MMIQ003

GaAs pHEMT MMIC
IQ Mixer 13-19GHz

Features

- Passive Type: No DC biasing required
- RF Frequency: 13-19 GHz
- Conversion Loss: 9 dB
- Image Rejection: 25 dB
- LO/RF Isolation: 38 dB
- IF Bandwidth: DC-5 GHz
- P1dB: +14 dBm
- Die Size: 1.49 x 1.14 x 0.1 mm

Typical Applications

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

Electrical Specifications

TA = +25°C, If = 100MHz, Lo = +15dBm

<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/LO)</td>
<td>13-19</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>IF Frequency (IF)</td>
<td></td>
<td>DC-5</td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Conversion Loss</td>
<td>9</td>
<td></td>
<td>25</td>
<td>dB</td>
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<tr>
<td>Image Rejection</td>
<td>25</td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Isolation “LO to RF”</td>
<td>38</td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Isolation “LO to IF”</td>
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<td>dB</td>
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<tr>
<td>Isolation “RF to IF”</td>
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<td>dB</td>
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<tr>
<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>
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</tbody>
</table>
**Conversion Gain vs. LO Drive**

*Graph showing conversion gain variation with LO drive frequency.*

**Isolation**

*Graph showing isolation characteristics over frequency.*

**Image Rejection**

*Graph showing image rejection over frequency.*

**Input Power P1dB**

*Graph showing input power P1dB over frequency.*
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Outline Drawing:
All Dimensions in mm

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

Pad Description

<table>
<thead>
<tr>
<th>Pad Number</th>
<th>Function</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>RF</td>
<td>AC coupling 50Ω impedance</td>
</tr>
<tr>
<td>2, 3, 5, 6</td>
<td>IF1, IF2</td>
<td>DC coupling 50Ω impedance</td>
</tr>
<tr>
<td>4</td>
<td>LO</td>
<td>AC 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:

Maximum Ratings:

1. RF/IF input power: +21dBm
2. Local oscillator drive power: +27dBm
3. Storage temperature: -65°C to +150°C
4. Operating temperature: -55°C to +85°C