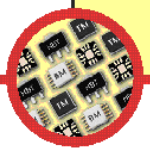
AMCOM COMMUNICATIONS
The RF Power House

GaAs MMIC Power Amplifier

AM103026MM-BM-R
AM103026MM-FM-R
Aug 2010
Rev 5



DESCRIPTION

AMCOM's AM103026MM-BM/FM-R is part of the GaAs HiFET MMIC power amplifier series that is biased at 14V. It has 22dB gain and 26dBm output power over the 0.8 to 3.6GHz band. This MMIC is in a ceramic package with both RF and DC leads at the lower level of the package to facilitate low-cost SMT assembly to the PC board. When mounting directly to PCB, please see application note AN700 for instructions. Because of high DC power dissipation, we strongly recommend to mount these devices directly on a metal heat sink. The AM103026MM-FM-R is the AM103026MM-BM-R mounted on a gold plated copper flange carrier. There are two screw holes on the flange to facilitate screwing on to a metal heat sink. This MMIC is RoHS compliant.

FEATURES

- Wide bandwidth from 0.8 to 3.6GHz
- High output power, P1dB = 26dBm
- 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	19dB	22dB	23dB
Gain Ripple		± 2.0dB	± 3.0dB
P1dB	23dBm	25dBm	
Psat	24dBm	26dBm	
IP3		43dBm	
Input Return Loss	10dB	15dB	
Output Return Loss	10dB	15dB	
Thermal Resistance		27°C/W	

*Specifications subject to change without notice.

