WJZ1010

Broadband Surface Mount Mixer

Product Features

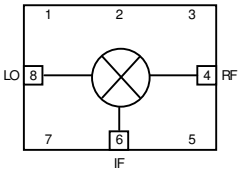
- +22 dBm Input IP3
- RF: 1 – 2500 MHz
- LO: 1 – 2500 MHz
- IF: 1 – 2000 MHz
- +13 dBm LO Drive Level
- No Internal Solder Connections
- Lead Free/RoHS complaint SMT package
- No External Bias Required

Product Description

The WJZ1010 is a passive double-balanced diode-ring mixer that provides high dynamic range performance in a Lead Free/ RoHS-compliant surface mount package. The mixer is nominally driven with a LO input power of +13 dBm to optimize its performance. Other WJZ models are available for other LO drive levels.

Targeted applications include frequency up/down conversion, modulation and demodulation for receivers and transmitters used in 2.5G and 3G GSM/CDMA/W-CDMA systems. The device can also be used in Radar, Satellite, Test / Medical Instruments, Avionics communications and Navigation markets.

Functional Diagram



Top View

Applications

- Up/down frequency conversion
- Phase Detector
- Image Rejection
- Current Controlled Attenuator

Specifications

Parameter	Units	Min	Typ	Max	Notes
SSB Conversion Loss					
RF/LO = 10-1300 MHz, IF = 10-1000 MHz	dB		6.5	8.5	See note 1. Guaranteed at 8 dB max at 25 °C
RF/LO = 10-2500 MHz, IF = 30-1000 MHz	dB		7.4	9.5	See note 1. Guaranteed at 9 dB max at 25 °C
Port-to-Port Isolation					
L-R = 10-2000 MHz	dB	21	38		
L-R = 10-2500 MHz	dB	17	37		
L-I = 10-2000 MHz	dB	20	34		
L-I = 10-2500 MHz	dB	16	33		
R-I = 10-2200 MHz	dB		25		
3rd Order Input Intercept Point	dBm		+22		
1dB Input Compression Point	dBm		+9		
VSWR					
RF Port = 600-1200 MHz			1.9:1		IF = 100 MHz
RF Port = 1200-1800 MHz			1.8:1		IF =100 MHz
RF Port = 1800-2500 MHz			1.8:1		IF =100 MHz
LO Port = 600-1200 MHz			1.3:1		
LO Port = 1200-1800 MHz			1.8:1		
LO Port = 1800-2500 MHz			1.8:1		
IF Port			1.2:1		
LO Drive Level	dBm		+13		

1. Measured in a 50 ohm system with a nominal LO drive of +13 dBm, low side LO, in a downconversion application with LO = 2100 MHz, RF = 2200 MHz, IF = 100 MHz.

Absolute Maximum Rating

Parameter	Rating
Operating Case Temperature	-40 to +85 °C
Storage Temperature	-65 to +100 °C
RF Input Power	+19 dBm

