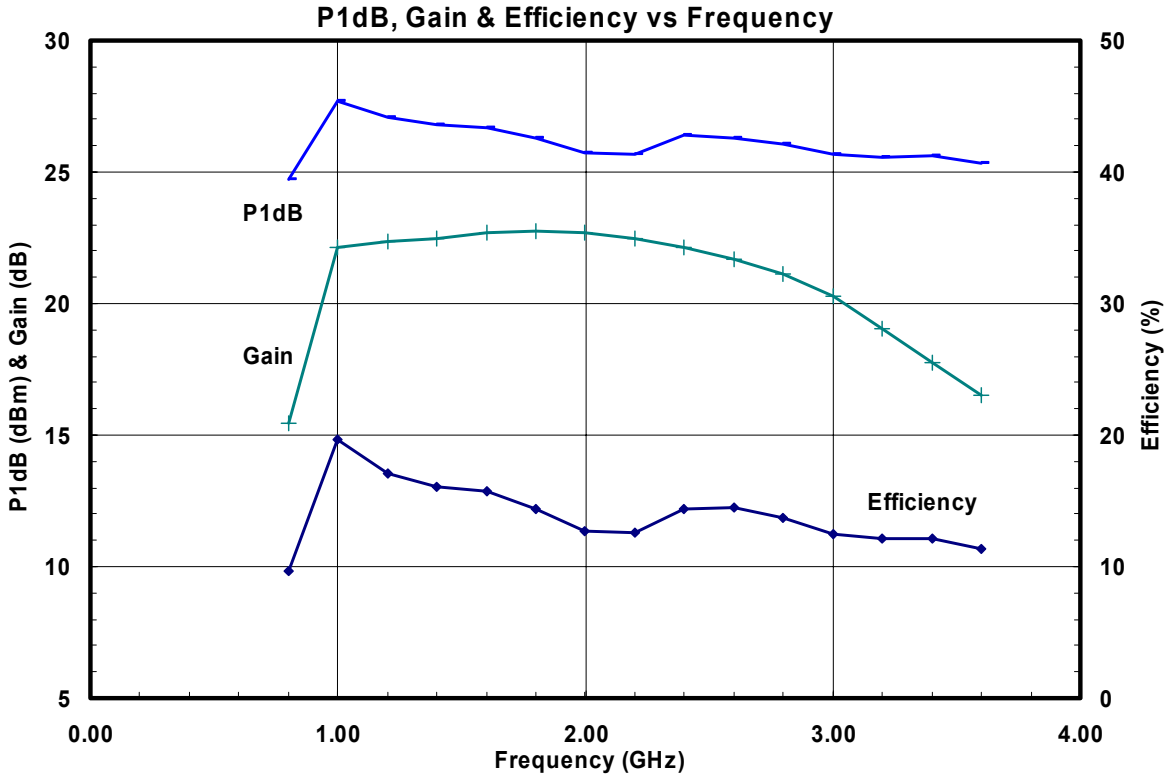
Parameter	Symbol	Rating
Drain source voltage	V_{dd}	17 V
Gate source voltage	V_{gg}	-5 V
Drain source current	I_{dd}	0.3 A
Continuous dissipation at room temperature	P_t	5W
Channel temperature	T_{ch}	175 °C
Storage temperature	T_{sto}	-55°C to +135°C

