

## QH-0R714

### 3 dB Quadrature Hybrid

## DEVICE OVERVIEW

### General Description

The QH-0R714 is a 0.7-14.5 GHz, multi-purpose broadband 3dB quadrature hybrid. The multisection tri-plate stripline design exhibits excellent amplitude balance with broadband quadrature phasing (90o) 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.



[Download s-parameters here](#)

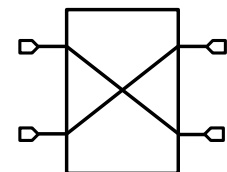
### Features

- Broadband performance
- Excellent amplitude and phase balance
- High isolation
- Low VSWR

### Applications

N/A

### Functional Block Diagram



### Part Ordering Options

| Part Number | Description            | Package | Packing Size | Green Status | Product Lifecycle | Export Classification |
|-------------|------------------------|---------|--------------|--------------|-------------------|-----------------------|
| QH-0R714    | 3 dB Quadrature Hybrid | -       | -            | RoHS         | Released          | EAR99                 |

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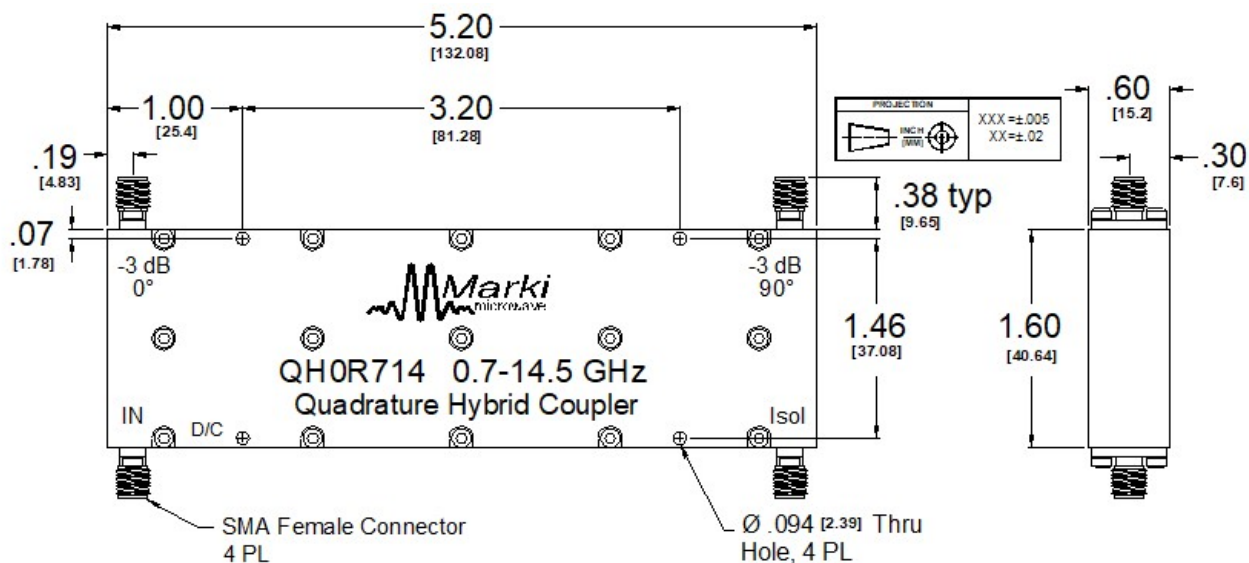
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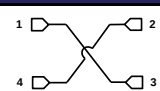
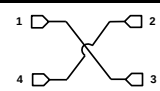
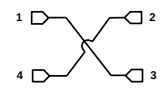
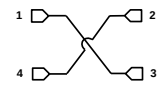
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## Port Configuration and Functions

### Port Diagram



### Port Functions

| Port   | Function   | Description                                      | Equivalent Circuit for Package                                                        |
|--------|------------|--------------------------------------------------|---------------------------------------------------------------------------------------|
| Port 1 | 0° Output  | Port 1 is DC short to port 3 and open to ground. |  |
| Port 2 | 90° Output | Port 2 is DC short to port 4 and open to ground  |  |
| Port 3 | Isolated   | Port 3 is DC short to port 1 and open to ground. |  |
| Port 4 | Input      | Port 4 is DC short to port 2 and open to ground  |  |

