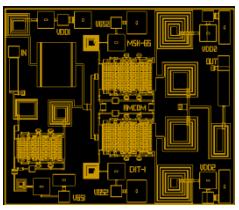
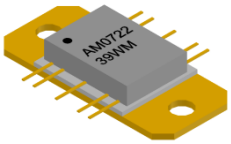
GaAs MMIC Power Amplifier

AM072239WM-00-R
AM072239WM-SN-R
December 2012
Rev0

DESCRIPTION





AMCOM's AM072239WM is a broadband GaAs MMIC Power Amplifier. It has a nominal CW performance of 30dB small signal gain, and 39dBm (8W) saturated output power over the 0.7 to 2.2GHz band. The MMIC is offered in both chip (-00-R) and package (-SN-R) forms. The AM072239WM-SN-R is in a ceramic package with a flange and straight RF and DC leads for drop-in assembly. Because of high DC power dissipation, good heat sinking is required, and the chip MMIC has to be mounted using eutectic soldering directly on a metal ridge. Both chip and package are RoHS compliant.

FEATURES

- Wide bandwidth from 0.7 to 2.2GHz
- 39dBm of saturated CW output power
- High gain, 30dB
- Input /Output matched to 50 Ohms

APPLICATIONS

- Commercial telecom transmission equipment
- Fixed microwave backhaul
- Commercial 2-way radio

TYPICAL PERFORMANCE * ($V_{dd1,2}$ = 28V, I_{ddq1} = 0.2A, I_{ddq2} = 0.6A, $V_{gs1,2}$ = -0.90V)

Parameters	Minimum	Typical **	Maximum
Frequency	0.8 – 2.0GHz	0.7 – 2.2 GHz	
Small Signal Gain	27 dB	30 dB	33 dB
Gain Ripple		± 1 dB	± 3.0 dB
P_{1dB}		38 dBm	
P_{3dB}	37 dBm	39 dBm	
Efficiency @ P_{3dB}		25%	
Noise Figure		-	10 dB
IP3 @ 1.5GHz		TBD	
Input Return Loss		15 dB	
Output Return Loss		3 dB	
Thermal Resistance		4 °C/W	

* Notes:
1- Specifications are subject to change without notice.
2- $V_{gs1,2}$ should be adjusted to -0.90V approximately to get the specified currents, and will vary slightly from one unit to another.
3- Measurements are done in CW mode.

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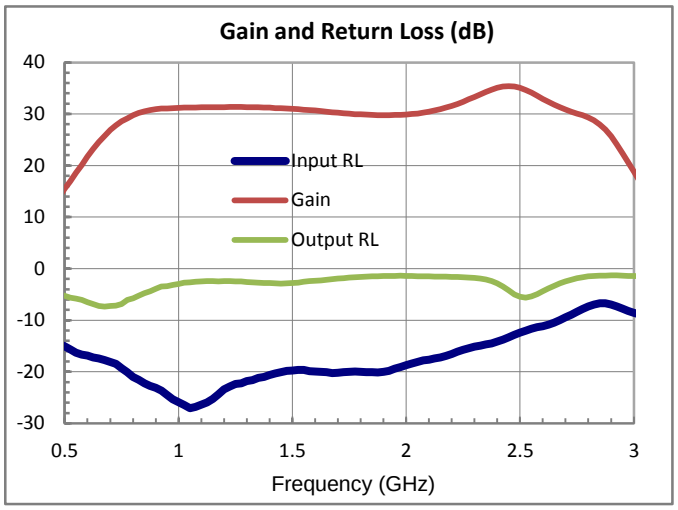
ABSOLUTE MAXIMUM RATING

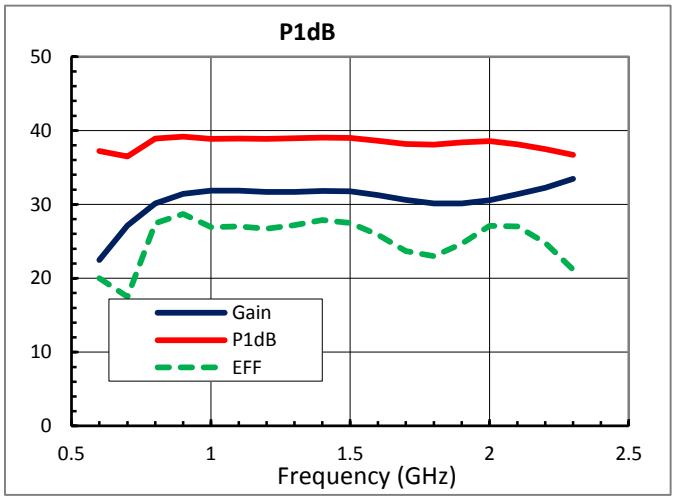
Parameters	Symbol	Rating
Drain source voltage	$V_{dd1,2}$	30V
Gate source voltage	$V_{gs1,2}$	-3V
Drain source current	I_{ddq1}	0.3A
Drain source current	I_{ddq2}	1.2A
Continuous dissipation at 25ºC	P_t	40W
Channel temperature	T_{ch}	175°C
Operating temperature	T_{op}	-55°C to +85°C
Storage temperature	T_{sto}	-55°C to +135°C

