

## DESCRIPTION

AMCOM's AM103026MM-BM/EM/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. The EM package has the same footprint as the FM package with straight leads and a Copper/Tungsten flange instead of the Copper flange. 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\*

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

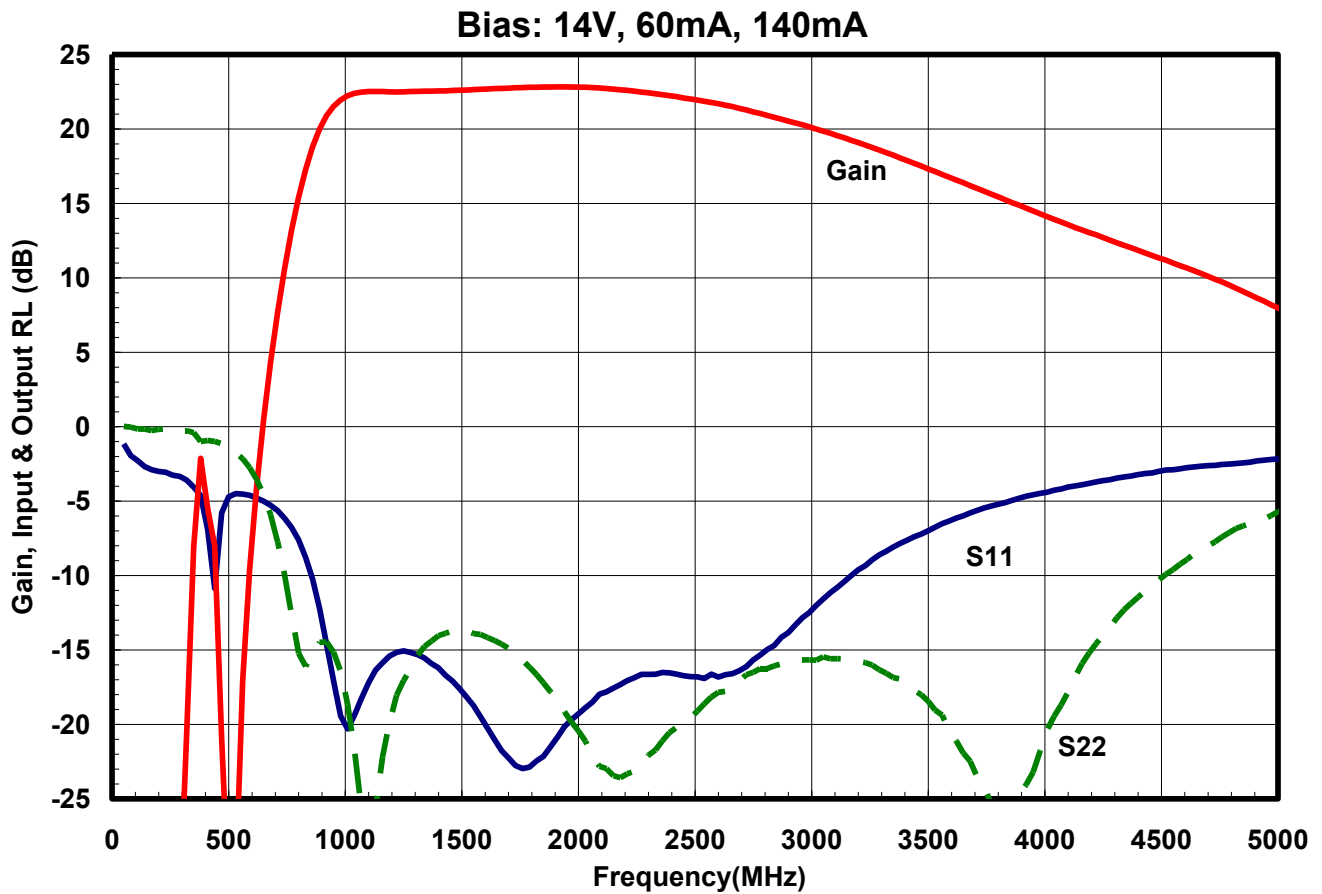
| Parameters         | Minimum | Typical      | Maximum      |
|--------------------|---------|--------------|--------------|
| Frequency          |         | 0.9 – 3.2GHz | 0.8 – 3.6GHz |
| Small Signal Gain  | 19dB    | 22dB         | 23dB         |
| Gain Ripple        |         | ± 2.0dB      | ± 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.

