

Product Information

Functional Diagram

22 21 20 19 18 17 16 15 14 13 12

1 2 3 4 5 6 7 8 9 10 11

10

+5Vdc

Pin No.

2

13

21

10

All other pins

RF

IF

Function

IF

LO RF

+5V

Ground

Product Features

- +34 dBm IIP3
- 67 dBc 2x1 Spur Rejection in IF Band
- RF 1000 2000 MHz
- LO 1000 2000 MHz
- IF 10 1000 MHz
- +21 dBm LO Drive Level
- +5V Bias (40 mA)
- SMT J-Lead Package

Applications

CATV Head-End Equipment

Specifications (1)

Parameter	Units	Min	Тур	Max	Condition
RF Frequency Range	MHz		1000 - 2000		
LO Frequency Range	MHz		1000 - 2000		
IF Frequency Range	MHz		10 - 1000		
SSB Conversion Loss	dB		8.5	9.5	
Noise Figure	dB		10.5		
LO-RF Isolation	dB	21	24		
LO-IF Isolation	dB	24	30		
RF-IF Isolation	dB		24		
Input IP3	dBm	30	34		RF = 1018 MHz @ 0 dBm
RF Return Loss	dB		10		
LO Return Loss	dB		5		
IF Return Loss	dB		14		
Spurious Rejection ⁽²⁾	dBc	60	67		
Input P1dB	dBm		+23		
LO Drive Level	dBm		+21		
DC Current at +5V Bias	mA		40	60	

Product Description

The HMJ7 is a high dynamic range GaAs FET mixer.

This active broadband mixer realizes a typical third order

intercept point of +34 dBm at an LO drive level of +21

dBm. The HMJ7 also provides excellent suppression of spurious intermodulation products, greater than 60 dBc.

The HMJ7 comes in a low cost, 22-pin J-Lead package.

The combination of high dynamic range and spurious suppression makes the HMJ7 an ideal choice for CATV

headend transmission equipment and other applications

requiring a broadband mixer in the 1000 MHz to 2000

MHz frequency range.

Test conditions unless otherwise noted: 25 °C, RF = 1018.75 MHz @ 0 dBm, LO = 21 dBm, IF = 50, 650, 860 MHz in a high-side LO configuration. The 2x1 spur is tested where the IM spur = 2 * RF input – LO, where RF input = 1018.75 MHz @ 0 dBm, LO = 1568.75 & 1668.75 MHz @ 21 dBm, IM spur = output frequency. The IM spur level is specified in dBc with respect to the desired IF frequency calculated: IF output = LO - RF input.

Absolute Maximum Rating

Ordering Information

Parameters	Rating	Part N	o. Description
Operating Case Temperature	-40 to +85 °C	HMJ7	High Dynamic Range FET Mixer
Storage Temperature	-65 to +100 °C	HMJ7-P0	CB Fully Assembled Application Circuit
Maximum Input Power	+25 dBm		

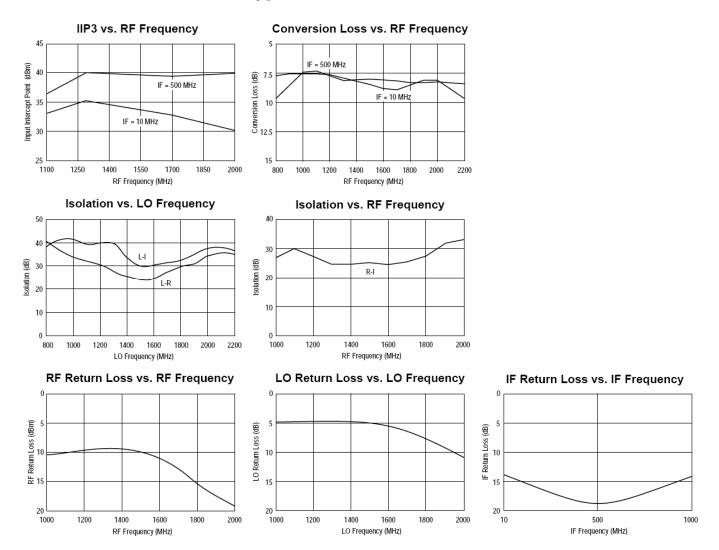
Operation of this device above any of these parameters may cause permanent damage.

Specifications and information are subject to change without notice



Product Information

Typical Performance Data

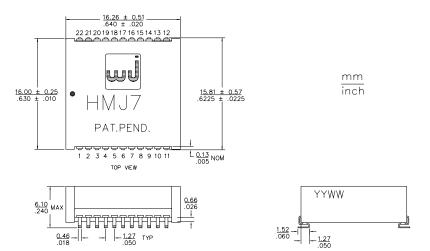




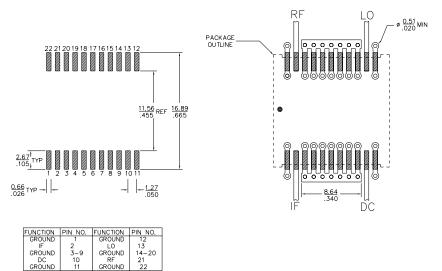
The Communications Edge TM

Product Information

Outline Drawing



Land Pattern / Mounting Configuration



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Product Marking

The component will be marked with an "HMJ7" designator with a date code on the side of the package.

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 36 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.