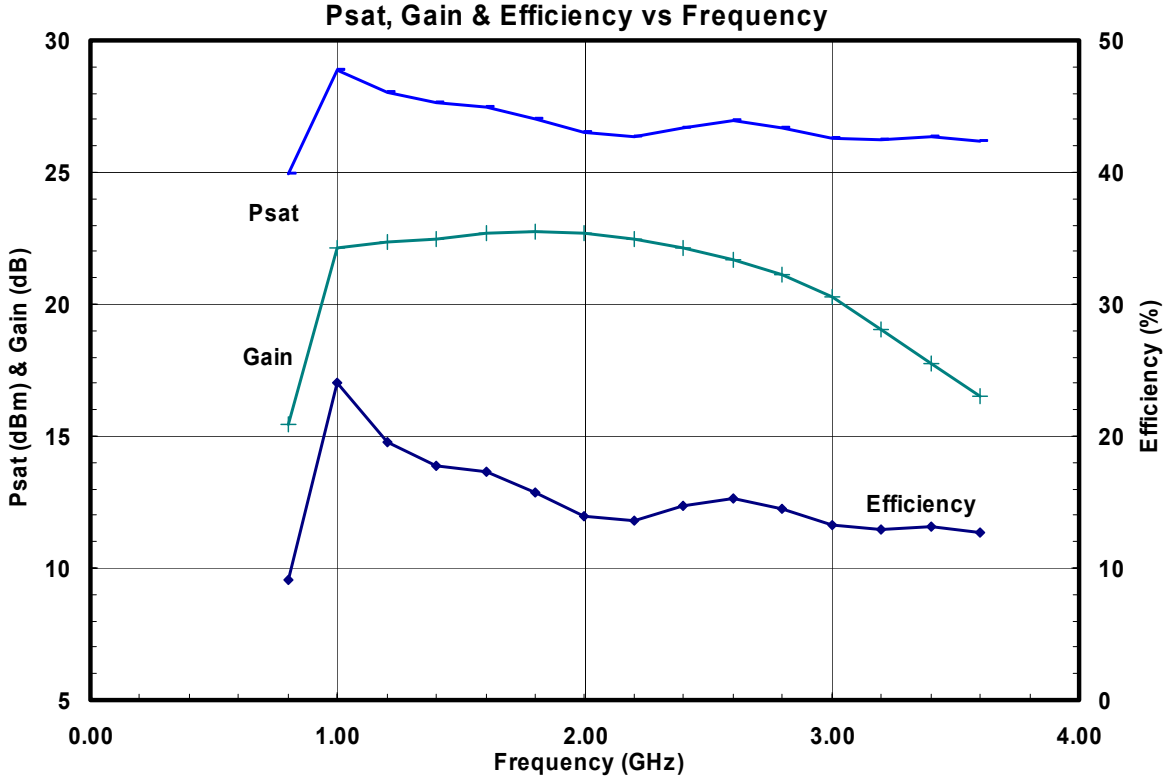
E-mail: products@amcomusa.com
Tel. (301) 353-8400 Fax. (301) 353-8401
www.amcomusa.com
401 Professional Drive, Suite 140, Gaithersburg, MD 20879