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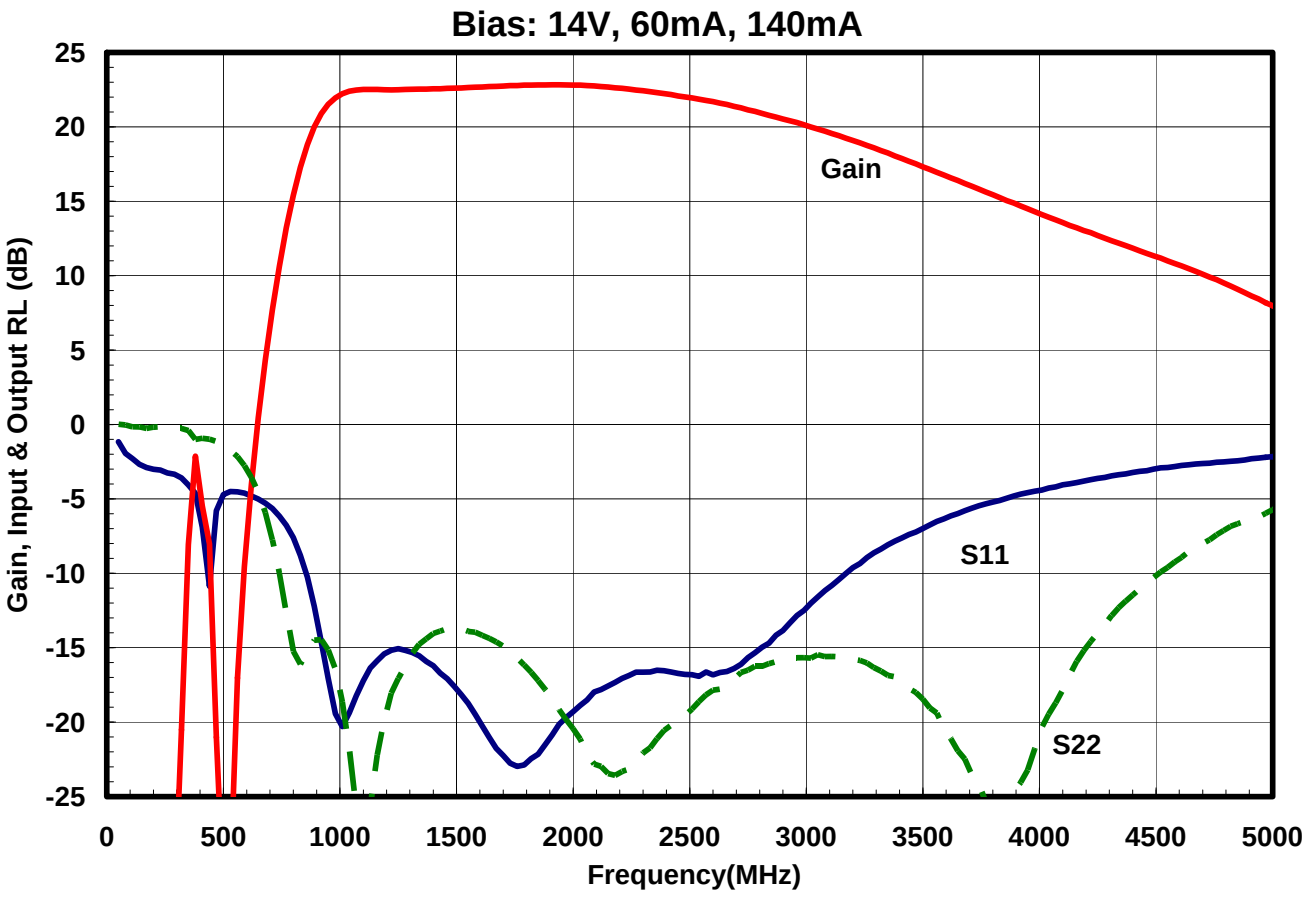