## Specifications

### Package Information

| Parameter  | Details | Rating            |
|------------|---------|-------------------|
| Weight     | -       | 225g              |
| Dimensions | -       | 132.08 x 40.64 mm |

### Electrical Specifications

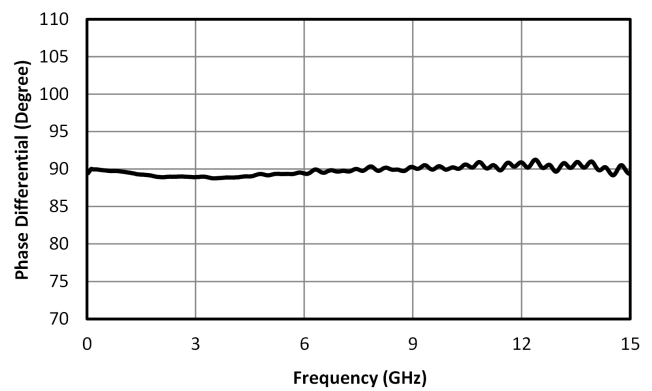
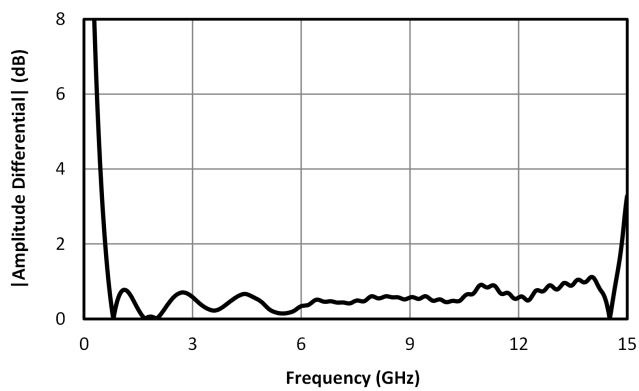
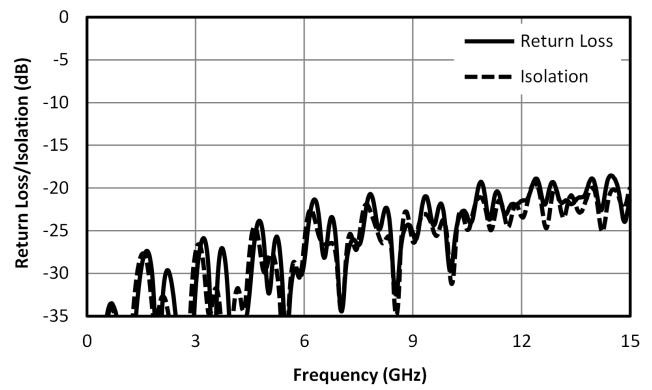
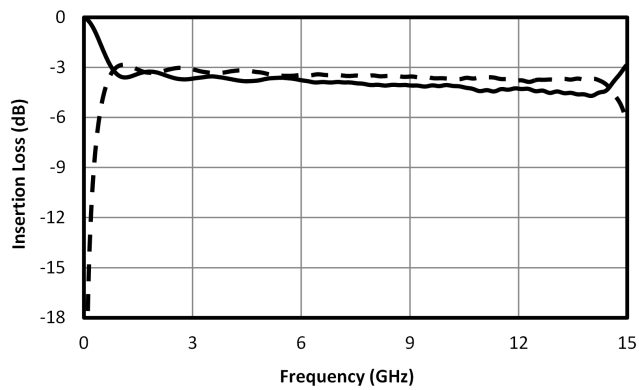
Specifications guaranteed when operated in a 50Ω system.

