

DESCRIPTION

AMCOM's AM254540WM-BM-R and AM254540WM-FM-R are part of the GaAs HiFET MMIC power amplifier series. These high efficiency MMICs are 2-stage GaAs pHEMT power amplifiers biased at 10 - 13V. The input and inter-stage matching networks cover 2.5 to 4.5GHz. These MMICs require output external matching to your band of interest between 2.5GHz to 4.5 GHz to provide maximum bandwidth flexibility. As an example, one of the available evaluation boards has over 17 dB gain, 10 watts (40dBm) saturated output power over the 3.4 to 3.6GHz band at 12V. The BM package RF and DC leads are coplanar with the bottom level of the package, which serves as ground, to facilitate low-cost SMT assembly to the PC board. Because of high DC power dissipation, we strongly recommend to mount this device directly on a metal heat sink. The FM package is the BM package mounted on a copper flange carrier. There are two screw holes on the flange to facilitate screwing on to a metal heat sink. Both MMICs are RoHS compliant.

FEATURES

- Frequency applications from 2.5 to 4.5 GHz
- High output power, P1dB = 38 dBm
- High gain > 17 dB
- Input matched from 2.5GHz to 4.5GHz
- High efficiency > 35%

APPLICATIONS

- WiMAX
- MMDS
- WLAN Repeaters
- 12V Applications

TYPICAL PERFORMANCE FOR 3.2 to 3.8 GHz TEST FIXTURE*

Performance at $V_{dd} = +12V$, $V_{gs} = -0.97V^{**}$, $I_{dq} = 1300mA$, $T_a = 25^{\circ}C$

Parameters	Minimum	Typical	Maximum
Frequency	3.4 – 3.6 GHz	3.2 – 3.8 GHz	
Small Signal Gain	15 dB	17 dB	
Gain Ripple	-	± 1.0 dB	± 2.0 dB
P1dB	37 dBm	38 dBm	-
Psat	-	39 dBm	-
IP3	-	45 dBm	-
Efficiency @ P1dB	-	35 %	
Input Return Loss	8 dB	10dB	
Output Return Loss	-	5dB	
Thermal Resistance		5 °C/W	

*Specifications subject to change without notice.

