

# High Output IP3 Driver Amplifier, 1700 - 2500 MHz

V 2.00

MAAMSS0007

## Features

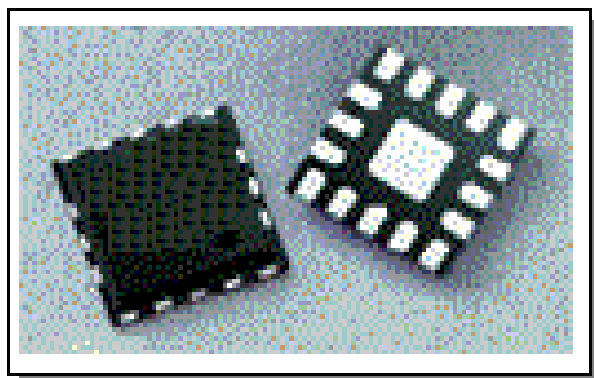
- 40 dBm Output IP3
- 23 dBm P1dB
- Chip Scale Leadless Package
- Single Positive Supply Voltage

## Description

M/A-COM's MAAMSS0007 IF driver amplifier is a GaAs MMIC which exhibits high OIP3 as well as high gain and low power consumption in a low-cost 3mm FQFP-N surface mount plastic package. The MAAMSS0007 employs a monolithic single stage design featuring a convenient 50-ohm input/output impedance that minimizes the number of external components required. The device runs off a single +5 volt supply and draws 100 mA typically. The design provides excellent performance from 1700 to 2500 MHz.

The MAAMSS0007 is fabricated using M/A-COM's new iHBT process to realize low current and high power functionality. The process features full passivation for increased performance and reliability.

## 3mm FQFP-N Package



## Absolute Maximum Ratings<sup>1</sup>

Parameter	Absolute Maximum
RF Input Power	15 dBm
Voltage	6.0 volts
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-65 °C to +150 °C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.

## Electrical Specifications<sup>2</sup>: $T_A = +25^\circ\text{C}$ , $V_{CC} = 5\text{V}$

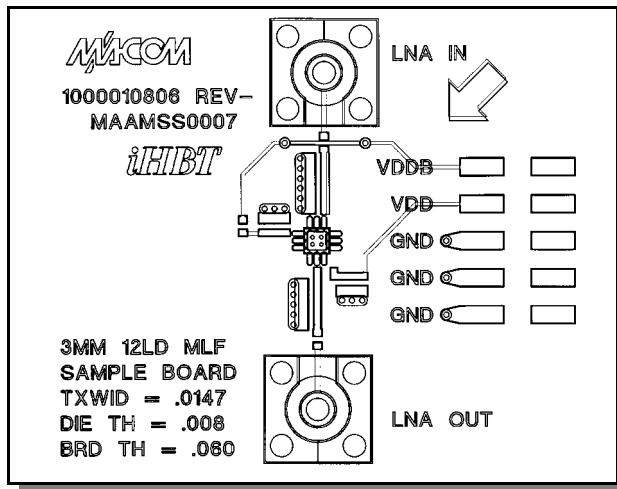
Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Gain <sup>3</sup>	—	2050 MHz	dB	12	13	15
Noise Figure <sup>4</sup>	—	2050 MHz	dB	—	5.5	—
Input Return Loss	—	2050 MHz	dB	10	12	—
Output Return Loss	—	2050 MHz	dB	10	15	—
Output P1dB	—	2050 MHz	dBm	—	23	—
Output IP3	OIP3 measured with Pin/Tone = -5 dBm, 10 MHz spacing	2050 MHz	dBm	—	40	—
Current	$V_{CC} = 5\text{V}$	—	mA	80	100	120