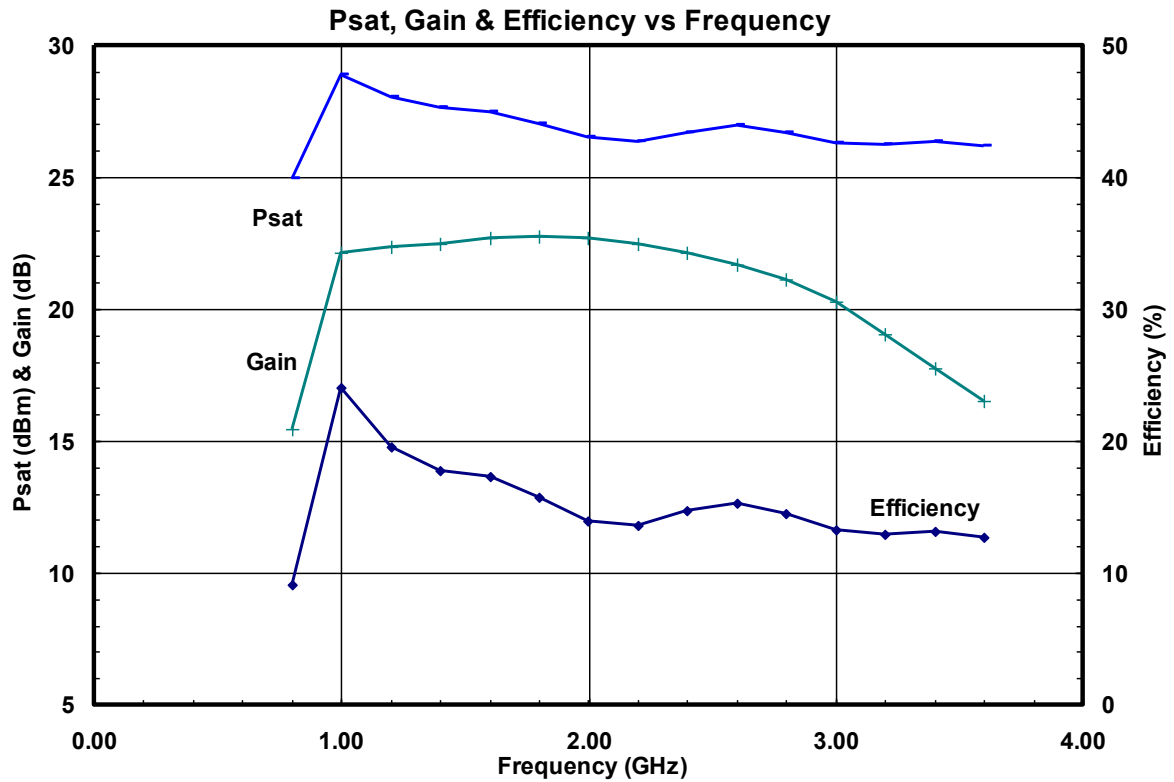
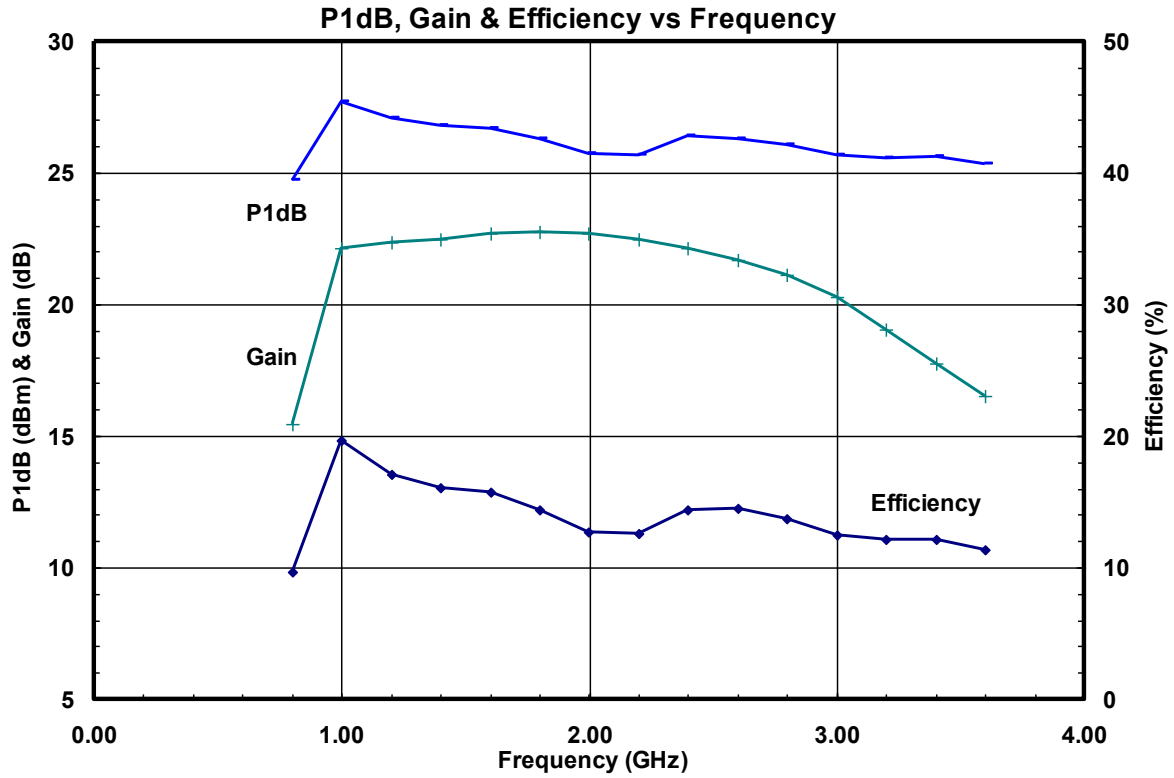
**ABSOLUTE MAXIMUM RATING**

