



# WJZ2020

## Broadband Surface Mount Mixer

### Product Features

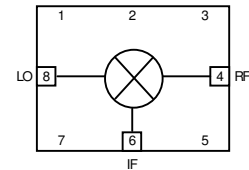
- +29 dBm Input IP3
- RF: 800 – 1000 MHz
- LO: 700 – 900 MHz
- IF: 20 – 100 MHz
- +17 dBm LO Drive Level
- No Internal Solder Connections
- Lead Free/RoHS-compliant SMT package
- No External Bias Required

### Product Description

The WJZ2020 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 +17 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	dB		6.2	7.7	See note 1. Guaranteed at 7.2 dB max at 25°C
Port-to-Port Isolation					
L-R	dB	27	36		
L-I	dB	20	32		
R-I	dB		32		
3 <sup>rd</sup> Order Input Intercept Point	dBm		+29		
1dB Input Compression Point	dBm		+14		
VSWR					
RF Port			1.6:1		IF = 100MHz
LO Port			1.2:1		
IF Port			1.1:1		
LO Drive Level	dBm		+17		

1. Measured in a 50-ohm system with a nominal LO drive of +17 dBm, low side LO, in a downconverter application with LO = 700-900 MHz, RF = 800-1000 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	+23 dBm

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

### Ordering Information

Part No.	Description
WJZ2020	Broadband Surface Mount Mixer
WJZ2020-PCB	Fully-Assembled Mixer Application Board

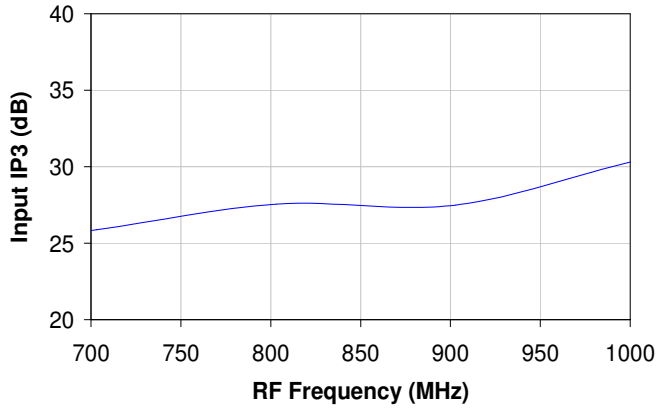
Standard T/R reel size = 500 pieces on a 13" reel.

Specifications and information are subject to change without notice.

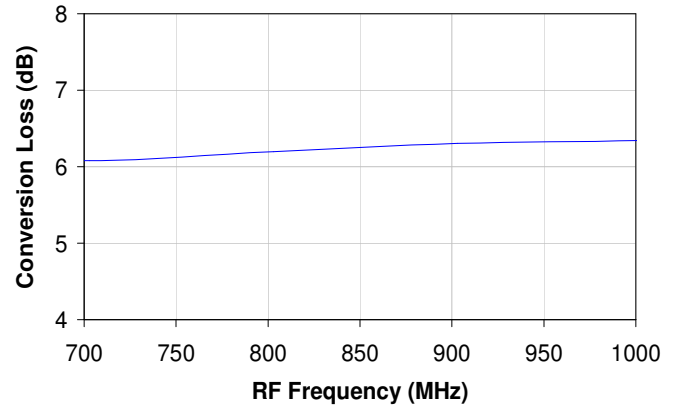


### Performance Charts

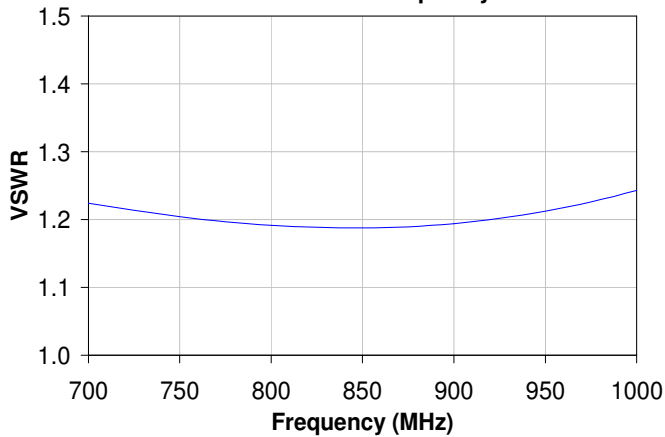
**Input IP3 vs RF Frequency**  
IF = 100 MHz, LO = 17 dBm, +25 °C