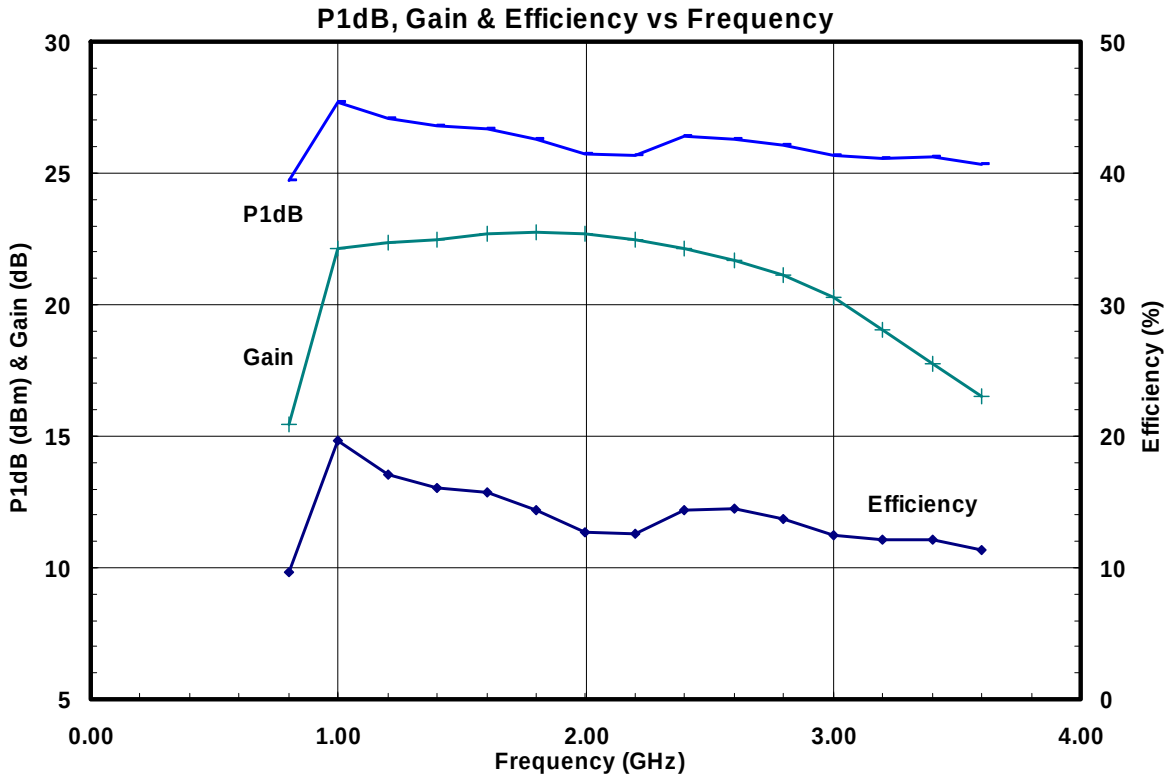
ABSOLUTE MAXIMUM RATING

