Features

- Passive Type: No DC biasing required
- RF Frequency: 12-18 GHz
- Fixed local oscillator: 23.5 GHz
- IF Bandwidth: 5.5-11.5 GHz
- Conversion Loss: 8.5 dB
- LO/RF Isolation: 47 dB
- P1dB: +9 dBm
- Die Size: 1.5 x 1.2 x 0.1 mm

Typical Applications

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

TA = +25°C, LO = +12dBm

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Frequency (RF)</td>
<td>12-18</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Local Oscillator Frequency (LO)</td>
<td>23.5</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>IF Frequency (IF)</td>
<td>5.5-11.5</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Conversion Loss</td>
<td>8.5</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Isolation “LO to RF”</td>
<td>47</td>
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<td>dB</td>
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<tr>
<td>Isolation “LO to IF”</td>
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<tr>
<td>Isolation “RF to IF”</td>
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<td>Input 1dB Compression</td>
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<td></td>
<td>dBm</td>
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<tr>
<td>Input Third Order Intercept (IIP3)</td>
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<td></td>
<td></td>
<td>dBm</td>
</tr>
</tbody>
</table>

Functional Block Diagram
Conversion Gain vs. LO Drive

Isolation

Conversion Gain vs. Temperature

Input Power P1dB

MMX005 GaAs pHEMT MMIC Mixer 12-18GHz
# MMX005

## Outline Drawing:

All Dimensions in mm

![Diagram](image)

## Pad Description

<table>
<thead>
<tr>
<th>Pad Number</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RF</td>
<td>AC coupling 50Ω Impedance</td>
</tr>
<tr>
<td>2</td>
<td>LO</td>
<td>DC coupling 50Ω Impedance</td>
</tr>
<tr>
<td>3</td>
<td>IF</td>
<td>DC coupling 50Ω Impedance</td>
</tr>
<tr>
<td>Die bottom</td>
<td>GND</td>
<td>Die bottom must be connected to RF/DC ground.</td>
</tr>
</tbody>
</table>

## Notes:
1. Die thickness: 100um
2. Typical bond pad is 100*100 μm²
3. Bond pad metalization: Gold
4. Backside metalization: Gold
5. Backside of the die is grounded
6. No connection required for unlabeled bond pads

## Maximum Ratings:
1. RF/IF input power: +24dBm
2. Local oscillator drive power: +24dBm
3. Storage temperature: -65°C to +150°C
4. Operating temperature: -55°C to +85°C