2. All measurements taken in a 50-ohm system unless otherwise specified.

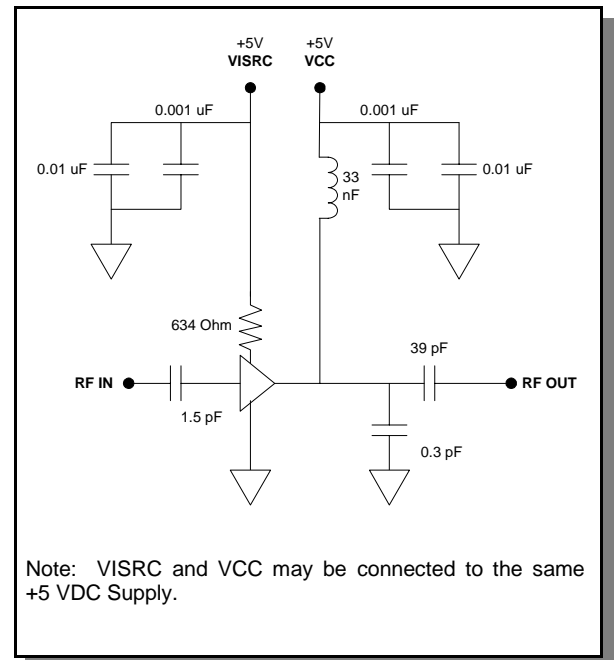
3. Gain varies at  $-0.008\text{ dB}/^\circ\text{C}$  typical.

4. Noise figure varies at  $0.007\text{ dB}/^\circ\text{C}$  typical.

## Sample Board Layout for 1700 - 2500 MHz



## Schematic Including Off-Chip Components for 1700 - 2500 MHz



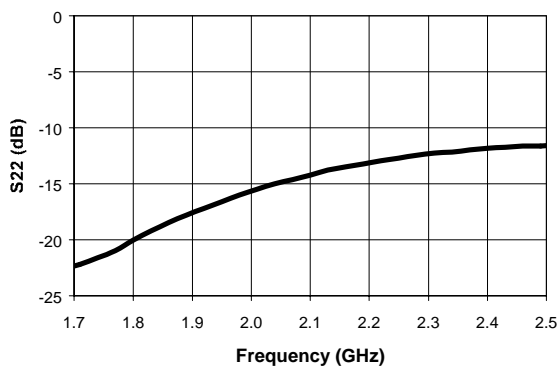
## Pin Configuration <sup>5</sup>

Pin No.	Function	Pin No.	Function
1	RF In	7	NC
2	NC	8	RF Out
3	NC	9	NC
4	DC Bias	10	NC
5	NC	11	NC
6	NC	12	NC

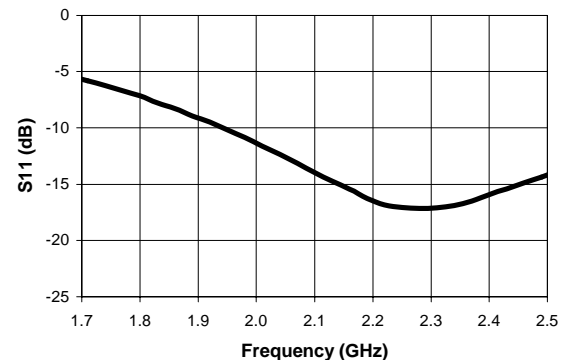
5. The exposed pad centered on the package bottom must be connected to RF and DC ground.

## Typical Performance Curves

### Output Return Loss vs. Frequency



### Input Return Loss vs. Frequency



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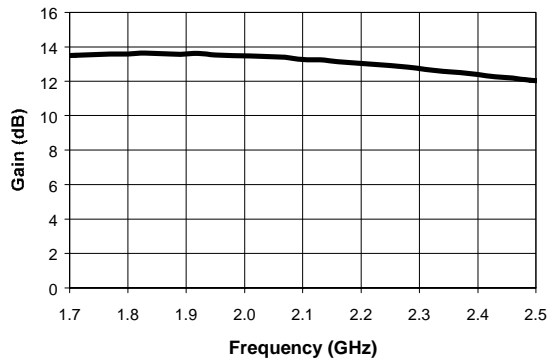
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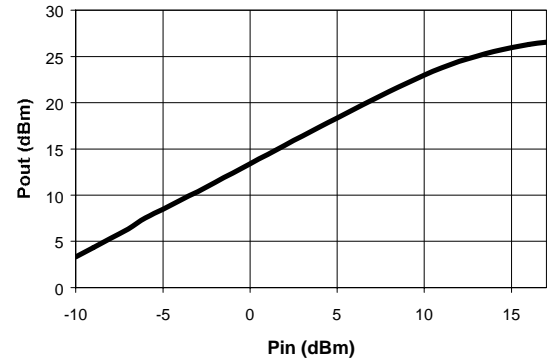
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## Typical Performance Curves