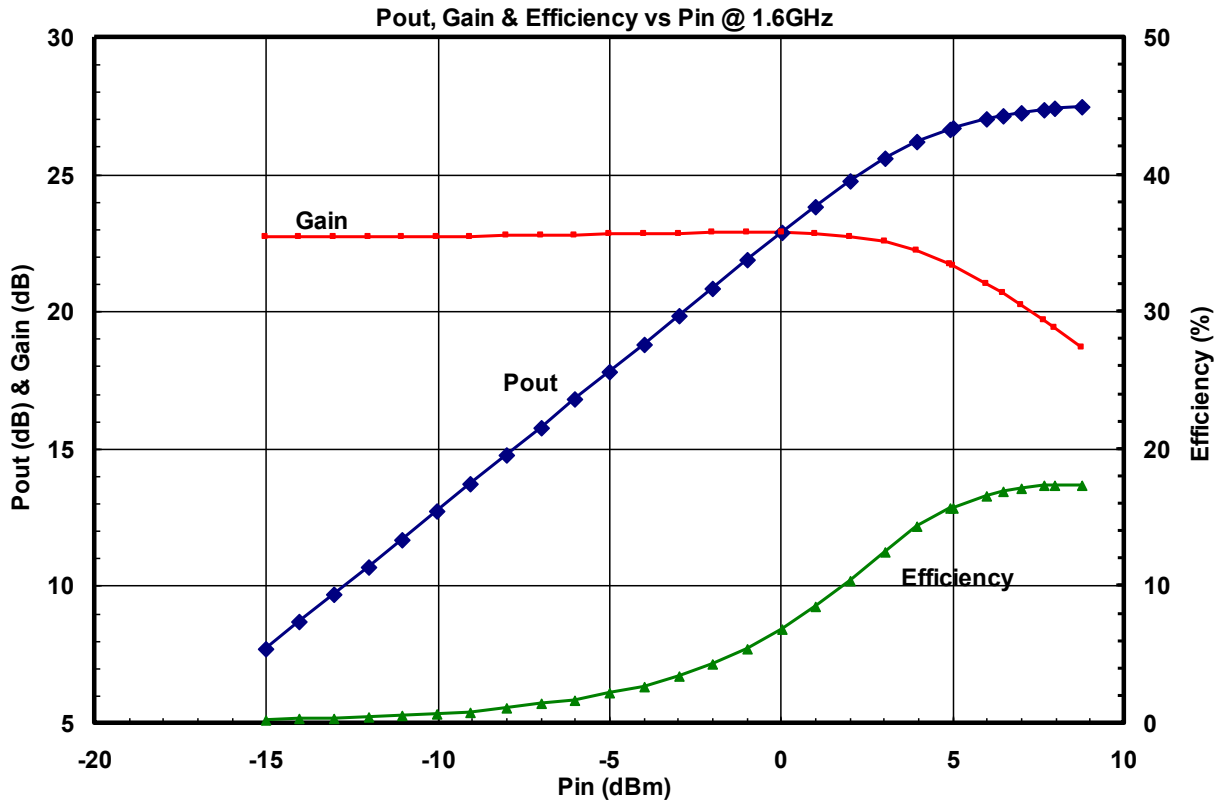
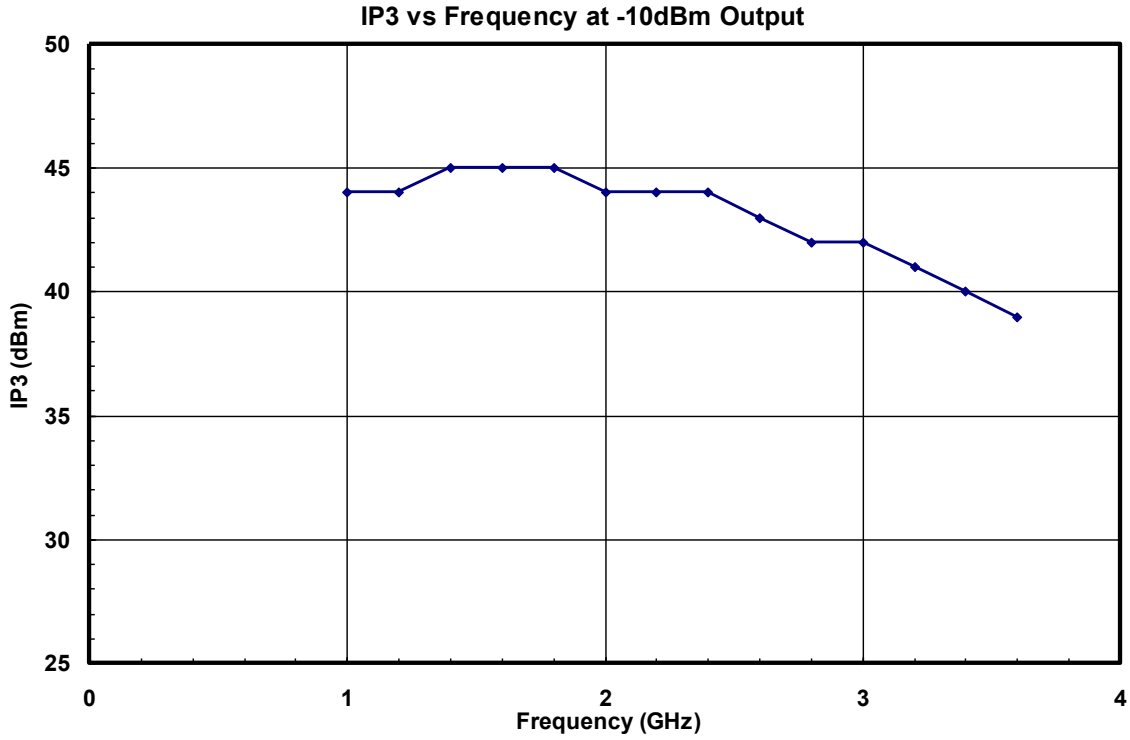
| Parameters                                 | Symbol    | Rating          |
|--|-----------|-----------------|
| Drain source voltage                       | $V_{dd}$  | 17V             |
| Gate source voltage                        | $V_{gg}$  | -5V             |
| Drain source current                       | $I_{dd}$  | 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 |