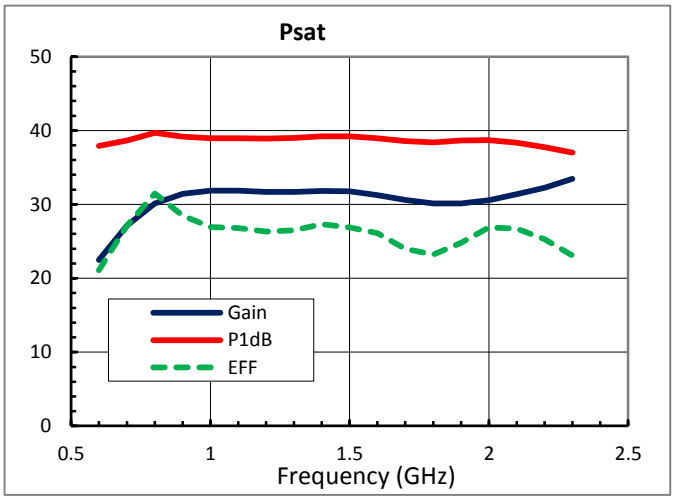
SMALL SIGNAL DATA*



* Data shown is for packaged version (SN-R) of the MMIC biased at $V_{dd1,2}$=28V, I_{ddq1}=0.2A, I_{ddq2}=0.6A, $V_{gs1,2}$=-0.90V.

POWER DATA *

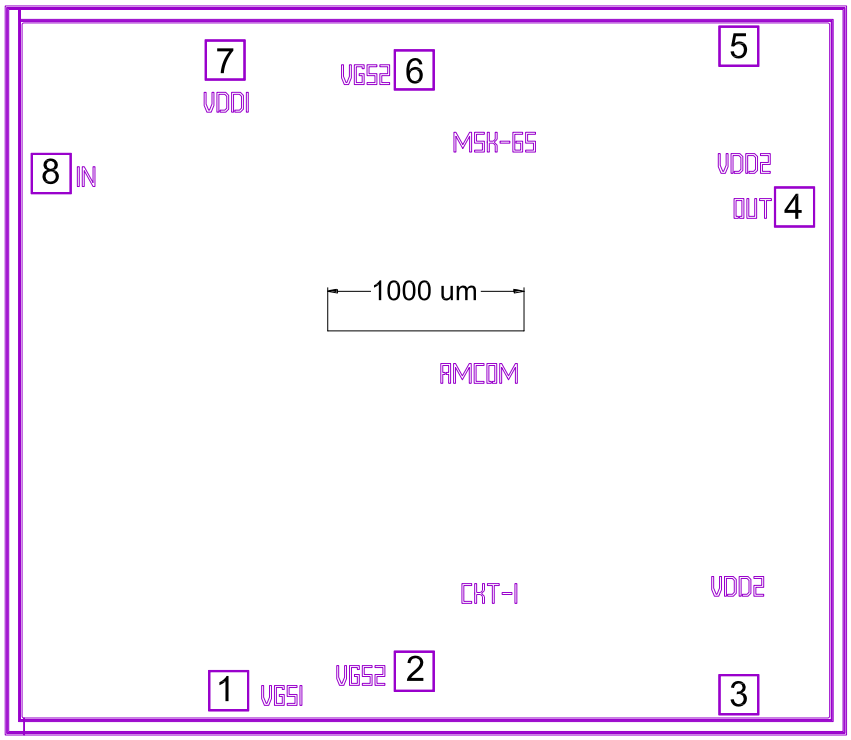




* Data shown is for packaged version (SN-R) of the MMIC biased at $V_{dd1,2}$=28V, I_{ddq1}=0.2A, I_{ddq2}=0.6A, $V_{gs1,2}$=-0.90V and measured in CW mode.

