



## DESCRIPTION

AMCOM's AM324036WM-BM/FM-R is part of the GaAs MMIC power amplifier series. It has 29dB gain and 36dBm output power over the 3.2 to 4.0GHz 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 AM324036WM-FM-R is the AM324036WM-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 3.2 to 4.0GHz
- High output power, P1dB = 36dBm
- High gain, 29dB
- Fully matched; 50-ohm input/output impedance

## APPLICATIONS

- Wireless Internet Access
- Wireless Local Loop
- Two way radio

## PERFORMANCE\* (Vds = 8V, Idq = 1200mA, TA = 25°C)

Parameters	Minimum	Typical	Maximum
Frequency	3.2 – 4.0GHz	3.0 – 4.2GHz	
Gain (Small signal)	26.5dB	29.0dB	
Gain Ripple		± 1.0dB	± 2.0dB
P1dB	35.0dBm	36.0dBm	
Psat		36.5dBm	
IP3		45.0dBm	
Efficiency	20%	25%	
Input Return Loss	12dB	20dB	
Output Return Loss	8dB	12dB	
Thermal Resistance		6.1°C/W	

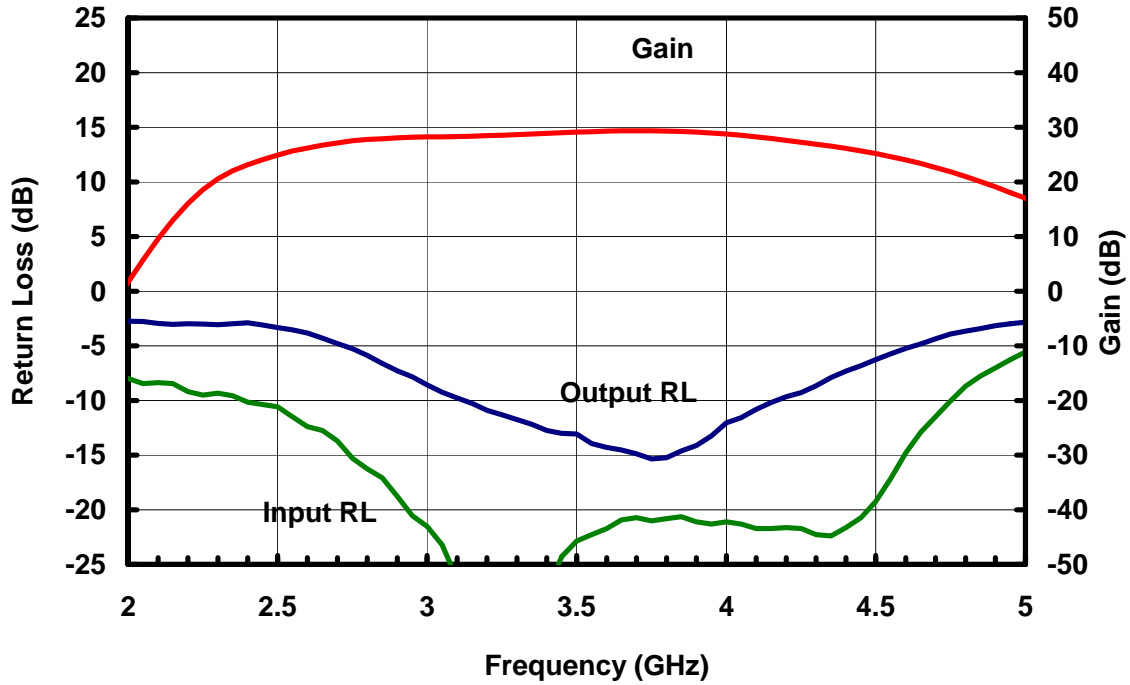
\* Specifications subject to change without notice.

