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# Demonstration Circuit Board for the IAM-XXX08 Active Mixer IC

version 1 7/15/94 MR

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## Applications Bulletin

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### Introduction

This board is designed for use with the IAM-81008 or the IAM-82008 ICs which come in plastic SO8 packages.

There are a few simple guidelines to follow to get maximum performance from the board. When using the board **it is strongly recommended that you do not exceed the maximum IC voltage ratings shown on the data sheets.** For the IAM-81008, Vcc should be set to 5 Volts. The IAM-82008 uses 10 Volts.

### Assembly Notes:

Table 1 lists the parts required to assemble the circuit board. Figure 1 shows parts placement on the assembled board

1) Use a bypass capacitor on the Vcc line. Pads for this purpose have been provided alongside the IC pad. A chip capacitor of 1000 pF or more

should be used to ensure adequate low frequency bypassing.

2) Each input and output line requires the use of blocking capacitors to isolate the IC from external DC voltages that might cause bias shifts (and resulting performance irregularities) in the IC. Usually 1000 pF chip capacitors will be adequate, but when using frequencies below 50 MHz larger values of capacitance may improve performance.

3) For very low frequency (<50 MHz) applications, bypass capacitors internal to the IC should be supplemented with external capacitors at pins 6 or 8. Pin 6 is used for low LO frequencies. Pin 8 is used for low RF port frequencies. 1000 pF should be good down to 5 MHz.

4) The board has been designed to accommodate EF Johnson model 142-0701-801 SMA connectors. These connectors are readily

available from Newark, Digi-Key and others for about \$7 each. The connectors will just slip on to the edge of the board without any drilling. Be sure to solder the pins on the bottom side of the connector to the ground-plane on the bottom side of the board to ensure low ground inductance.

Note: The port labeled IF is always the output of the board. The ports labeled RF and LO are always input ports. The RF port frequency may be lower than, equal to, or greater than the LO frequency. Refer to Application notes AN-S010 and AN-S013 for additional applications information.

Figure 2 shows a scale layout of the pc board which is made of FR-4 type epoxy/fiberglass. The relative dielectric constant of the board is about 4.8. The board should be copper clad and tin/lead coated on both sides. The bottom side of the board remains unetched, and acts a groundplane.

Table 1: parts list

Qty.	Part description
1	IAM-XXX08 circuit board
3	SMA connectors (EF Johnson type 142)
4-6	1000 pF or more chip capacitors
1	IAM-81008 or IAM-82008 IC

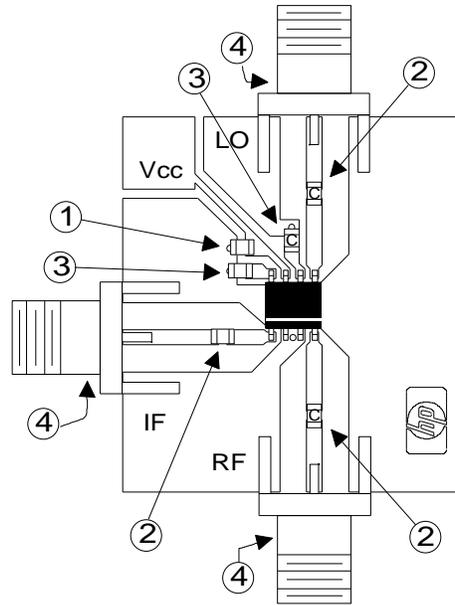


Figure 1. Assembled demo board showing component locations.

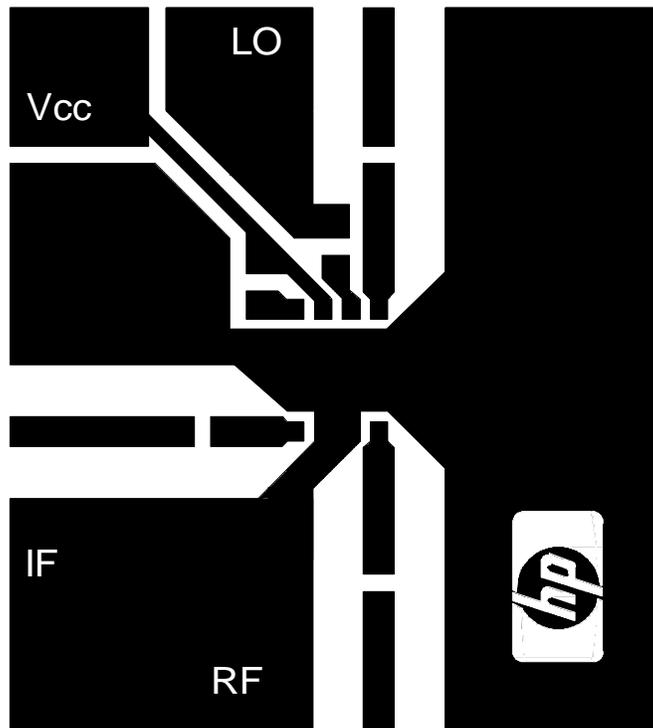


Figure 2. Scale layout of demo board. Finished board size is 1.3" x 1.275" x .033".

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