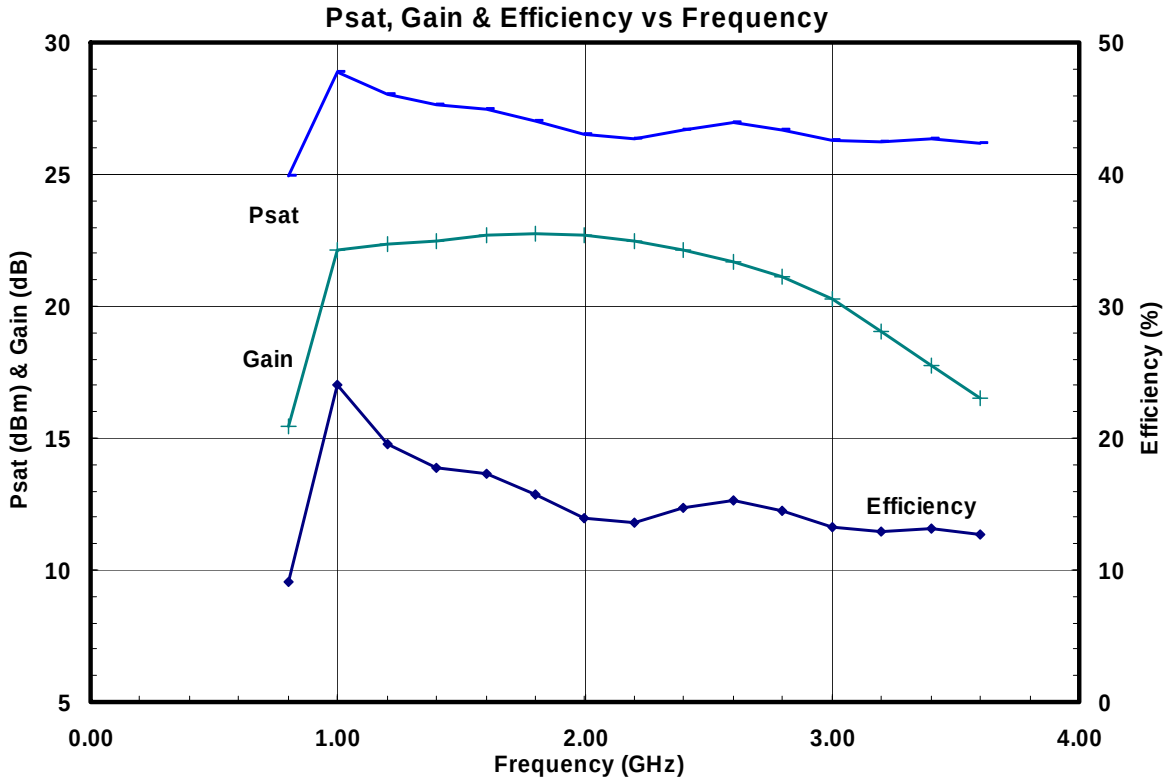
Parameters	Symbol	Rating
Drain source voltage	V_{dd}	17V
Gate source voltage	V_{gg}	-5V
Drain source current	I_{dd}	0.3A
Continuous dissipation at room temperature	P_t	5W
Channel temperature	T_{ch}	175°C
Storage temperature	T_{sto}	-55°C to +135°C