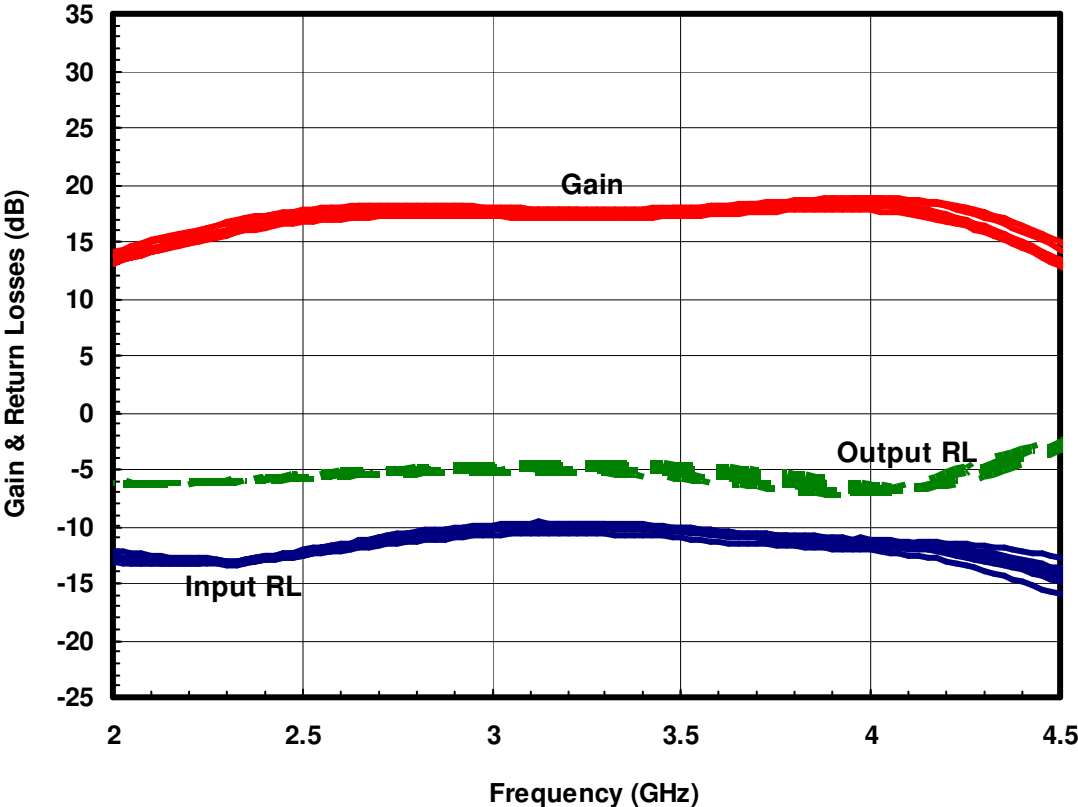
** V_{gs} may vary from lot to lot

ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Rating
Drain source voltage	V_{dd}	13 V
Gate source voltage	V_{gs}	-3 V
Drain source current	I_{dd}	1.5 A