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

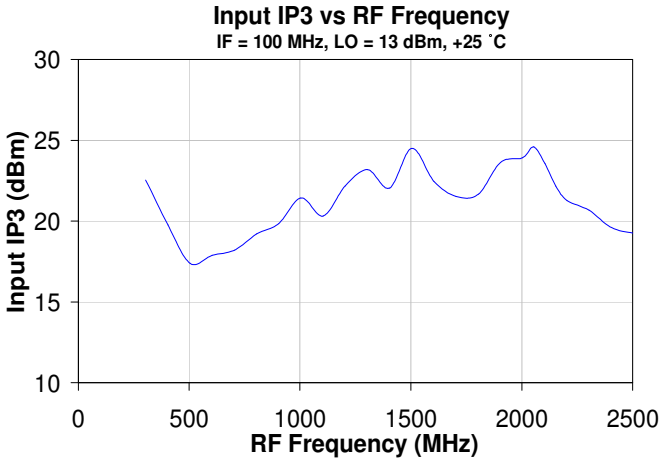
Ordering Information

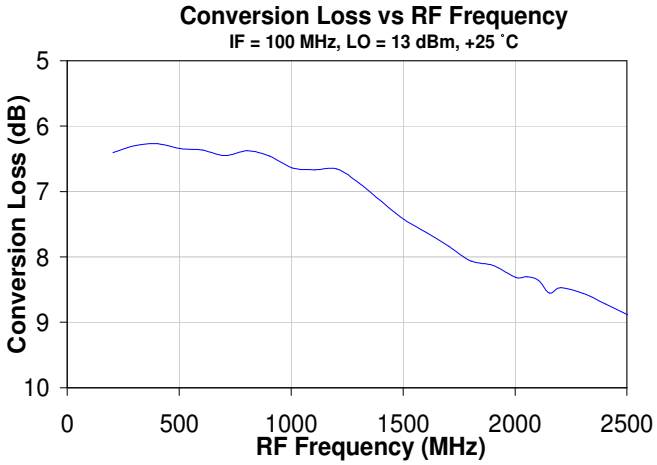
Part No.	Description
WJZ1010	Broadband Surface Mount Mixer
WJZ1010-PCB	Fully-Assembled Mixer Application Board

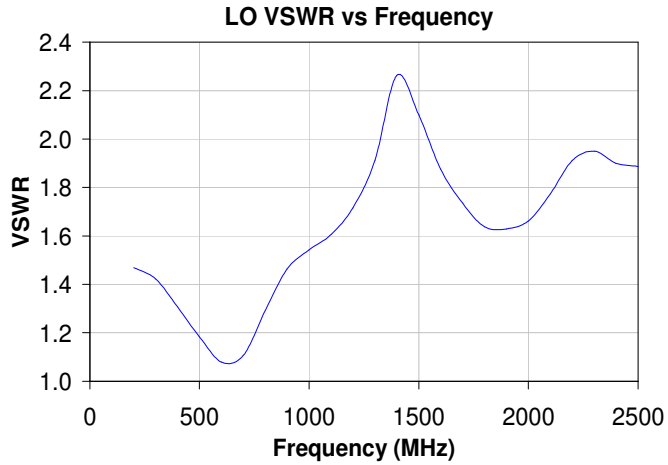
Standard T/R reel size = 500 pieces on a 13" reel.

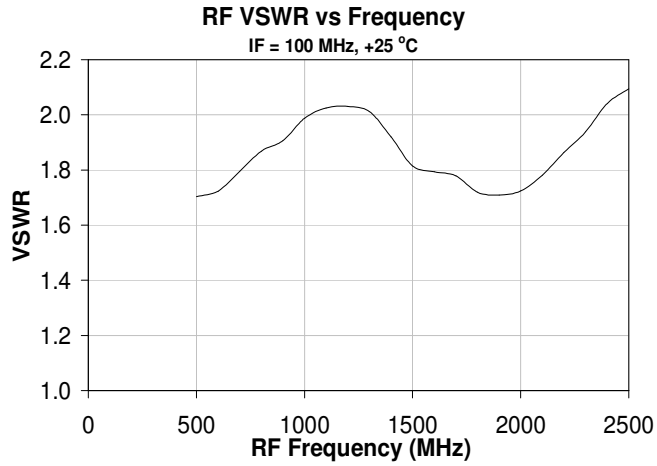
Specifications and information are subject to change without notice

