



# HMJ4

High Dynamic Range FET Mixer



## Product Features

- +36 dBm IIP3
- No External Matching Elements Required
- RF 1700-1880 MHz
- LO 1550-1830 MHz
- IF 50 - 150 MHz
- +17 dBm LO Drive Level
- +3V Bias (18 mA)
- Low Cost SMT J-Lead Package

## Product Description

The HMJ4 is a high dynamic range GaAs FET mixer. This active FET mixer realizes a typical third order intercept point of +36 dBm at an LO drive level of +17 dBm. The HMJ4 comes in a low cost, 18-pin J-Lead package. Typical applications include frequency up/down conversion, modulation and demodulation for receivers and transmitters used in communications systems.

## Functional Diagram



Function	Pin No.
IF	2
LO	11
RF	17
+3V	8
Ground	All other pins

## Specifications <sup>(1)</sup>

Parameter	Units	Min	Typ	Max	Condition
RF Frequency Range	MHz		1700-1880		
LO Frequency Range	MHz		1550-1830		
IF Frequency Range	MHz		50 - 150		
SSB Conversion Loss	dB		8.8	9.4	
Noise Figure	dB		11		
LO-RF Isolation	dB	18	34		
LO-IF Isolation	dB	23	33		
RF-IF Isolation	dB		14		
Input IP3	dBm	31	36		
RF Return Loss	dB		11		
LO Return Loss	dB		9		
IF Return Loss	dB		15		
Input P1dB	dBm		+25		
LO Drive Level	dBm		+17		
DC Current at +3V Bias	mA		18	30	

1. Test conditions unless otherwise noted: 25 °C, RF = 1800 MHz @ -10 dBm, LO = 1700 MHz @ +17 dBm, IF = 100 MHz

## Absolute Maximum Rating

Parameters	Rating
Operating Case Temperature	-40 to +85 °C
Storage Temperature	-65 to +100 °C
Maximum Input Power	+25 dBm

1. Operation of this device above any of these parameters may cause permanent damage.
2. Total sum of LO port and RF port power should not exceed 25 dBm

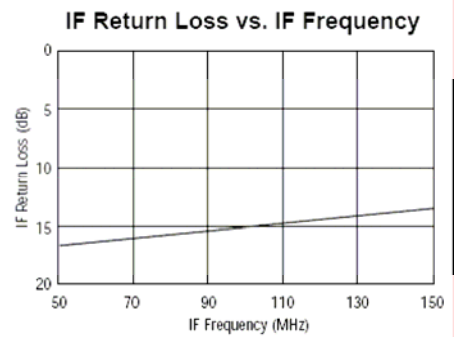
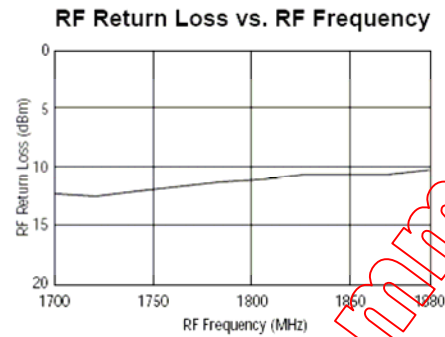
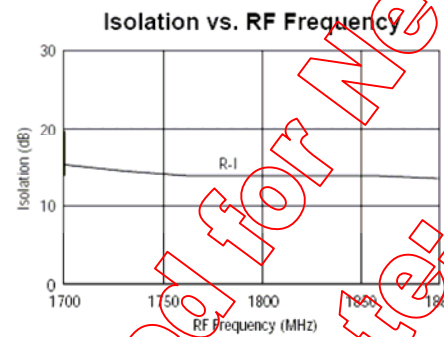
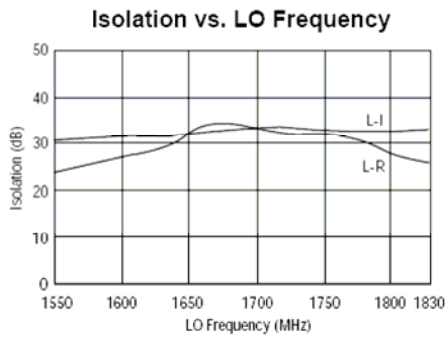
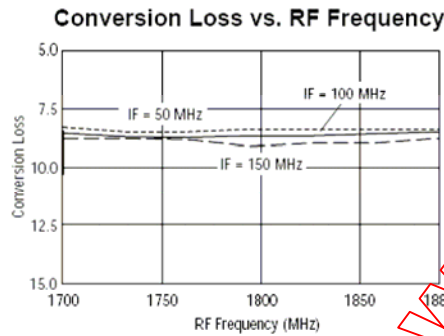
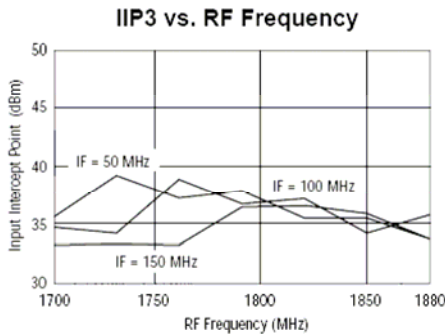
## Ordering Information