## ABSOLUTE MAXIMUM RATING

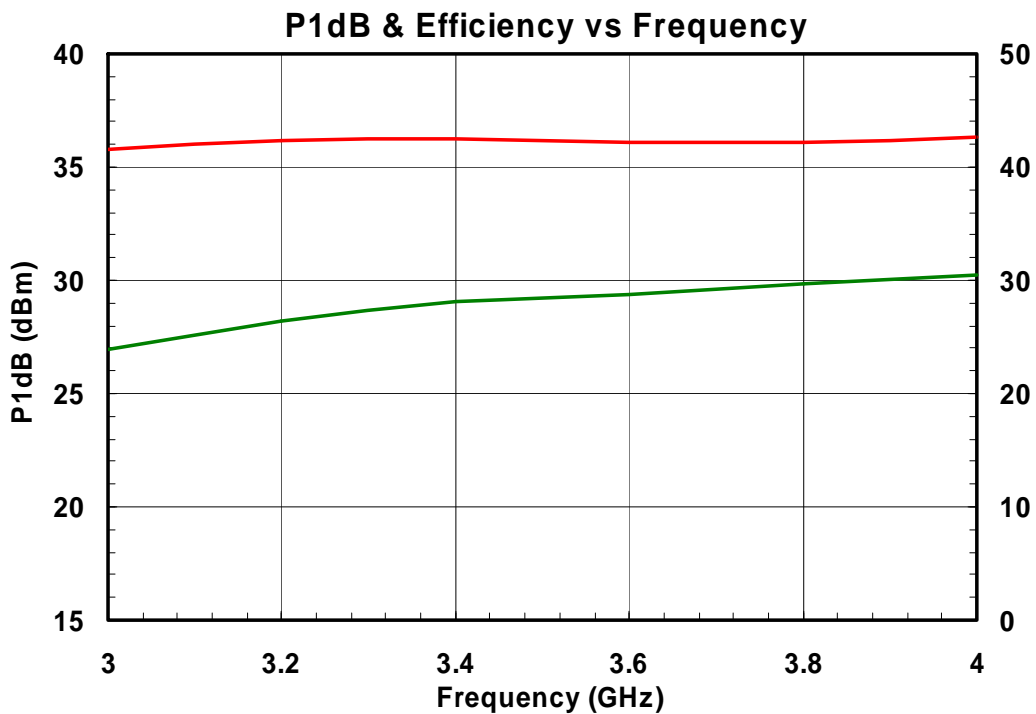
Parameters	Symbol	Rating
Drain source voltage	Vds	10V
Gate source voltage	Vgs	-5V
Drain source current	Ids	2.4A
Continuous dissipation at room temperature	Pt	24W
Channel temperature	Tch	175°C
Storage temperature	Tsto	-55°C to +135°C

SMALL SIGNAL DATA

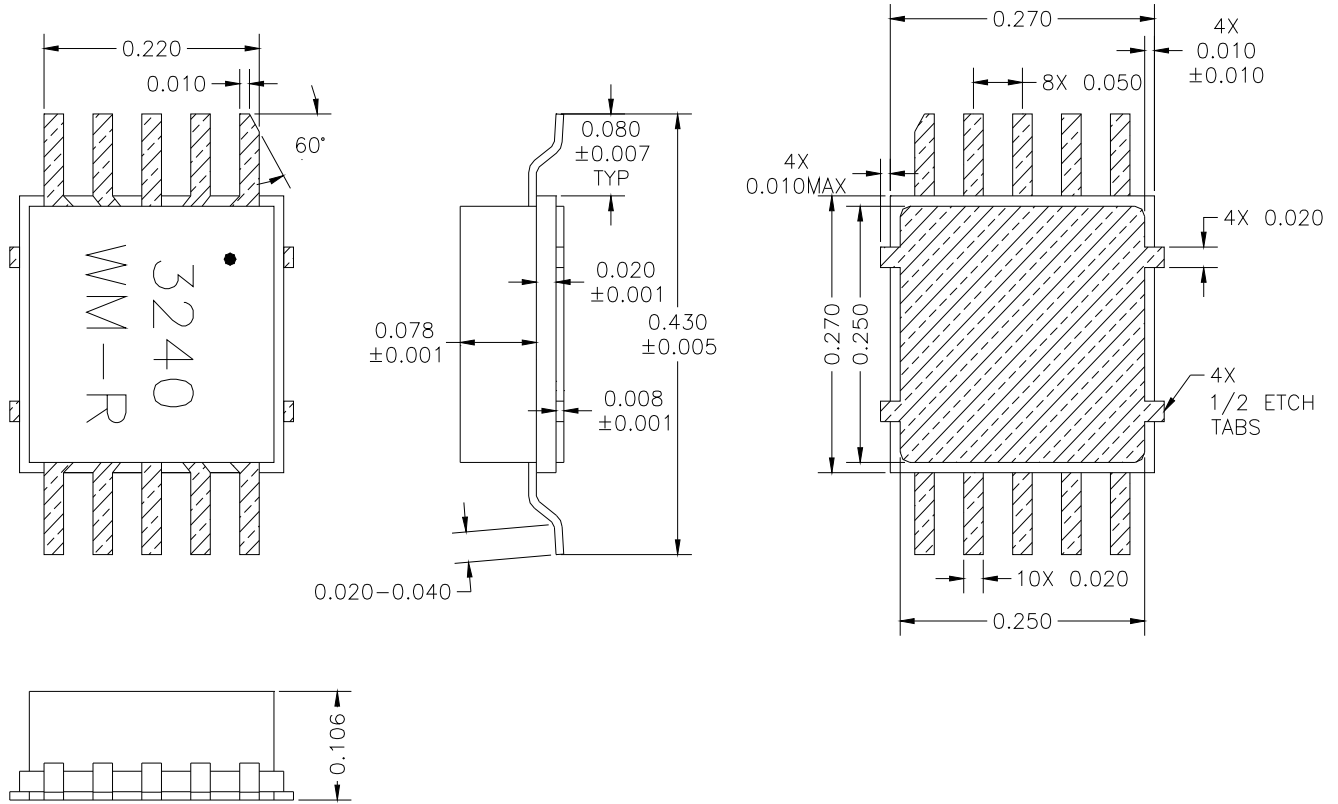
AM324036WM-BM-R (8V, 1.2A)