CHIP OUTLINE

Dim X*Y: 4200X3600 um^2



Pin No.	Function	Bias
1	V_{gs1}	-0.90V
2	V_{gs2}	-0.90V
3	V_{dd2}	+28V
4	RF out	-
5	V_{dd2}	+28V
6	V_{gs2}	-0.90V
7	V_{dd1}	+28V
8	RF in	-

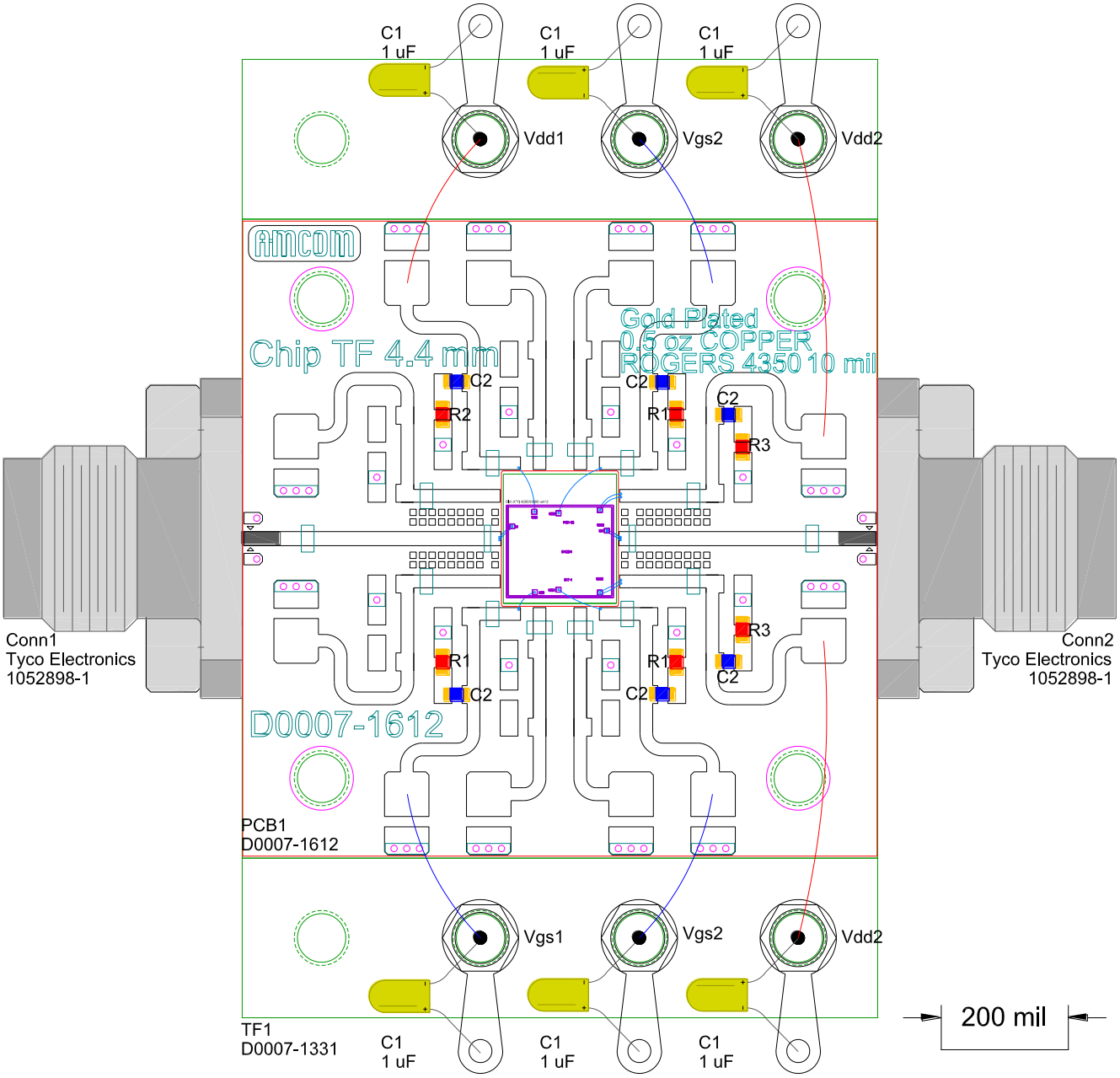
*Notes:

1- It is necessary to connect drain biase V_{dd2} to both the upper and lower bonding pads.

