LEAD-FREE / RoHS-COMPLIANT  
3 dB QUADRATURE HYBRID

The QH-0226 is a 2 to 26.5 GHz, multi-purpose broadband 3 dB quadrature hybrid. The multisection tri-plate stripline design exhibits excellent amplitude balance with broadband quadrature phasing (90°) between the output ports. Applications include single sideband upconverters, image rejection downconverters, IQ modulators, balanced amplifiers, microwave correlators and microwave Butler matrices. Custom designs are also available; contact the factory for details.

Features

▪ Broadband Performance
▪ Excellent amplitude and phase balance
▪ Excellent isolation
▪ Low VSWR

Electrical Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency Range (GHz)</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupling (dB)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase Shift (Degrees)</td>
<td>2-26.5</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude Balance (dB) ²</td>
<td>2-26.5</td>
<td>±0.25</td>
<td>±1.15</td>
<td></td>
</tr>
<tr>
<td>Phase Balance (Degrees)</td>
<td>2-26.5</td>
<td>±2</td>
<td>±10</td>
<td></td>
</tr>
<tr>
<td>Excess Through Line Insertion Loss (dB) ³</td>
<td>DC to 20</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSWR</td>
<td>DC to 20</td>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 to 26.5</td>
<td>1.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolation (dB)</td>
<td>DC to 20</td>
<td>16</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 to 26.5</td>
<td>13</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Weight (g)</td>
<td></td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Specifications guaranteed when operated in a 50Ω system.
²Maximum amplitude differential is twice the magnitude of the amplitude balance (see Fig. 3).
³Excess Insertion Loss = (Input to Output Insertion Loss) – 3 dB.
**3 dB QUADRATURE HYBRID**

**QH-0226**

**Typical Performance**

---

**Fig. 1.** Through and coupled line insertion loss.

**Fig. 2.** Typical port return loss and isolation (all ports 50 Ω terminated).

**Fig. 3.** Amplitude difference between the 0° and 90° output ports.

**Fig. 4.** Phase difference between the 0° and 90° output ports.

---

### Model Number | Description
--- | ---
QH-0226 | 2-26.5 GHz, 3 dB Quadrature Hybrid with SMA connectors¹, LEAD-FREE/RoHS COMPLIANT

¹Default is SMA female connectors. Consult factory for other connector options.

---

Marki Microwave reserves the right to make changes to the product(s) or information contained herein without notice. Marki Microwave makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Marki Microwave assume any liability whatsoever arising out of the use of or application of any product.

© Marki Microwave, Inc.

215 Vineyard Court, Morgan Hill, CA 95037 | Ph: 408.778.4200 | Fax 408.778.4300 | info@markimicrowave.com

01/06/20