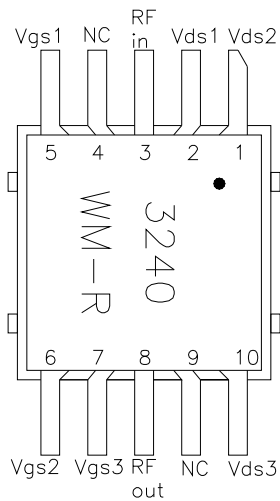
POWER DATA



**PACKAGE OUTLINE (BM)**



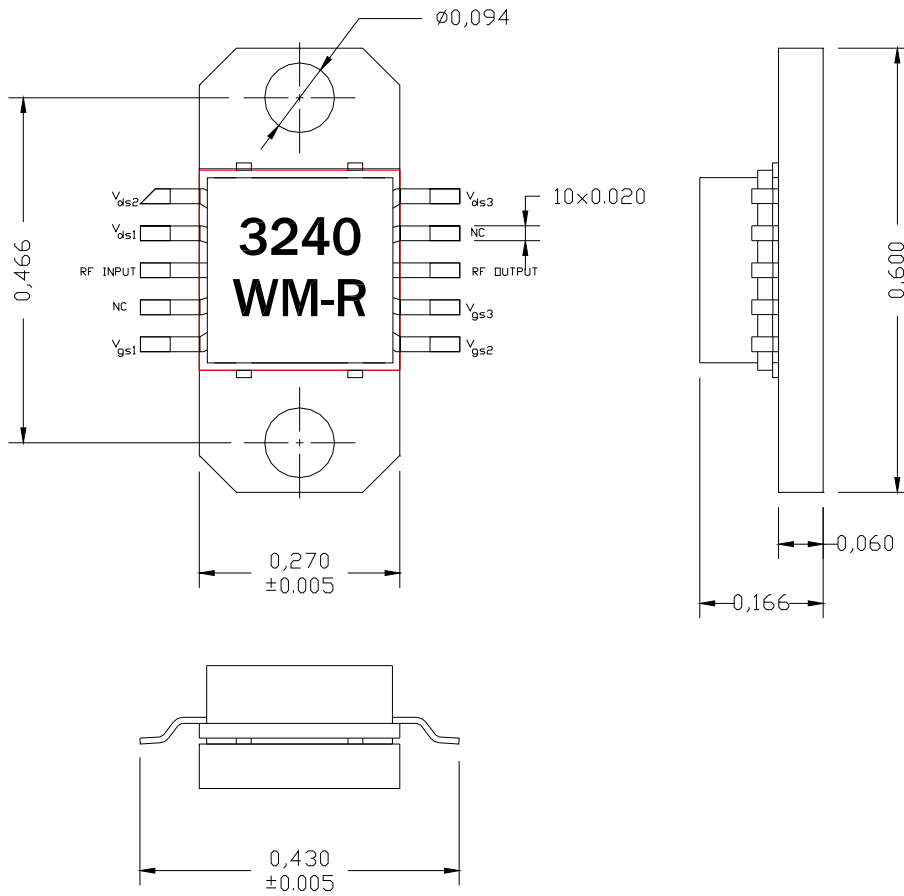
**PIN LAYOUT**



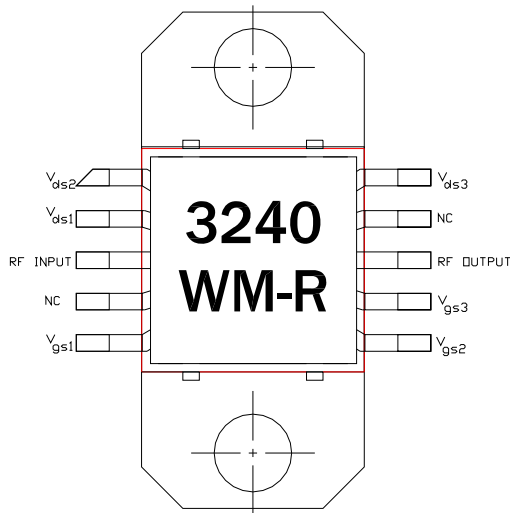
Pin No.	Function	Bias*
1	Vds2	+8V
2	Vds1	+8V
3	RF in	
4	NC	
5	Vgs1	-0.66V
6	Vgs2	-0.66V
7	Vgs3	-0.66V
8	RF out	
9	NC	
10	Vds3	+8V