Continuous dissipation at room temperature	P_t	25 W
Channel temperature	T_{ch}	175 °C
Storage temperature	T_{sto}	-55°C to +135°C

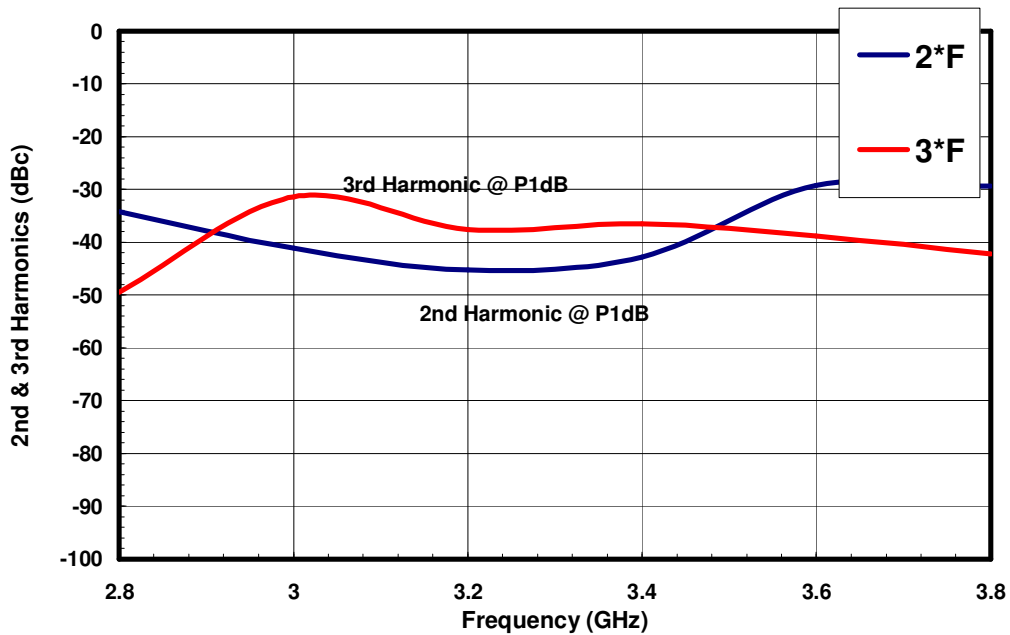
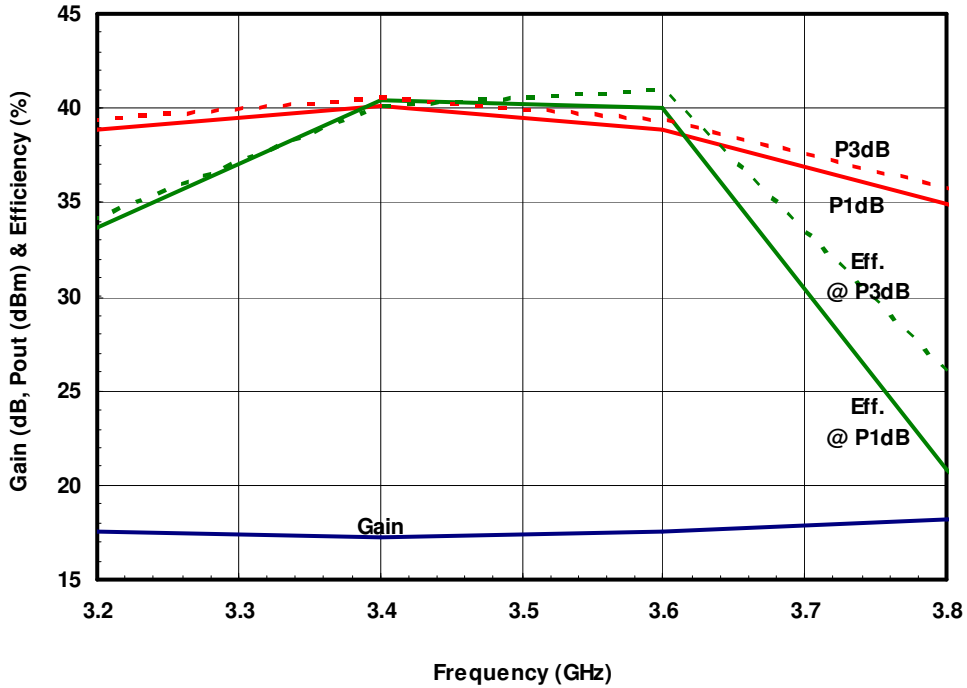
SMALL SIGNAL DATA