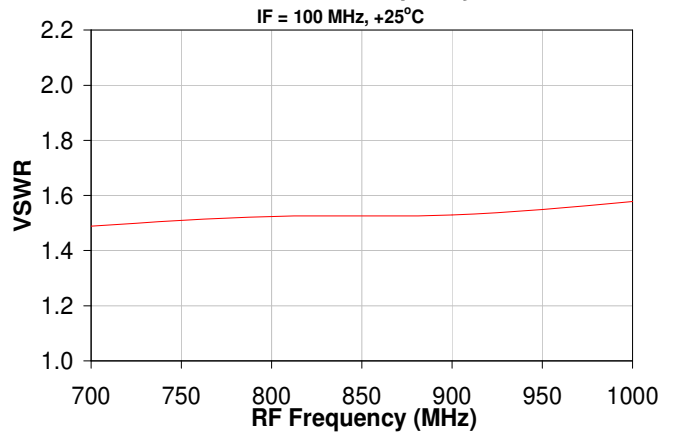
**Conversion Loss vs RF Frequency**  
IF = 100 MHz, LO = 17 dBm, +25 °C



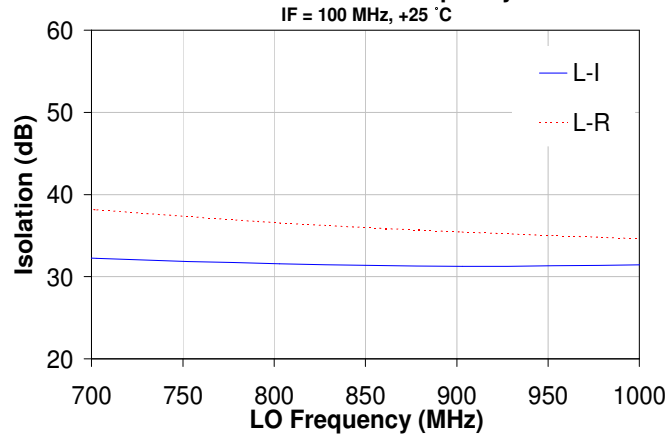
**LO VSWR vs Frequency**



**RF VSWR vs Frequency**



**Isolation vs LO Frequency**





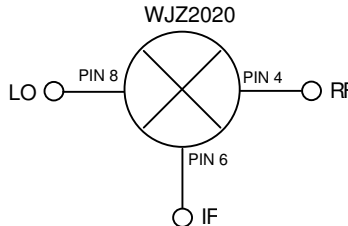
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### Mechanical Information

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

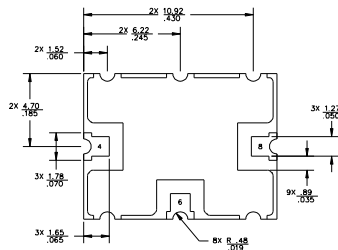
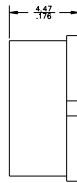
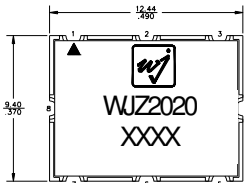
### Application Circuit



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

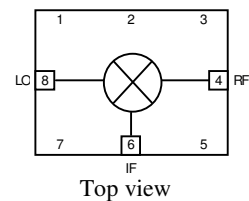


### Product Marking

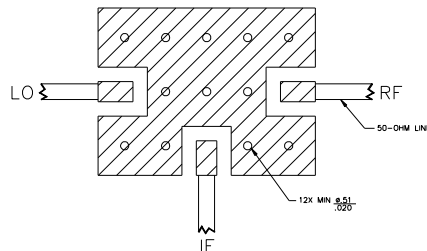
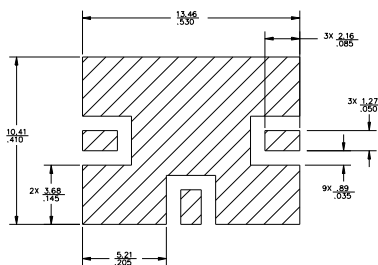
The component will be marked with a "WJZ2020" designator followed by an alphanumeric lot code on the top surface of the package.

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

### Functional Pin Layout



### 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

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