\* V<sub>gs1</sub>, V<sub>gs2</sub>, & V<sub>gs3</sub> gate biases are for reference only and may vary from lot to lot

PACKAGE OUTLINE (FM)



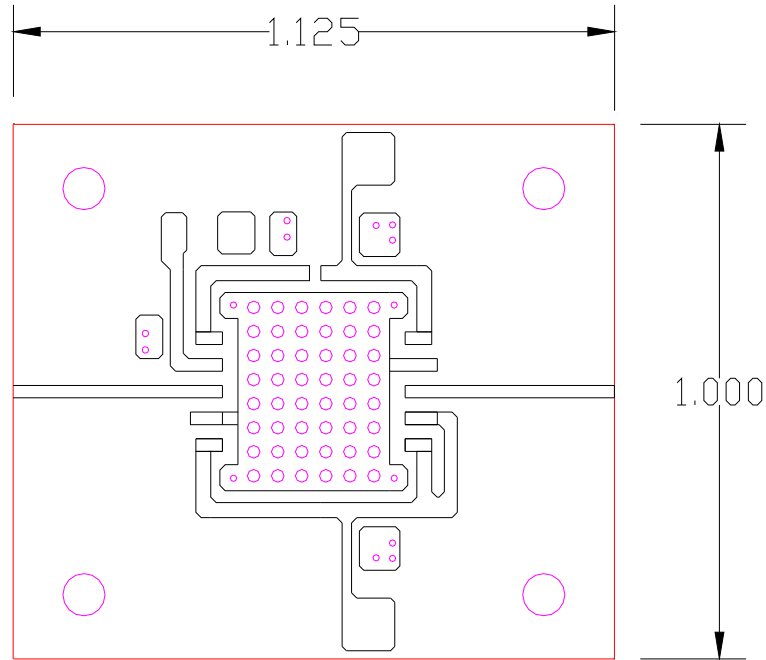
PIN LAYOUT



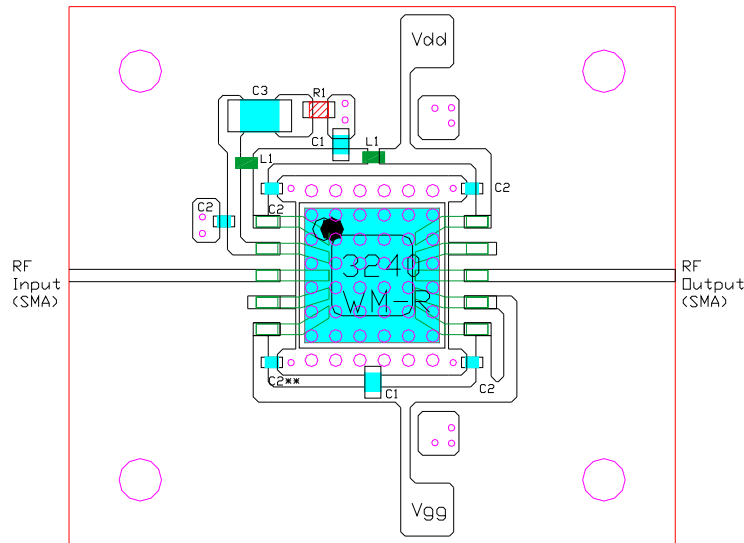
Pin No.	Function	Bias*
1	Vds2	+8V
2	Vds1	+8V
3	RF in	
4	NC	
5	Vgs1	-0.66V
6	Vgs2	-0.66V
7	Vgs3	-0.66V
8	RF out	
9	NC	
10	Vds3	+8V