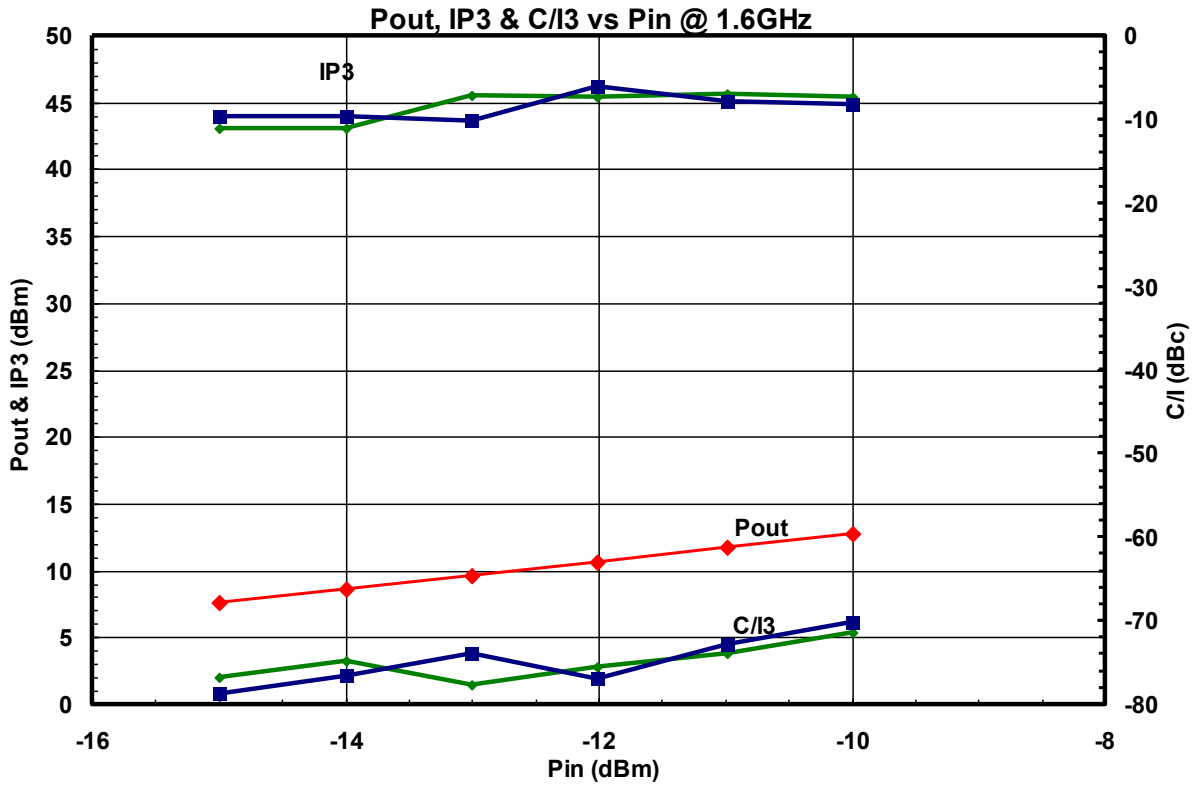
**SMALL SIGNAL DATA**



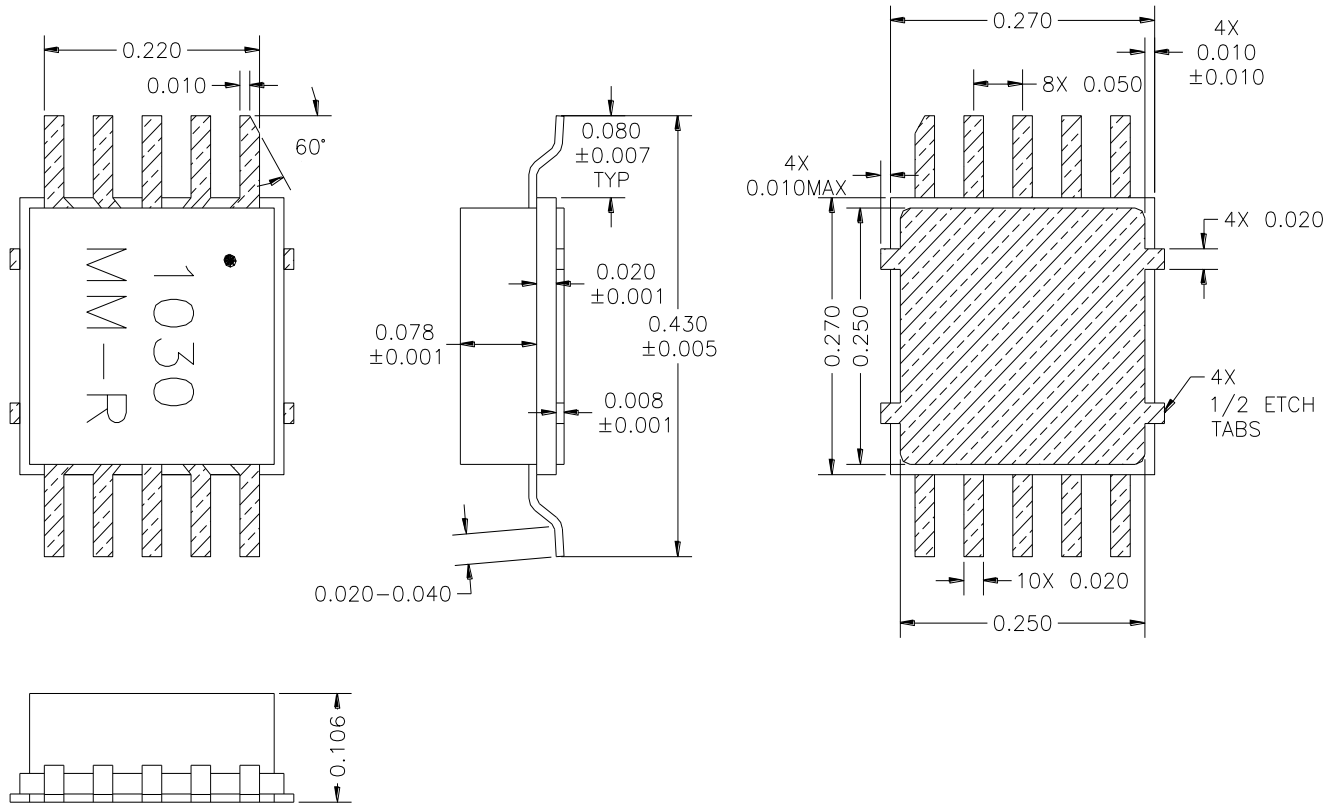
POWER DATA



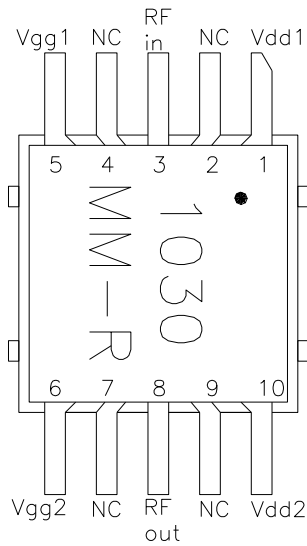




PACKAGE OUTLINE (BM)