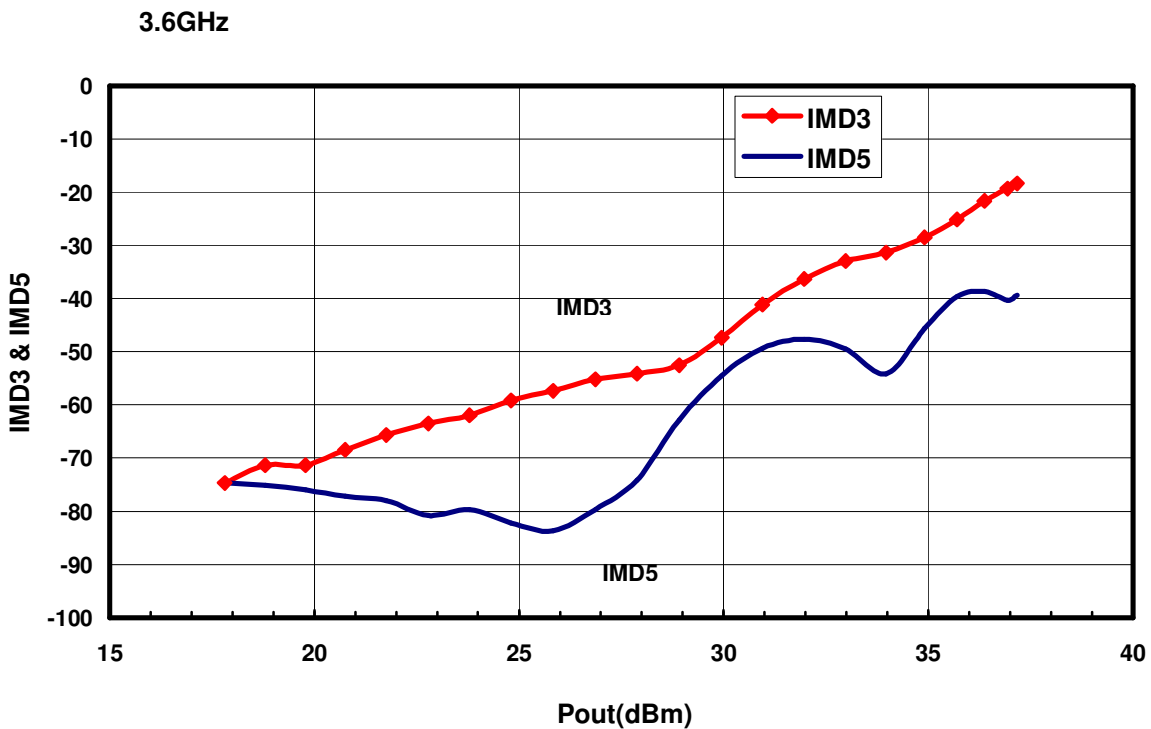
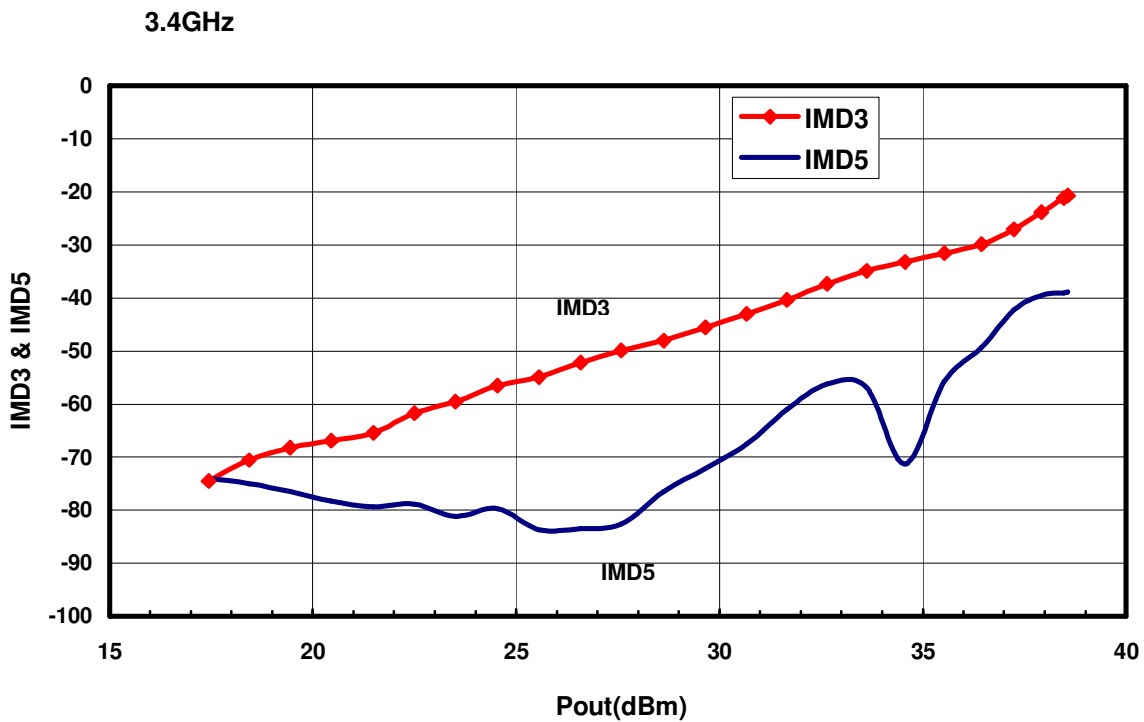
3.2 – 3.8GHz Matching Circuit
MMIC Bias: $V_{dd}=+12V$, $I_{dd}= 1.3A$, $V_{gs}=-0.97V$