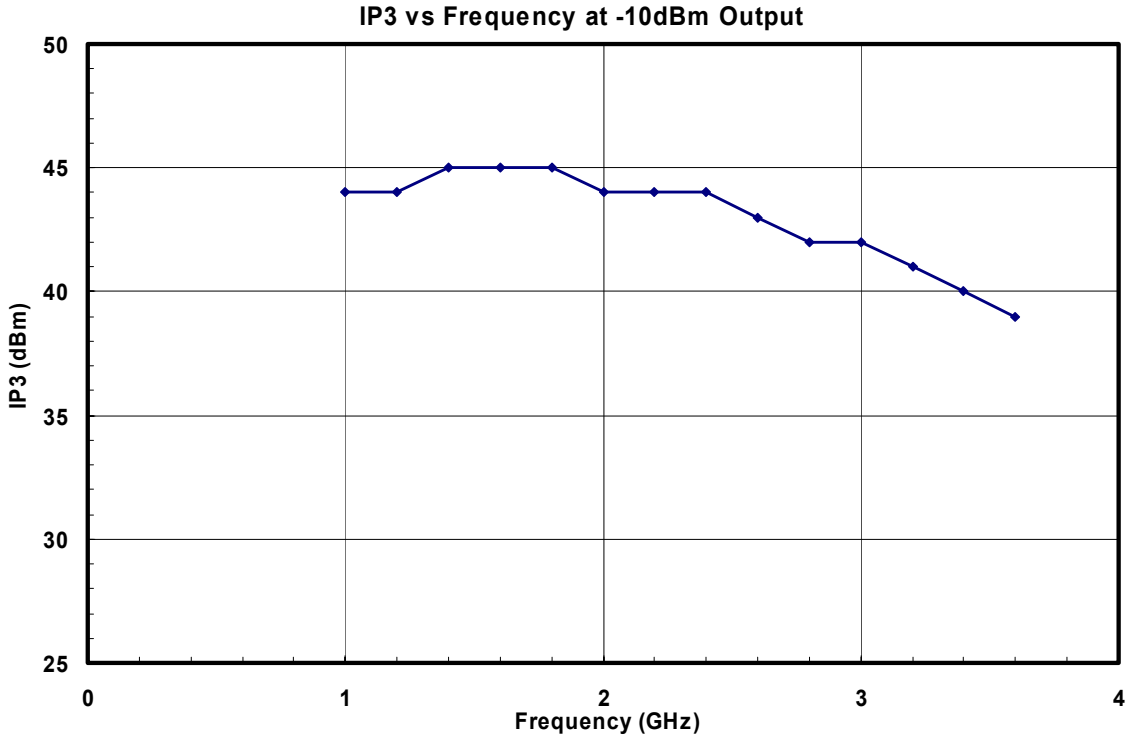
SMALL SIGNAL DATA

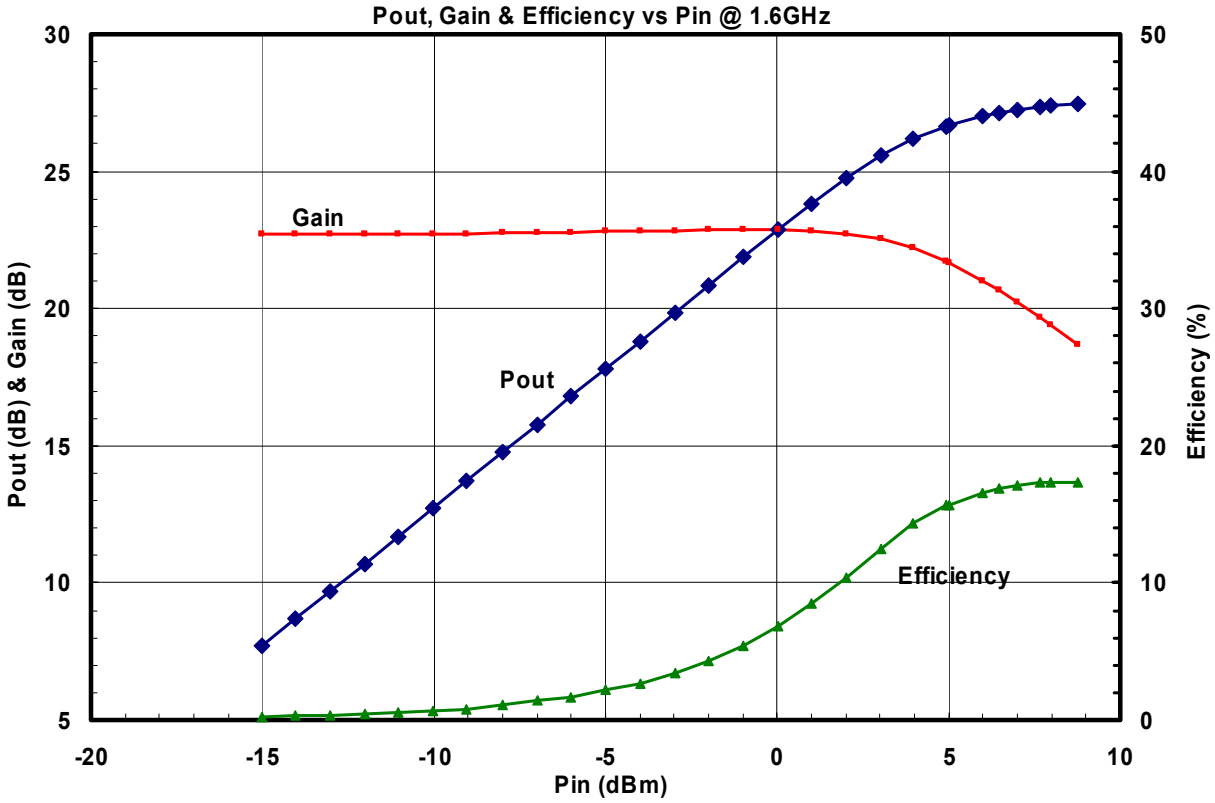


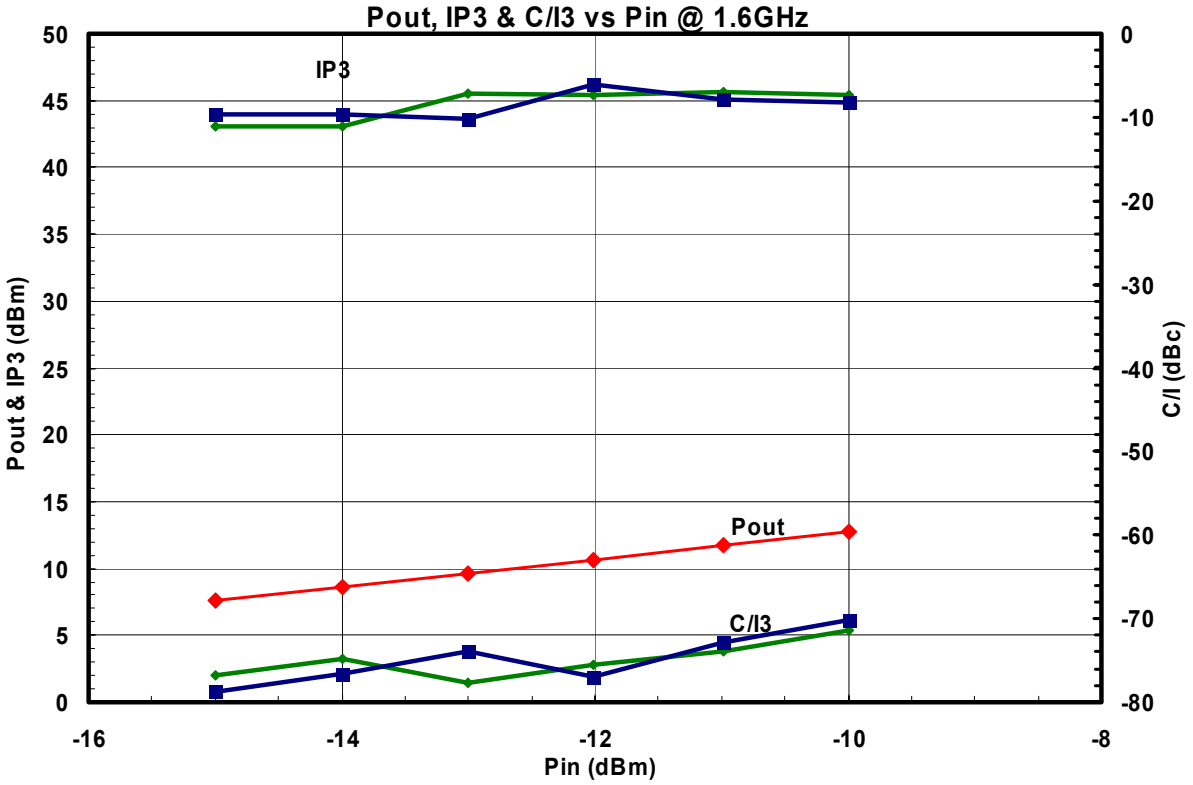
POWER DATA


P1dB, Gain & Efficiency vs Frequency
P1dB (dBm) & Gain (dB)
Efficiency (%)
Frequency (GHz)
P1dB
Gain
Efficiency
30
25
20
15
10
5
50
40
30
20
10
0
0.00
1.00
2.00
3.00
4.00