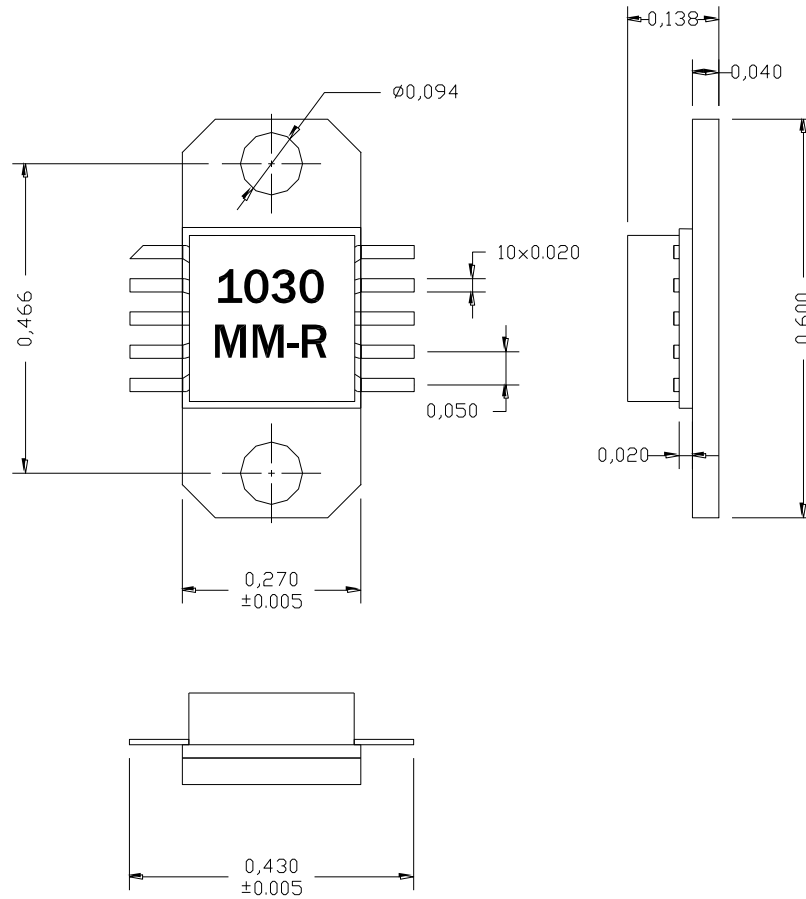
PIN LAYOUT



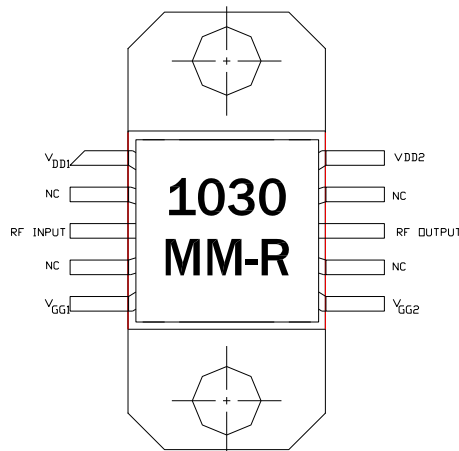
| Pin No. | Function | Bias*  |
|---------|----------|--------|
| 1       | Vdd1     | +14V   |
| 2       | NC       |        |
| 3       | RF in    |        |
| 4       | NC       |        |
| 5       | Vgg1     | -2.00V |
| 6       | Vgg2     | -0.58V |
| 7       | NC       |        |
| 8       | RF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

