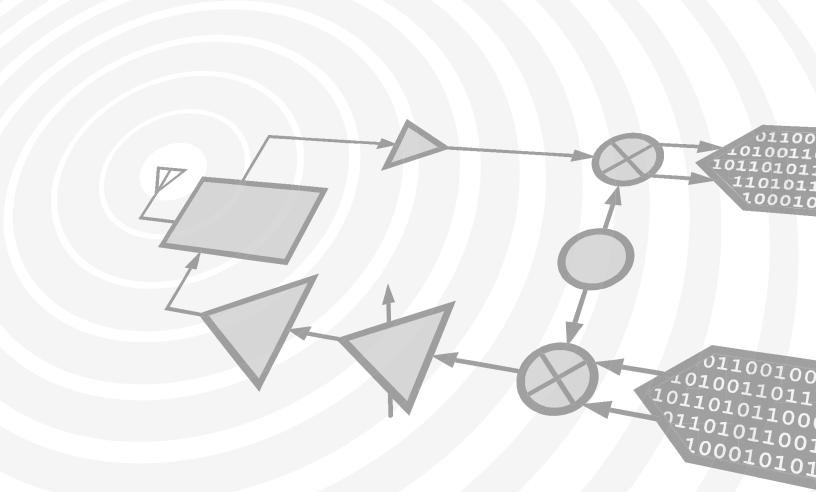




# Analog Devices Welcomes Hittite Microwave Corporation

NO CONTENT ON THE ATTACHED DOCUMENT HAS CHANGED







### HMC141/142 MIXER OPERATION NOTE

## RF & LO Port Designations for the HMC141 and HMC142 Double-Balanced Mixers

Although the mixers operate acceptably when RF & LO ports are interchanged, use the following guidelines for best performance.

### **Downconverter Operation**

Use the Datasheet Outline Drawing (DOD) to determine port designation for typical downconverter performance per the HMC141/142 data sheet.

- Apply RF Input to RF Port so labelled on DOD and on MMIC die.
- Apply LO Input to LO Port so labelled on DOD and on MMIC die.
- Access IF Output at IF Port so labelled on DOD and on MMIC die.

#### **Upconverter Operation**

Reverse the port designation specified by the Datasheet Outline Drawing (DOD) for typical upconverter performance per the HMC141/142 data sheet on page 4-14.

- Apply IF Input to IF Port so labelled on DOD and on MMIC die.
- Apply LO Input to RF Port so labelled on DOD and on MMIC die.
- Access RF Output at LO Port so labelled on DOD and on MMIC die.



### HMC143/144 MIXER OPERATION NOTE

#### RF & LO Port Designations for the HMC143 and HMC144 Double-Balanced Mixers

Although the mixers operate acceptably when RF & LO ports are interchanged, use the following guidelines for best performance:

#### **Upconverter & Downconverter Operation**

The RF & LO port markings on the MMIC die are correct and are consistent with the connection designated in the Datasheet Outline Drawing (DOD) found on the HMC143/144 data sheet.

Use the Datasheet Outline Drawing (DOD) to determine port designation for typical performance per data sheet.

Use the same port designations for both upconverter & downconverter operation.

#### For Example, in Downconverter Operation:

- Apply RF Input to RF Port so labelled on DOD and labelled "RF" on the MMIC die.
- Apply LO Input to LO Port so labelled on DOD and labelled "LO" on the MMIC die.
- Access IF Output at IF Port so labelled on DOD and on MMIC die.

#### For Example, in Upconverter Operation:

- Apply IF Input to IF Port so labelled on DOD and on MMIC die.
- Apply LO Input to LO Port so labelled on DOD and labelled "LO" on the MMIC die.
- Access RF Output at RF Port so labelled on DOD and labelled "RF" on the MMIC die.

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