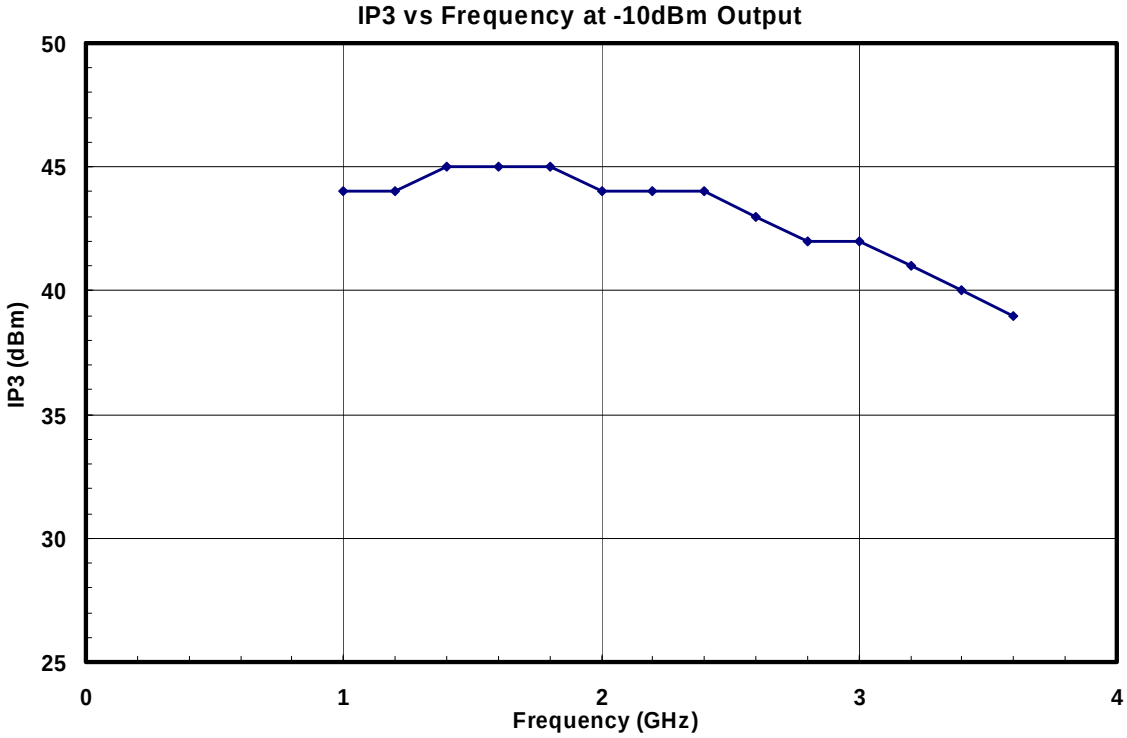
SMALL SIGNAL DATA

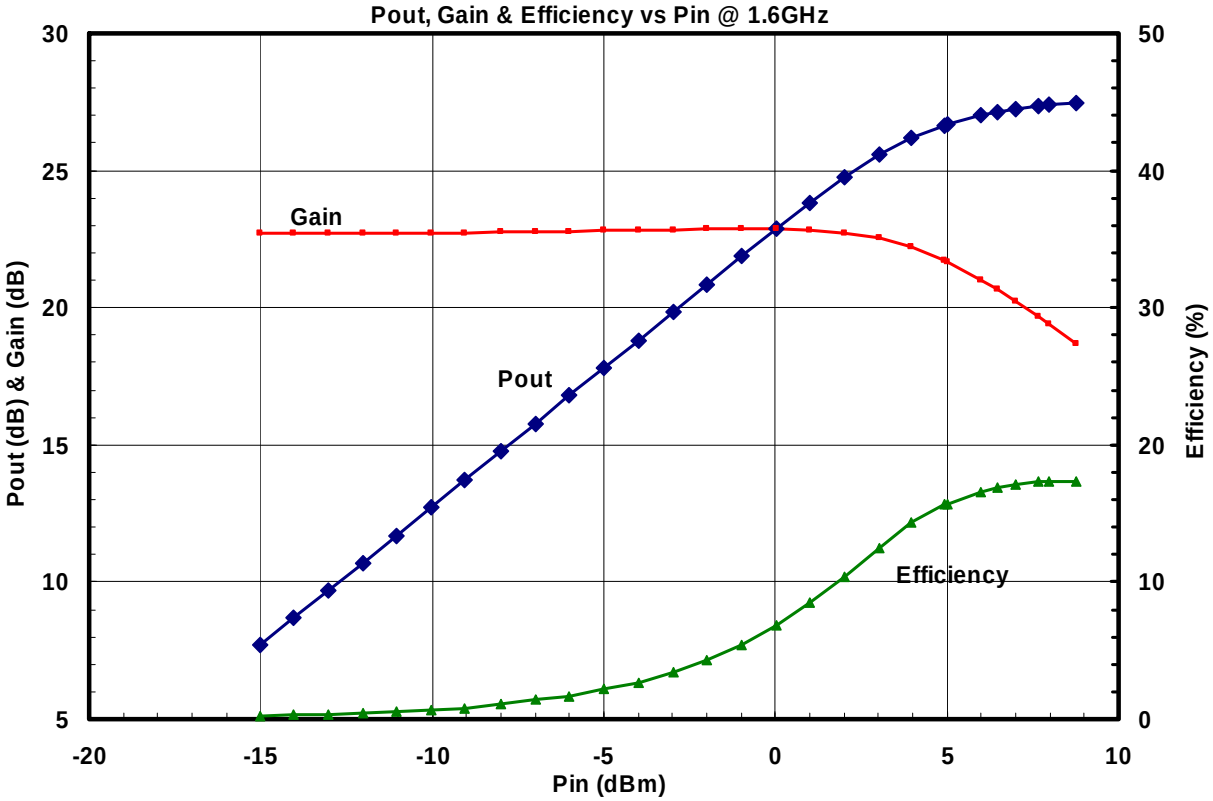


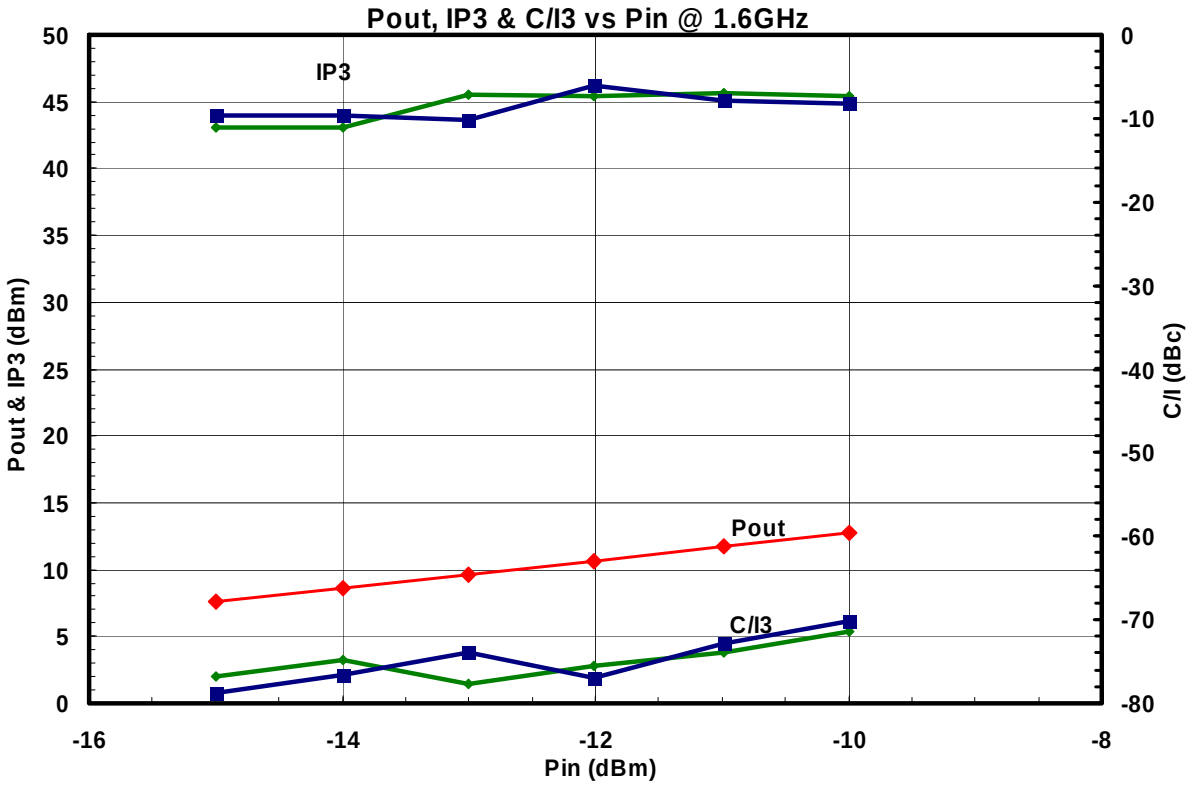
POWER DATA


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

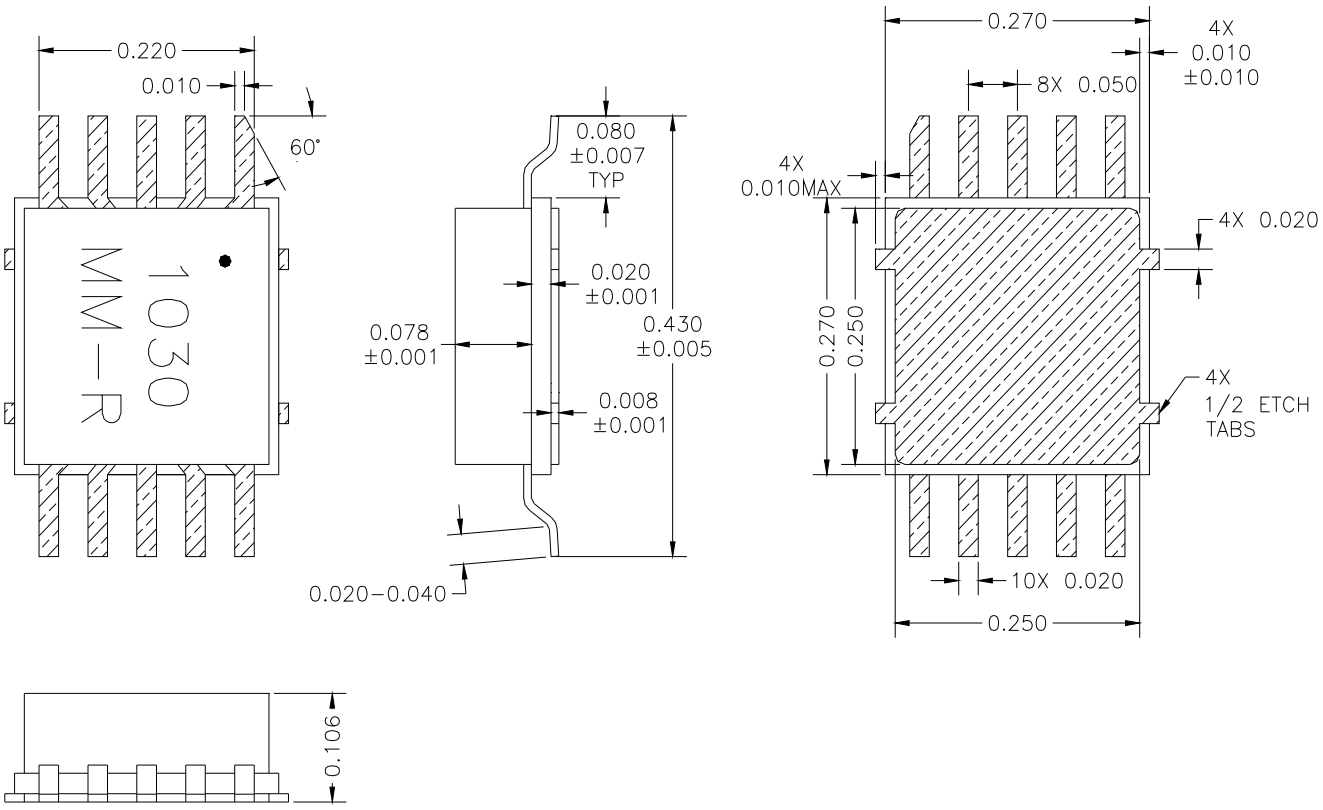

Psat, Gain & Efficiency vs Frequency
Psat (dBm) & Gain (dB)
Efficiency (%)
Frequency (GHz)
Psat
Gain
Efficiency
30
25
20
15
10
5
50
40
30
20
10
0
0.00
1.00
2.00
3.00
4.00


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

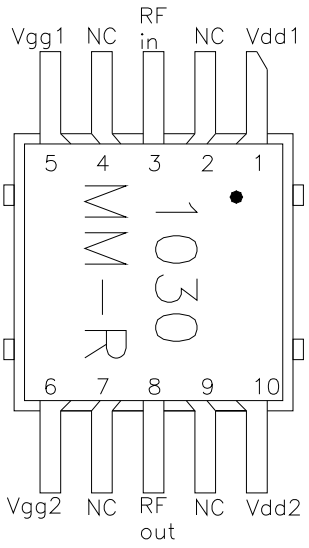

Pout, Gain & Efficiency vs Pin @ 1.6GHz
Pout (dB) & Gain (dB)
Efficiency (%)
Gain
Pout
Efficiency
30
25
20
15
10
5
50
40
30
20
10
0
-20
-15
-10
-5
0
5
10
Pin (dBm)


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 (BM)