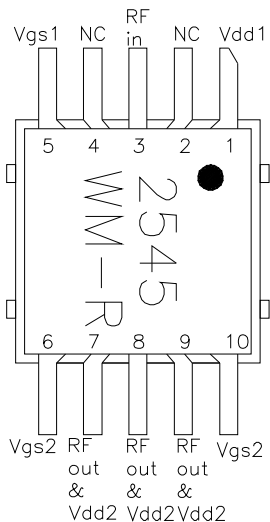
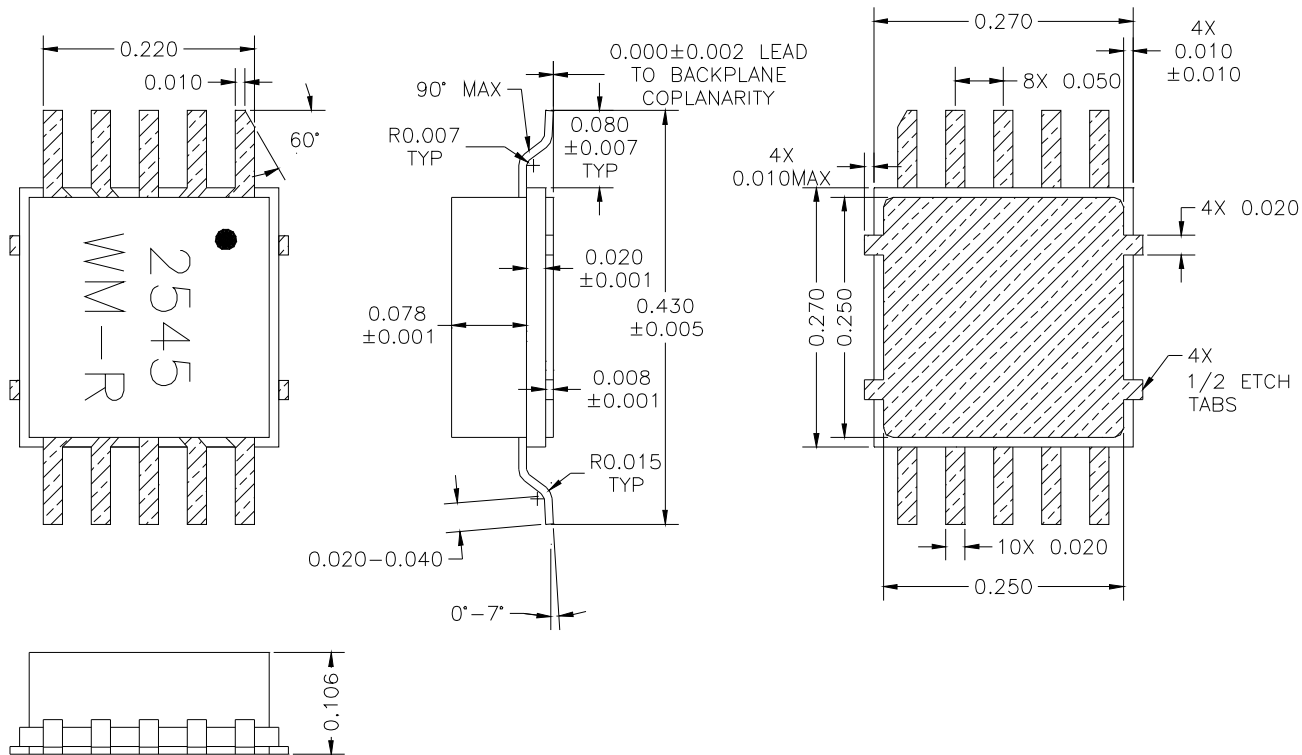
POWER DATA of 3.2 to 3.8GHz TEST BOARD