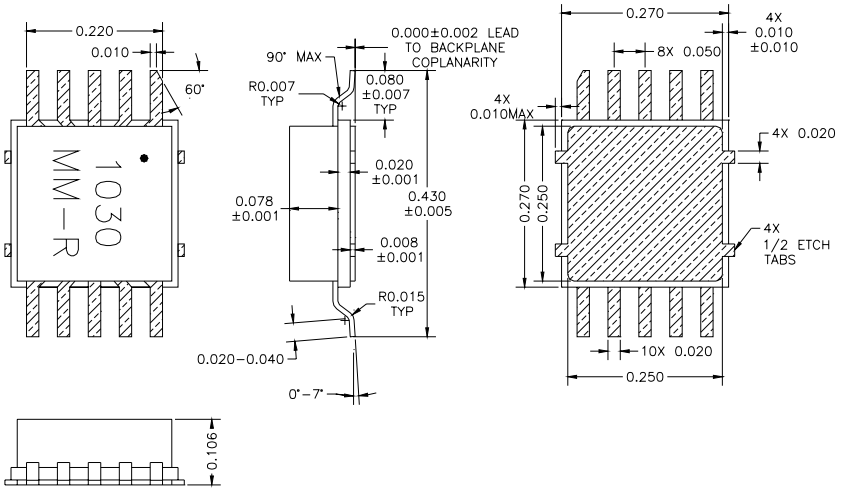

Psat, Gain & Efficiency vs Frequency
Psat (dBm) & Gain (dB)
Efficiency (%)
Frequency (GHz)
Psat
Gain
Efficiency
30
25
20
15
10
5
50
40
30
20
10
0
0.00
1.00
2.00
3.00
4.00

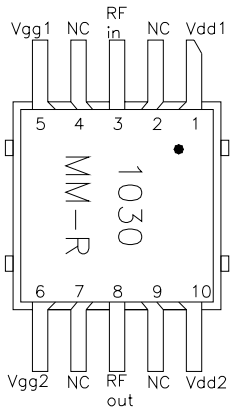

IP3 vs Frequency at -10dBm Output
IP3 (dBm)
50
45
40
35
30
25
0
1
2
3
4
Frequency (GHz)


Pout, Gain & Efficiency vs Pin @ 1.6GHz
Pout (dB) & Gain (dB)
Efficiency (%)
Gain
Pout
Efficiency
30
25
20
15
10
5
50
40
30
20
10
0
-20
-15
-10
-5
0
5
10
Pin (dBm)


Pout, IP3 & C/I3 vs Pin @ 1.6GHz
IP3
Pout
C/I3
Pout & IP3 (dBm)
C/I (dBc)
Pin (dBm)
50
45
40
35
30
25
20
15
10
5
0
0
-10
-20
-30
-40
-50
-60
-70
-80
-16
-14
-12
-10
-8

PACKAGE OUTLINE

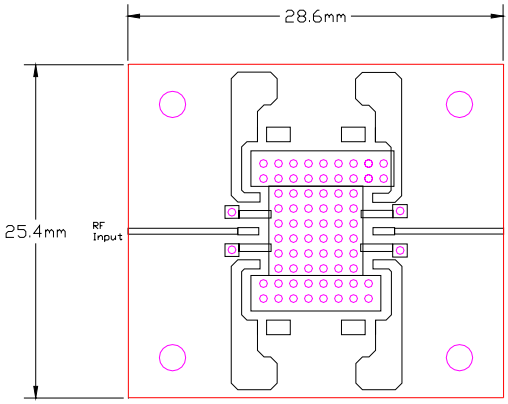


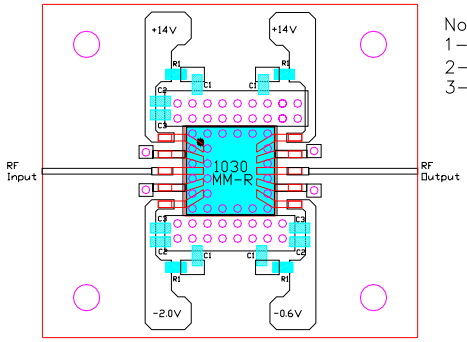


Pin Layout

Pin No.	Function	Bias
1	Vdd1	+14V
2	NC	
3	RF in	
4	NC	
5	Vgg1	-2.00V
6	Vgg2	-0.58V
7	NC	
8	RF out	
9	NC	
10	Vdd2	+14V

TEST CIRCUIT





Notes:
1– Material is 10mils FR4 with 1 Oz Copper
2– All vias are plated thru (min. via thickness = 25um)
3– R1=500hms, C1=1000pF, C2=100pF, C3=20pF