2- $V_{gs1,2}$ bias values are for reference only and will vary slightly from one unit to another.

3- When both first and second stages are pinched off ($V_{gs1,2}$ < -2V), there will still be a small current flowing in internal biasing circuitry.

CHIP TEST FIXTURE



Notes:

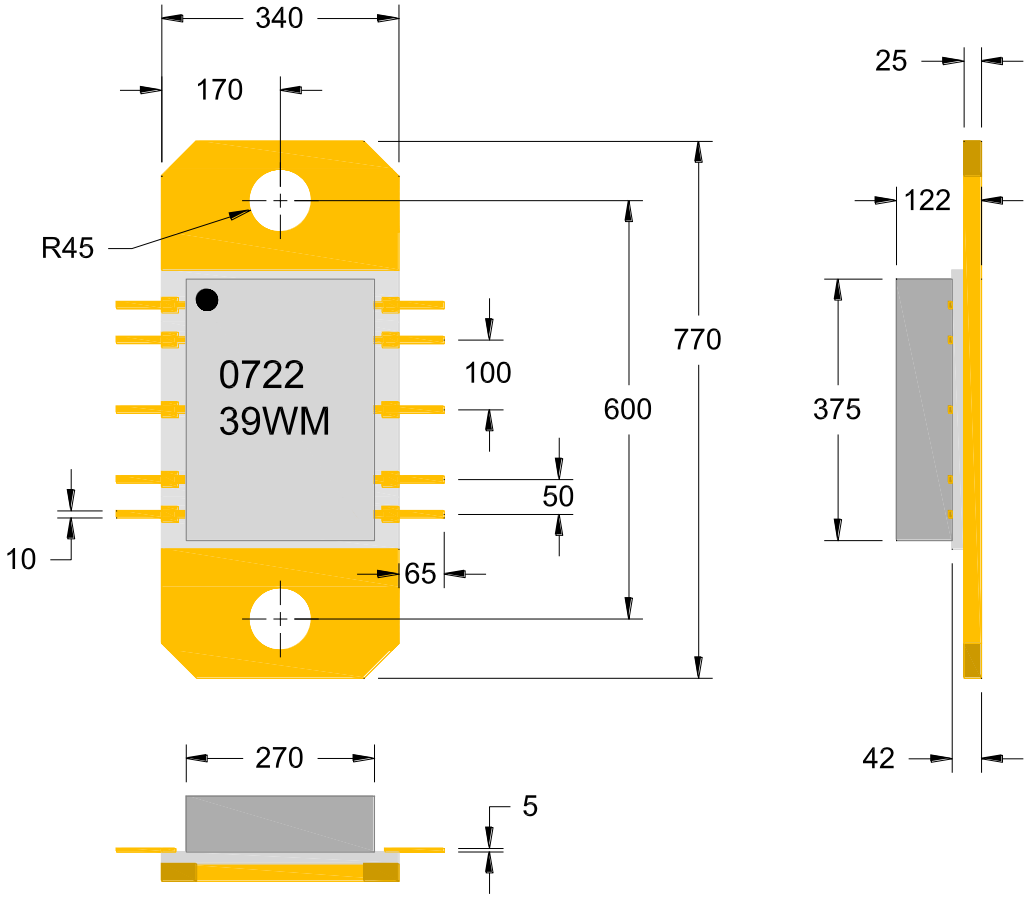
1- Use epoxy to mount PCB, and eutectic soldering to mount chip.

2- C1=1uF, C2=1000pF, C3=20pF, R1=50ohms, R2=10ohms, R3=5ohms

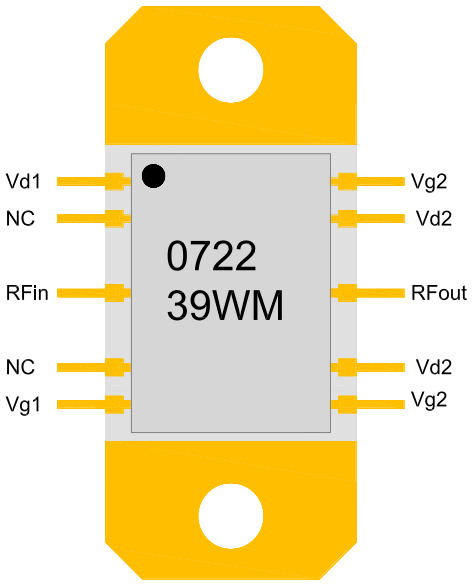
3- All SMT Caps & Resistors are 0402 size

4- Don't apply $V_{dd1,2}$ without proper negative voltages.