$V_{dd}=+12V, I_{dd1}=0.3A, I_{dd2}=1.0A$





PACKAGE OUTLINE (BM)

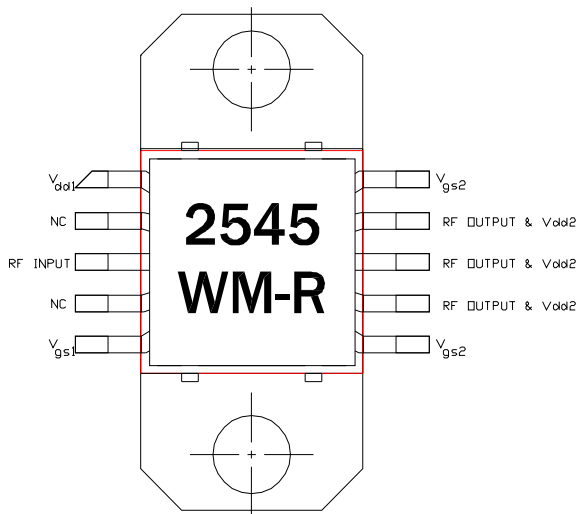
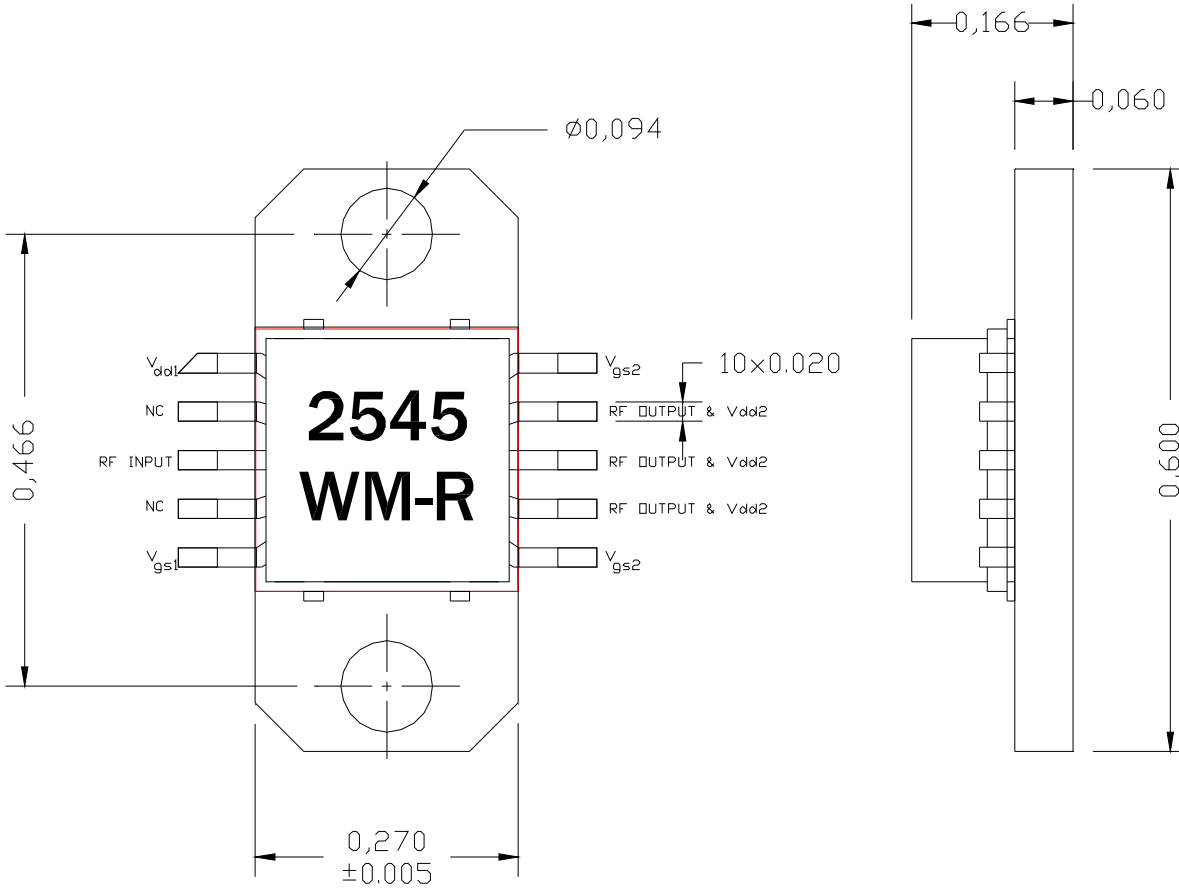


Pin No.	Function	Bias*
1	Vdd1	+12V
2	NC	
3	RF in	
4	NC	
5	Vgs1	-0.97V
6	Vgs2	-0.97V
7	RF out & Vdd2	+12V
8	RF out & Vdd2	+12V
9	RF out & Vdd2	+12V
10	Vgs2	-0.97V

Pin Layout

* V_{gs1} , V_{gs2} , may vary from lot to lot

PACKAGE OUTLINE (FM)