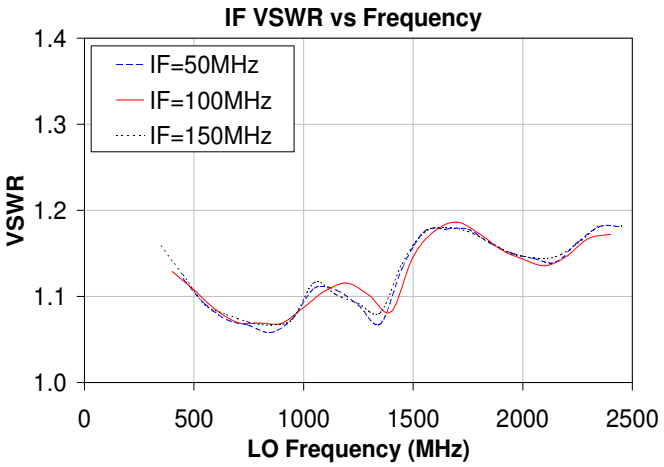
Performance Charts

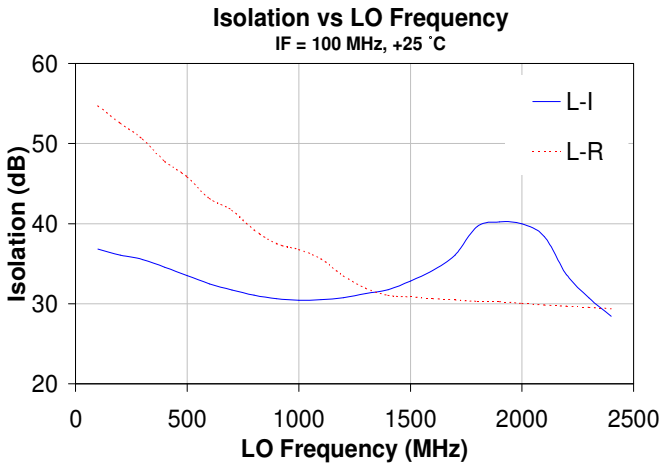








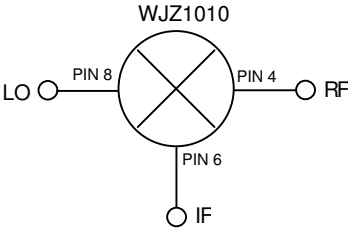




Mechanical Information

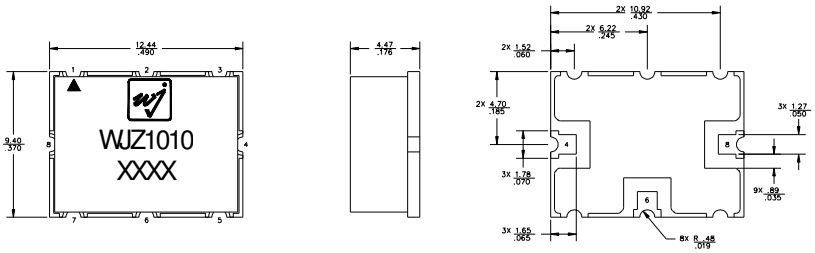
This package is lead-free/RoHS-compliant. The plating material is lead-free Tin (Sn).
It is compatible with lead-free (maximum 260°C reflow temperature) and recommend 245°C reflow temperature soldering processes.
Also recommend adding active flux of 2% during solder reflow.

Application Circuit



Notes:
1. Circuit board material: .021" FR-4, 2 layers, .025" total thickness
2. Blocking capacitors are required on the ports (pins 4, 6, 8) if any dc signal is present.

Outline Drawing

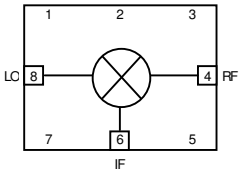


Product Marking

The component will be marked with a "WJZ1010" designator followed by an alphanumeric lot code on the top surface of the package.

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

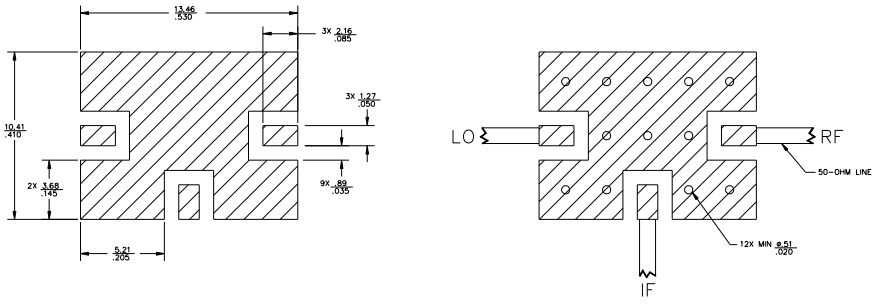
Functional Pin Layout



Top view

Pin No.	Function
4	RF
6	IF
8	LO
1,2,3,5,7 Backside Metal	GND

Land Pattern / Mounting Configuration



Notes:

1. Ground vias are critical for RF grounding considerations.
2. A minimum of 12 ground vias underneath the device is required.
3. Trace width depends on the PC board material and thickness