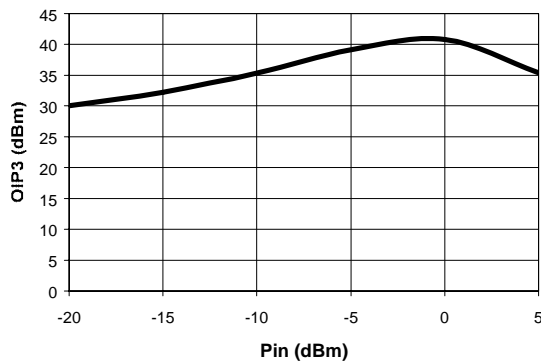
**Gain vs. Frequency**



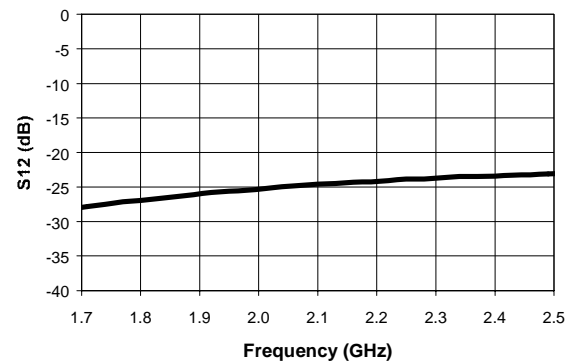
**Pout vs. Pin at 2050 MHz**



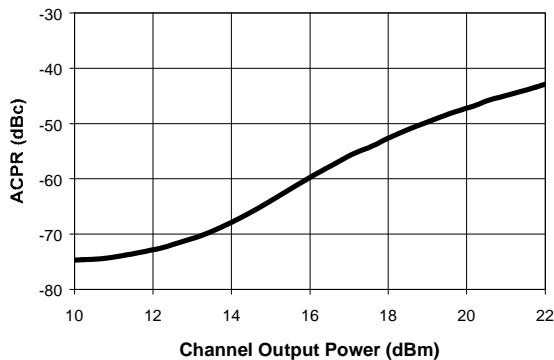
**OIP3 vs. Pin @ 2050 MHz**



**Reverse Isolation vs. Frequency**



**ACPR Performance, 9 Channels  
Forward, Vcc = 5V, Icc = 100 mA,  
+25°C**

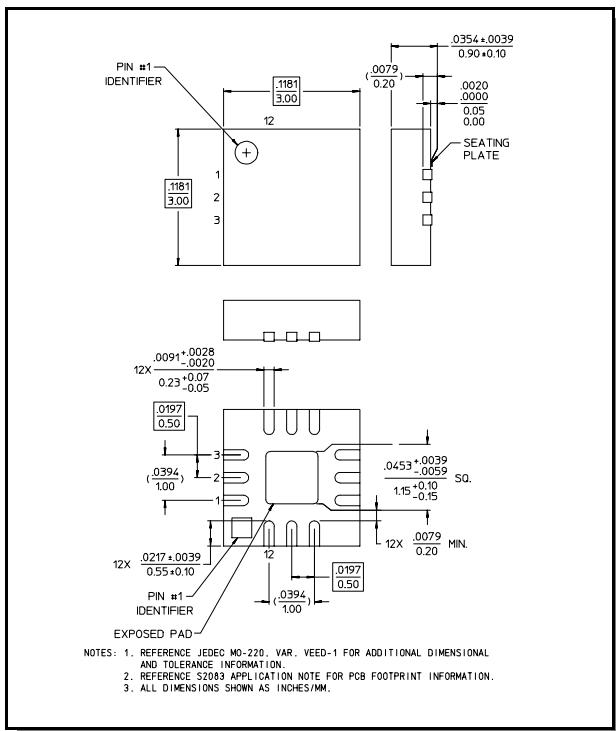


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### 3mm FQFP-N Package



## Ordering Information <sup>6</sup>

Part Number	Package
MAAMSS0007	Bulk Packaging
MAAMSS0007SMB	Sample Kit
MAAMSS0007TR	Tape and Reel (1K Reel)
MAAMSS0007TR-3000	Tape and Reel (3K Reel)

6. Reference Application Note M513 for reel size information.

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