Part No.	Description
HMJ4	High Dynamic Range FET Mixer
HMJ4-PCB	Fully Assembled Application Circuit

Specifications and information are subject to change without notice



### Typical Performance Data



Not Recommended for New Designs  
Last Time Order Date: June 3, 2008

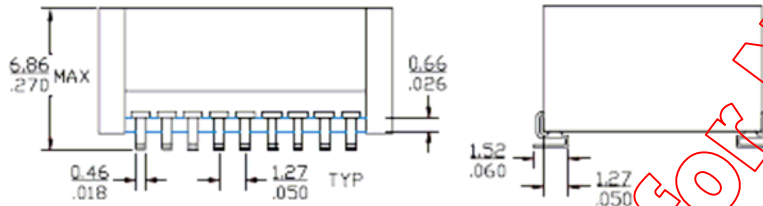
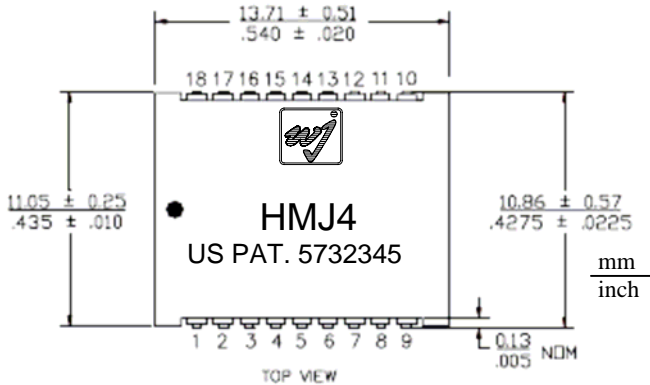


# HMJ4

High Dynamic Range FET Mixer



## Outline Drawing



## Product Marking

The component will be marked with an "HMJ4" designator with a four-digit alphanumeric lot number XXXX.

Tape and reel specifications for this part are located on the website in the "Application Notes" section.

## ESD Information



Caution! ESD sensitive device.

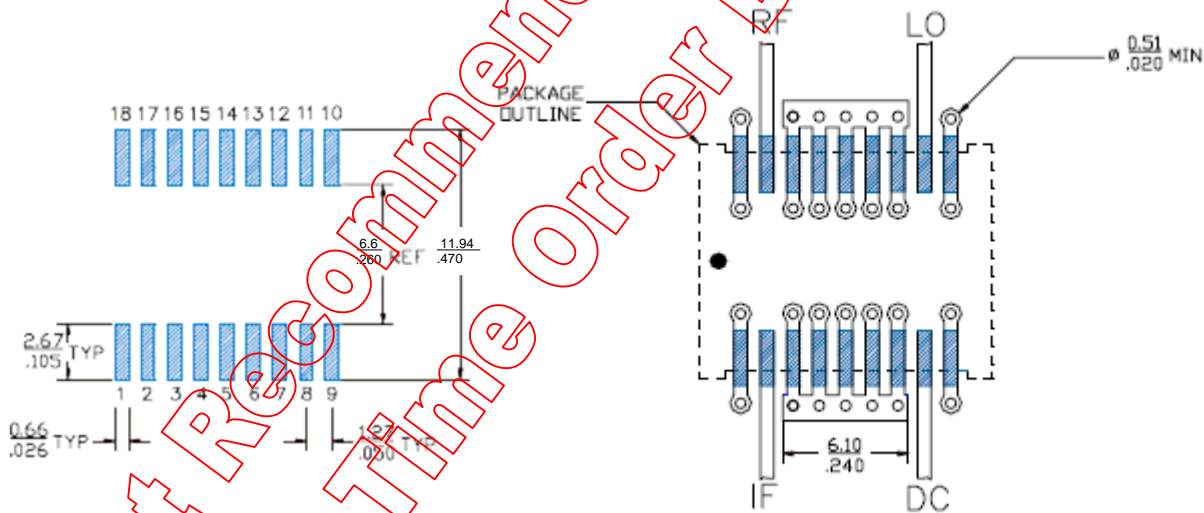
ESD Rating: Class 2  
 Value: Passes at 2000 V  
 Test: Human Body Model (HBM)  
 Standard: JEDEC Standard JESD22-A114

ESD Rating: Class IV  
 Value: Passes at 2000 V  
 Test: Charged Device Model (CDM)  
 Standard: JEDEC Standard JESD22-C101

## Mounting Config. Notes

1. Ground vias are critical for thermal and RF grounding considerations.
2. A minimum of 28 ground vias are required for 14 mil FR4 boards.
3. If your PCB design rules allow, ground vias should be placed under the land pattern for better RF performance. Otherwise ground vias should be placed as close to the land pattern as possible.
4. Trace width depends on the PCB material.

## Land Pattern / Mounting Configuration



Not Recommended for New Designs June 2008