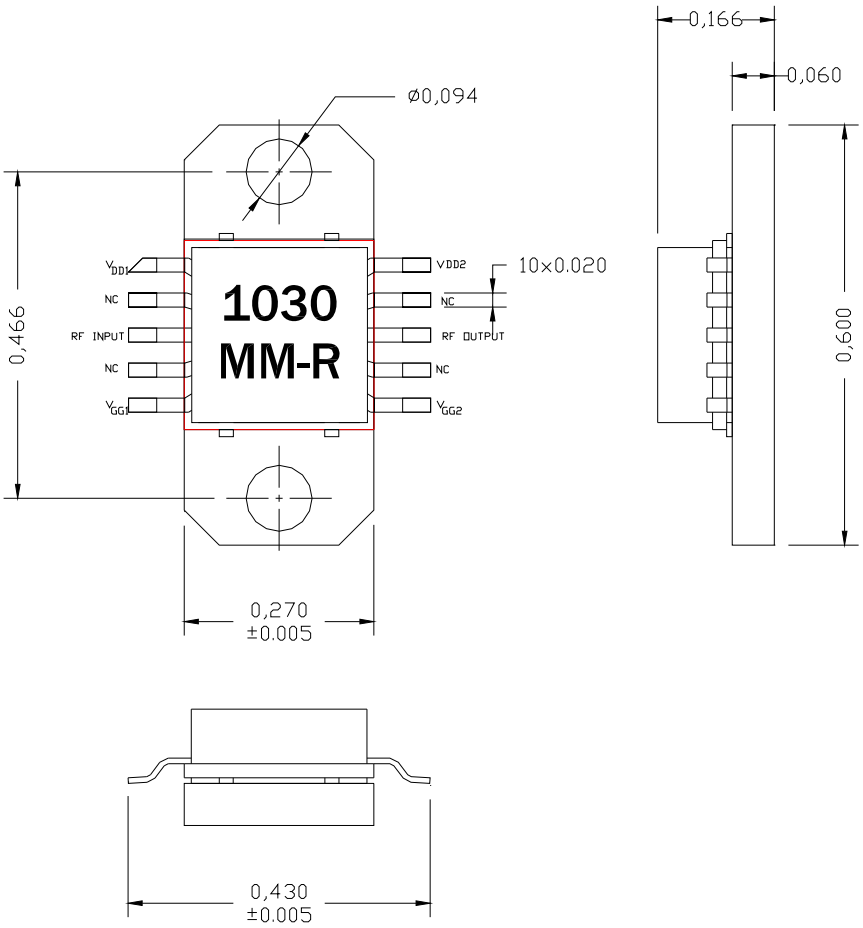
PIN LAYOUT



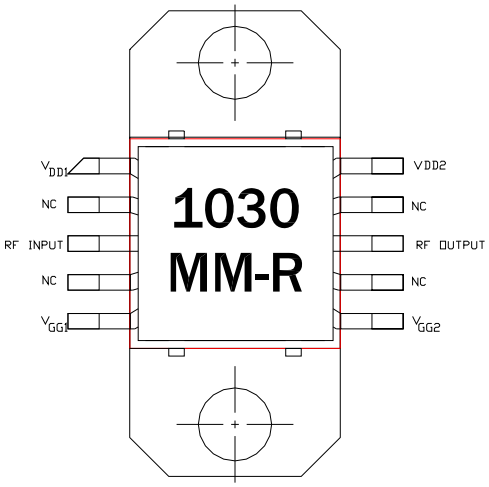
Pin No.	Function	Bias
1	Vdd1	+14V
2	NC	
3	RF in	
4	NC	
5	Vgg1	-2.00V
6	Vgg2	-0.58V
7	NC	
8	RF out	
9	NC	
10	Vdd2	+14V

* V_{gg1} & V_{gg2} may vary from lot to lot

PACKAGE OUTLINE (FM)



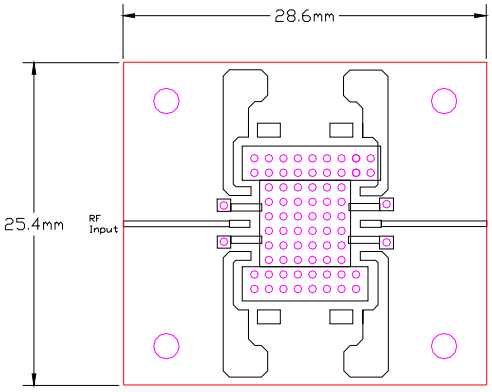
PIN LAYOUT

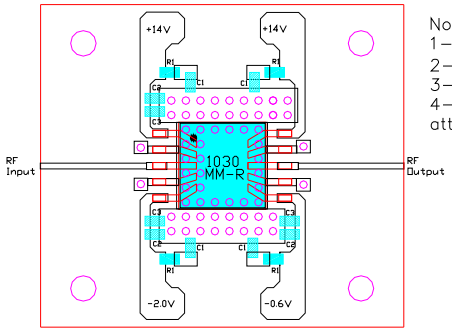


Pin No.	Function	Bias
1	Vdd1	+14V
2	NC	
3	RF in	
4	NC	
5	Vgg1	-2.00V
6	Vgg2	-0.58V
7	NC	
8	RF out	
9	NC	
10	Vdd2	+14V

* V_{gg1} & V_{gg2} may vary from lot to lot

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
4– External 1 μF dipped tantalum capacitor should be attached to Vd and Vg to decouple external bias leads.