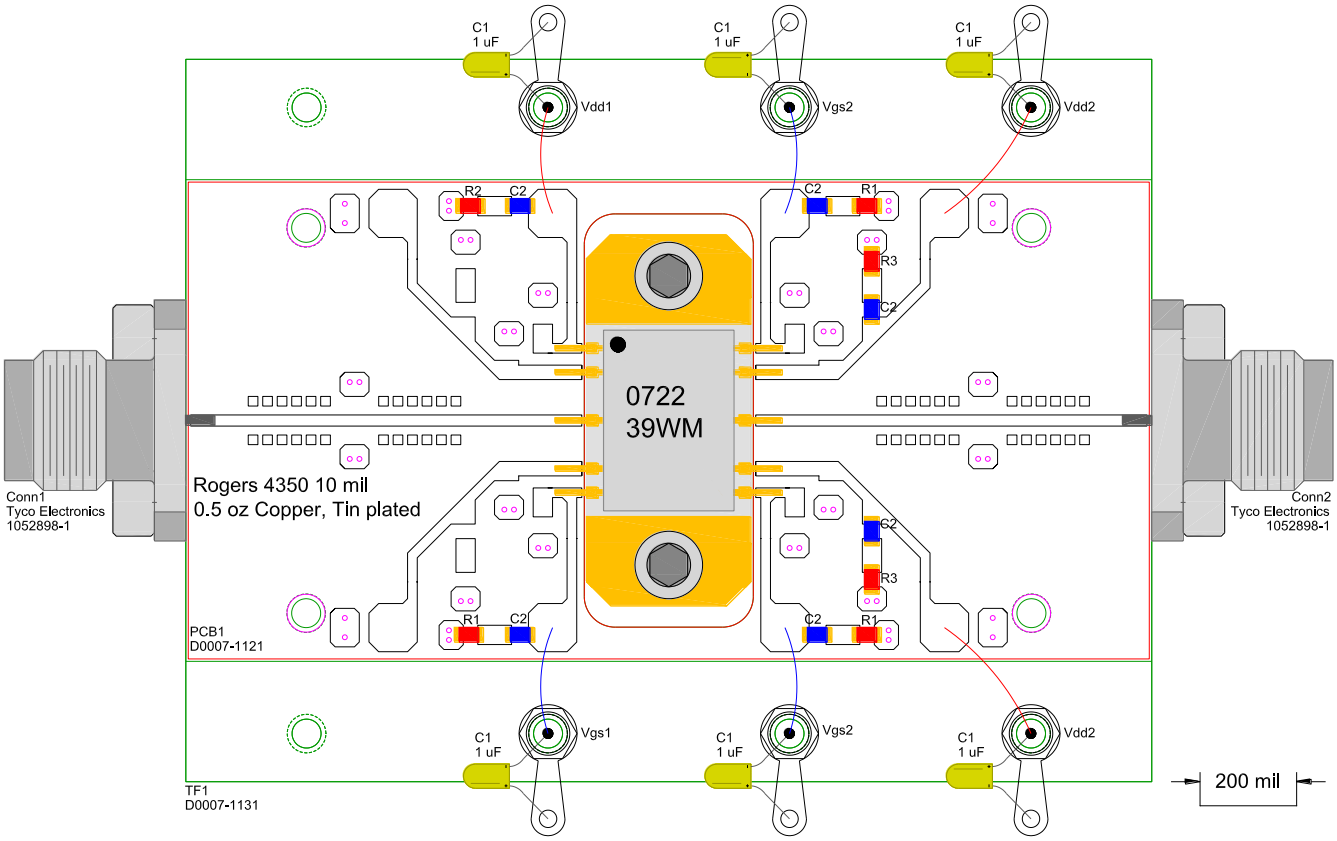
SN PACKAGE OUTLINE (Dimensions in mils)



Pin Layout



SN Package Test Fixture



Notes:

1- Use epoxy to mount PCB.

2- C1=1uF, C2=1000pF, R1=50ohms, R2=10ohms, R3=5ohms.

3- All SMT Caps & Resistors are 0603 size.

4- Don't apply drain biases $V_{dd1,2}$ without proper negative voltages on corresponding gates.