

## Quadrature Hybrid, 20 - 40 MHz

Rev. V3

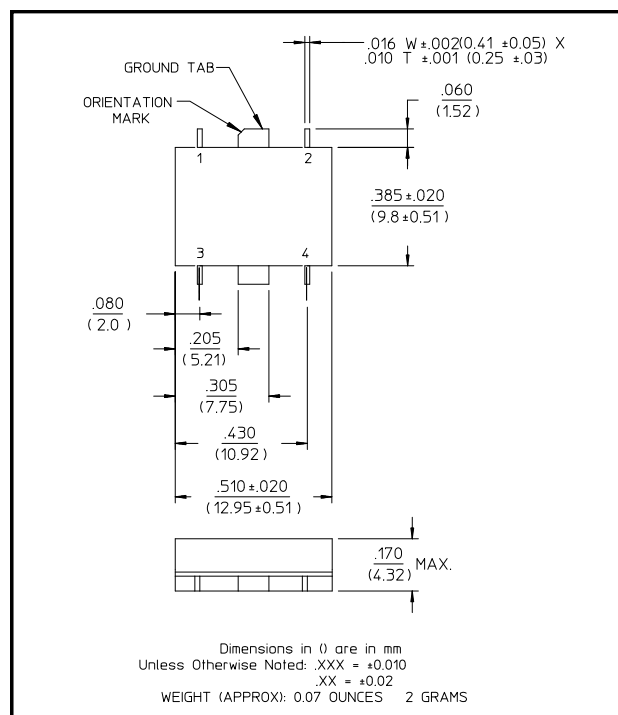
### Features

- Octave Bandwidth
- 3° Maximum Phase Deviation from 90°
- Low Loss: 0.5 dB Max.
- Impedance: 50 Ohms Nominal
- Input Power: 5 Watts Max. @ 25°C, Derated to 1 Watt @ 100°C
- Typical Phase Linearity: 3° from Straight Line
- MIL-STD-202 Screening Available

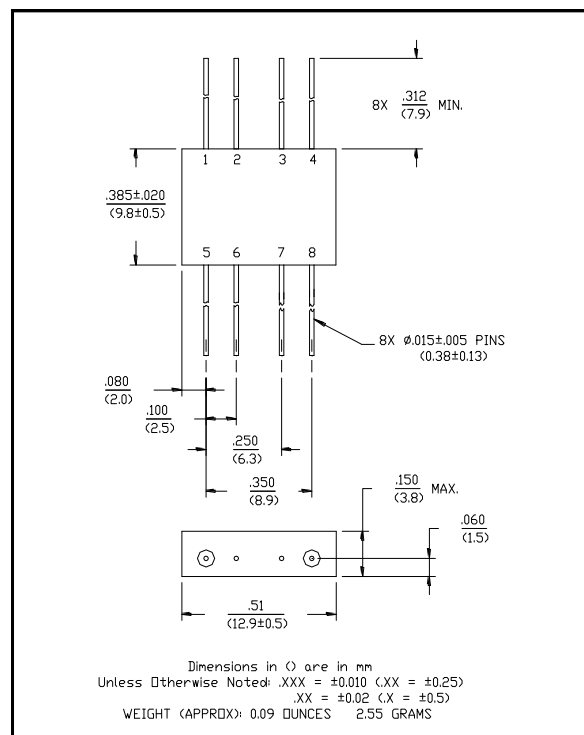
### Description

3 dB Hybrids are ideal for dividing a signal into two signals of equal amplitude and a constant 90° or 180° phase differential and for Quadrature combining or performing summation/differential combining.

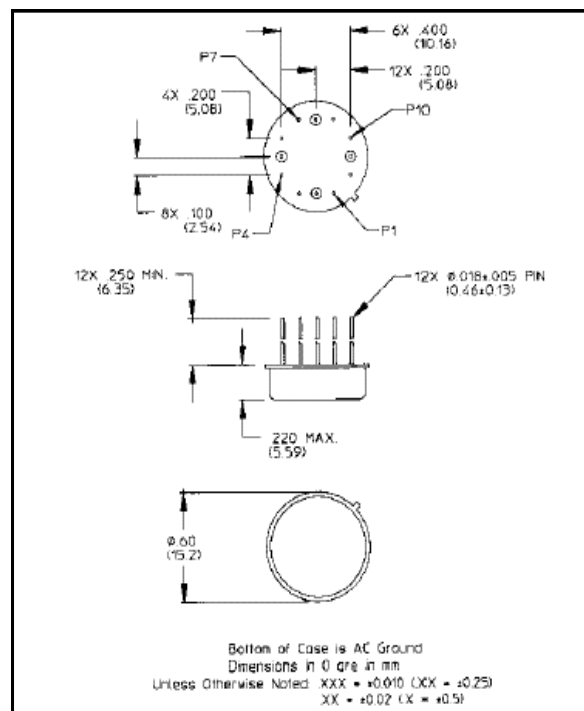
### SF-1 (JHS-114)