\*  $V_{gs1}$ ,  $V_{gs2}$ , &  $V_{gs3}$  gate biases are for reference only and may vary from lot to lot

TEST CIRCUIT OUTLINE (BM Package)

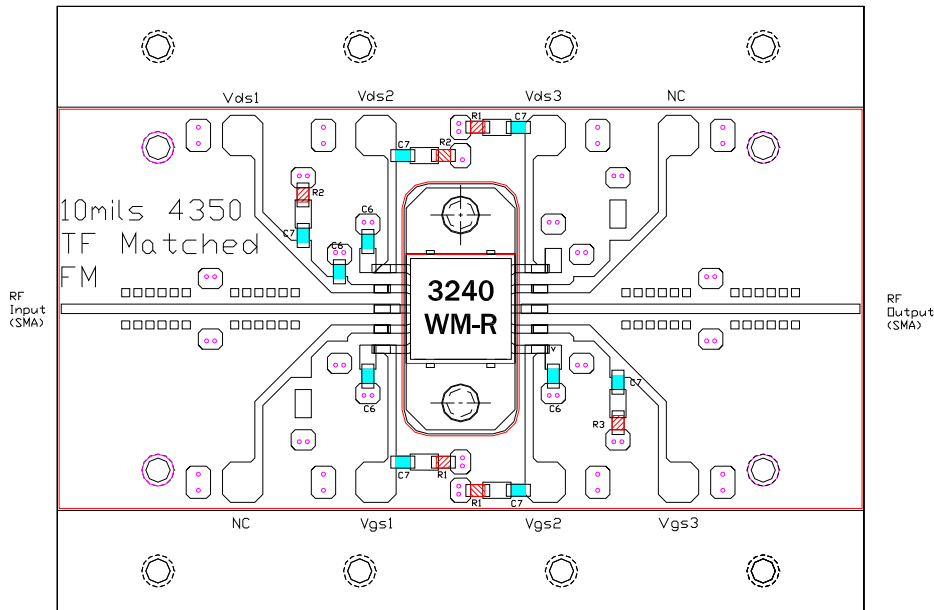


Notes:  
 1- 10mils Rogers 4350 Material  
 2- Ckt is for matched MMICs



Notes:  
 1- 10mils Rogers 4350 Material epoxied to D0007-0021A  
 2- Ckt is for matched MMICs  
 3- C1=0.56uF (0603), C2=1000pF (0402), C3=10uF (1206), R1=3 ohms (0603), L1=1nH (0402), \*\*=May be omitted  
 4- External 1  $\mu$ F dipped tantalum capacitor should be attached to Vd and Vg to decouple external bias leads.

TEST CIRCUIT OUTLINE (FM Package)



- Notes:
- 1- 10mils Rogers 4350 Material epoxied
  - 2- Ckt is for matched MMICs
  - 3- C6=20pF, C7=1000pF,  
 R1=50ohms, R2=10ohms, R3=5ohms
  - 4- All Caps & Resistors are 0603 size

**Important Notes:**

- 1- The MMIC should have a good heat sink to avoid overheating. If SMT is used use PC board thickness < 10 mils and ensure vias are filled with solder or metal to lower PCB heat resistance. MMIC could be attached on direct ground for lowest junction temperature.
- 2- Recommended current biases are 80mA, 250mA & 800mA for the first, second and third stages respectively.
- 3- Do not apply  $V_{ds1}$ ,  $V_{ds2}$  &  $V_{ds3}$  without proper negative voltages on  $V_{gs1}$ ,  $V_{gs2}$  &  $V_{gs3}$ .
- 4- The currents flowing out of the  $V_{gs1}$ ,  $V_{gs2}$  &  $V_{gs3}$  pins are less than 0.1mA, 0.5mA & 8mA at  $P_{1dB}$ .
- 5- External 1  $\mu$ F dipped tantalum capacitor should be attached to Vd and Vg to decouple external bias leads.