| Parameter                               | Test Conditions | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ | Max | Unit |
|-----------------------------------------|-----------------|-------------------------|-------------------------|-----|-----|-----|------|
| Phase Shift                             | -               | 0.7                     | 14.5                    | -   | 90  | -   | °    |
| Amplitude Balance <sup>1</sup>          | -               | 0.7                     | 14.5                    | -   | 0.2 | 0.8 | dB   |
| Phase Balance                           | -               | 0.7                     | 14.5                    | -   | 2   | 8   | °    |
| Isolation                               | -               | 0.7                     | 14.5                    | 15  | 22  | -   | dB   |
| VSWR                                    | -               | 0.7                     | 14.5                    | -   | 1.2 | 1.5 | -    |
| Weight                                  | -               | -                       | -                       | -   | 225 | -   | g    |
| CW Power                                | -               | 0.7                     | 14.5                    | -   | -   | 20  | W    |
| Excess Insertion Loss (dB) <sup>2</sup> | -               | 0.7                     | 14.5                    | -   | 1.2 | 2.5 | dB   |
| Mean Coupling                           | -               | 0.7                     | 14.5                    | -   | 3   | -   | dB   |

<sup>[1]</sup> Maximum amplitude differential is twice the magnitude of the amplitude balance

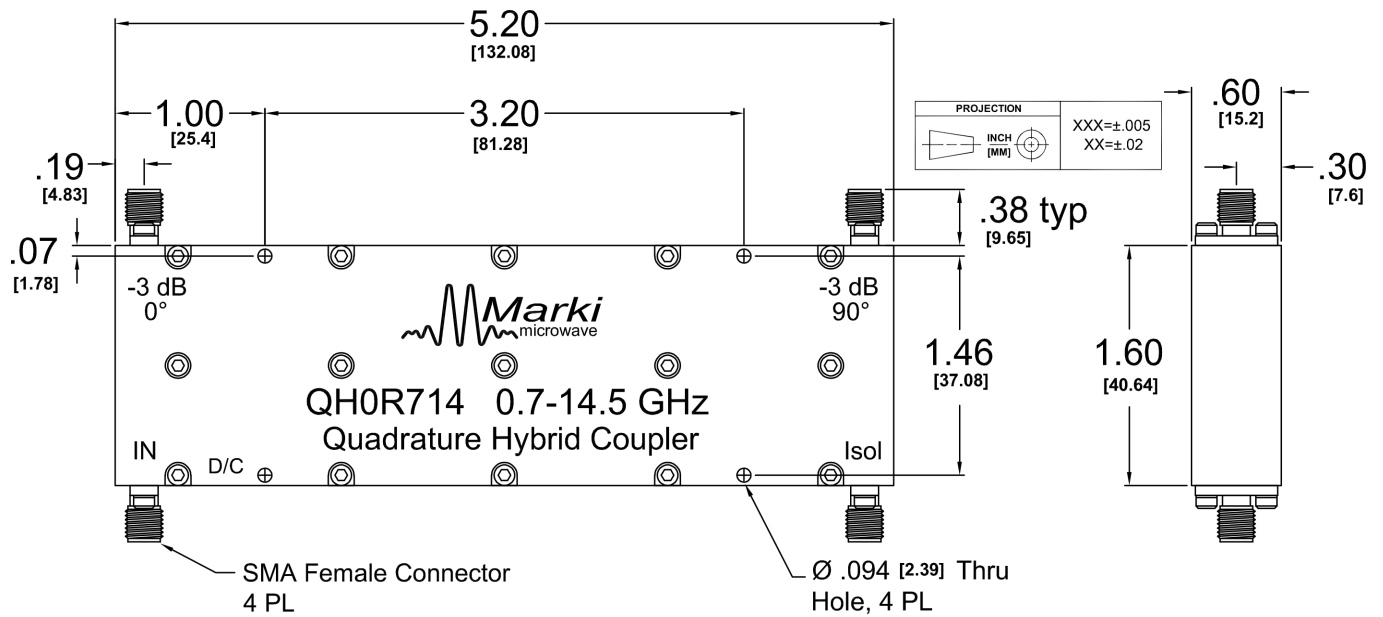
<sup>[2]</sup> Excess Insertion Loss = (Input Port to Output Port Insertion Loss) – 3 dB

## Typical Performance



**Mechanical Data**

**Outline Drawing**



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