\* V<sub>gg1</sub> & V<sub>gg2</sub> may vary from lot to lot

PACKAGE OUTLINE (EM)\*



PIN LAYOUT

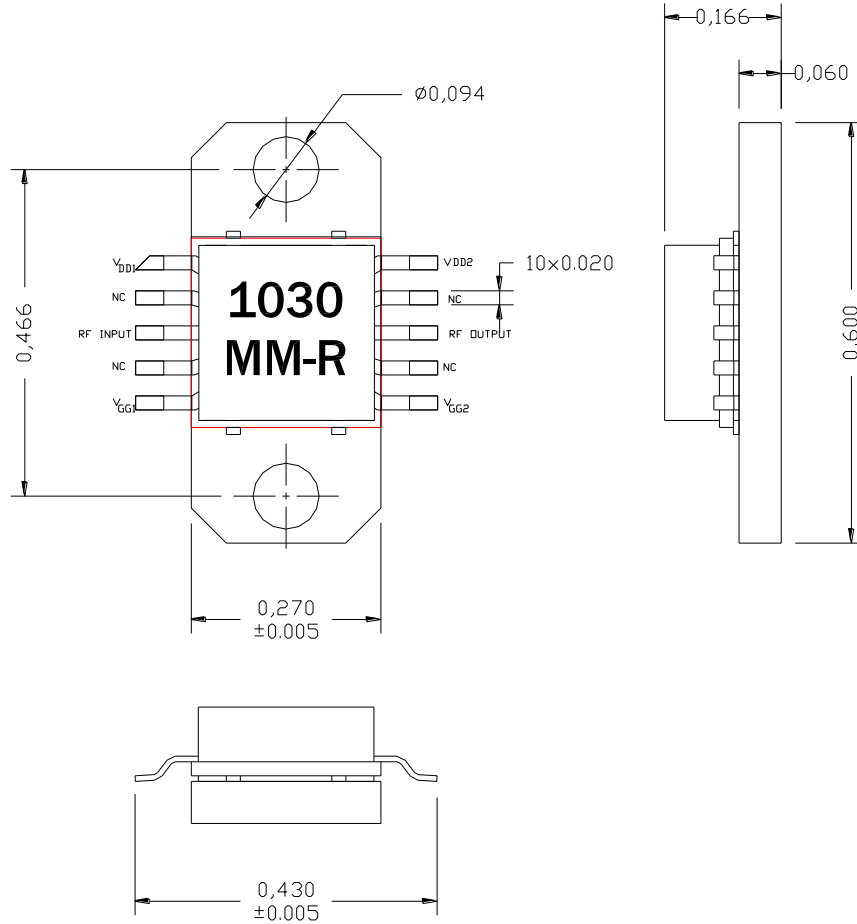


| Pin No. | Function | Bias** |
|---------|----------|--------|
| 1       | Vdd1     | +14V   |
| 2       | NC       |        |
| 3       | RF in    |        |
| 4       | NC       |        |
| 5       | Vgg1     | -2.00V |
| 6       | Vgg2     | -0.58V |
| 7       | NC       |        |
| 8       | RF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

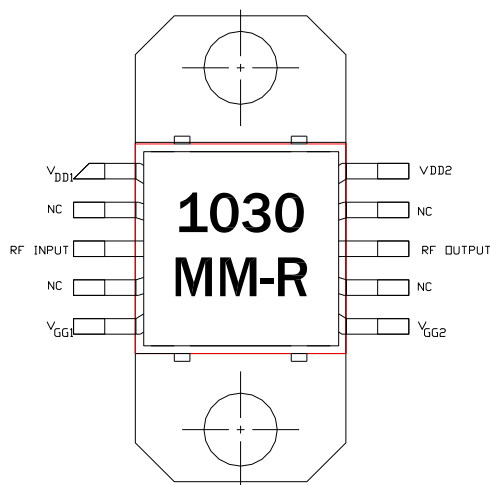
\* EM version flange is made of CuW

\*\*  $V_{gs1}$  &  $V_{gs2}$  may vary from lot to lot

PACKAGE OUTLINE (FM)\*



PIN LAYOUT



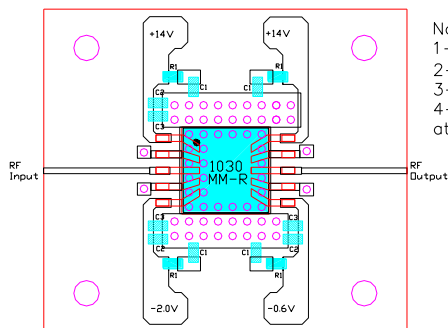
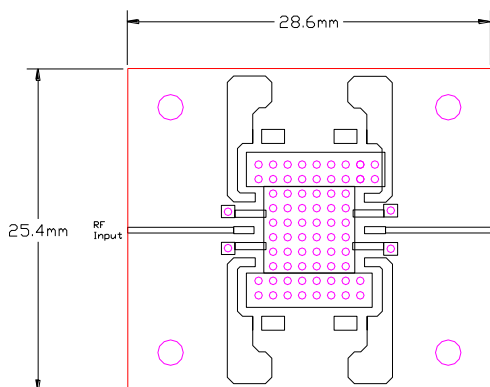
| Pin No. | Function | Bias** |
|---------|----------|--------|
| 1       | Vdd1     | +14V   |
| 2       | NC       |        |
| 3       | RF in    |        |
| 4       | NC       |        |
| 5       | Vgg1     | -2.00V |
| 6       | Vgg2     | -0.58V |
| 7       | NC       |        |
| 8       | RF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

\* FM version flange is made of Copper

\*\*  $V_{gs1}$  &  $V_{gs2}$  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  $\mu$ F dipped tantalum capacitor should be attached to Vd and Vg to decouple external bias leads.

Resistor  
Capacitor