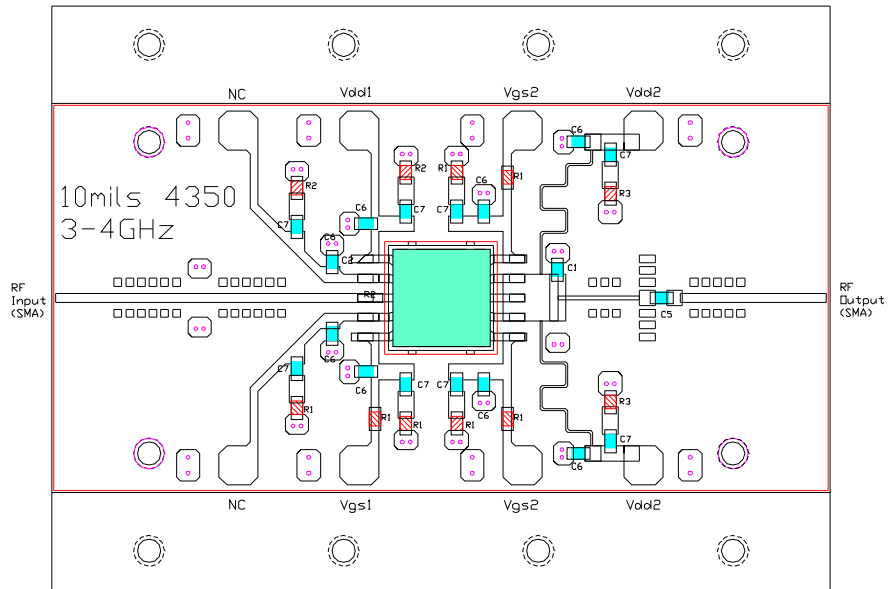


Pin No.	Function	Bias*
1	Vdd1	+12V
2	NC	
3	RF in	
4	NC	
5	Vgs1	-0.97V
6	Vgs2	-0.97V
7	RF out & Vdd2	+12V
8	RF out & Vdd2	+12V
9	RF out & Vdd2	+12V
10	Vgs2	-0.97V

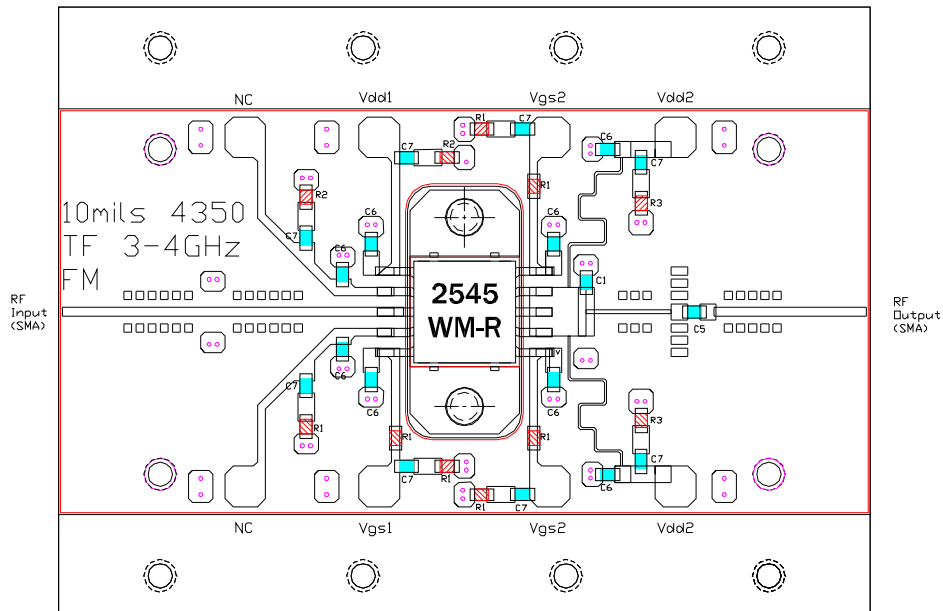
Pin Layout

* V_{gs1} , V_{gs2} , may vary from lot to lot

3.2 to 3.8GHz TEST CIRCUITS



- Notes:
- 1- 10mils Rogers 4350 Material epoxied
 - 2- Ckt is for un-matched MMICs
 - 3- C1=0.5pF, C5=10.0pF, C6=20pF, C7=1000pF,
R1=50ohms, R2=10ohms, R3=50ohms
 - 4- All Caps & Resistors are 0603 size



- Notes:
- 1- 10mils Rogers 4350 Material epoxied
 - 2- Ckt is for 3-4GHz un-matched MMICs
 - 3- C1=0.5pF, C5=10.0pF, C6=20pF, C7=1000pF,
R1=50ohms, R2=10ohms, R3=50ohms
 - 4- All Caps & Resistors are 0603 size