### FP-2 (JH-114)



### TO-8-2 (JH-133)



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### Electrical Specifications<sup>1</sup>: $T_A = -55^{\circ}\text{C}$ to $+85^{\circ}\text{C}$

| Parameter                   | Test Conditions | Frequency   | Units | Min | Typ | Max   |
|-----------------------------|-----------------|-------------|-------|-----|-----|-------|
| Insertion Loss <sup>2</sup> | Less Coupling   | 20 - 40 MHz | dB    | —   | —   | 0.5   |
| Isolation                   | —               | 20 - 40 MHz | dB    | 20  | —   | —     |
| Amplitude Balance           | —               | 20 - 40 MHz | dB    | —   | —   | 0.75  |
| VSWR                        | —               | 20 - 40 MHz | Ratio | —   | —   | 1.2:1 |
| Deviation from Quadrature   | —               | 20 - 40 MHz | °     | —   | —   | 3     |

1. All specifications apply with 50 ohm source and load impedance.

2. Average of coupled output less 3 dB.

This product contains elements protected by United States Patent Number 3,484,724.

### Phasing Diagram

| OUT<br>IN | A    | B   | C    | D    |
|-----------|------|-----|------|------|
| A         |      | ISO | 0°   | -90° |
| B         | ISO  |     | -90° | 0°   |
| C         | 0°   | 90° |      | ISO  |
| D         | -90° | 0°  | ISO  |      |

All other pins and case are ground.

### Pin Configuration (JH-114)

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1       | A        | 5       | D        |
| 2       | GND      | 6       | GND      |
| 3       | GND      | 7       | GND      |
| 4       | B        | 8       | C        |

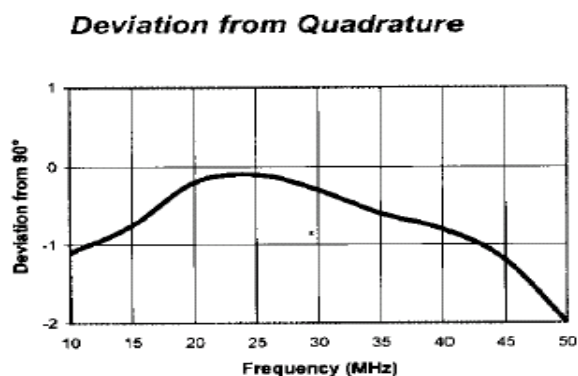
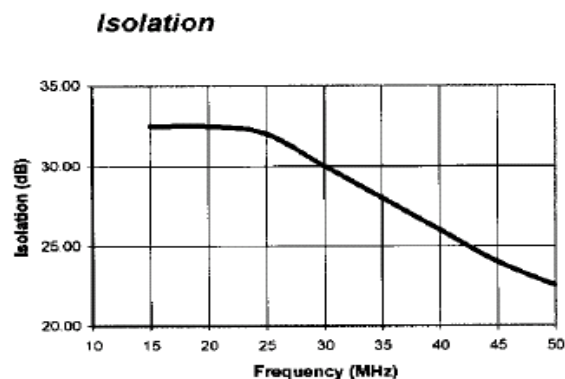
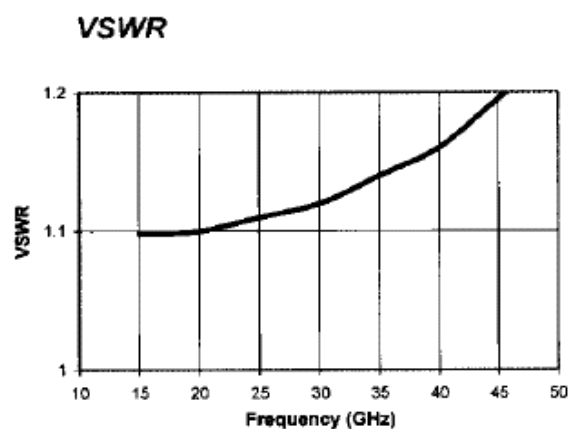
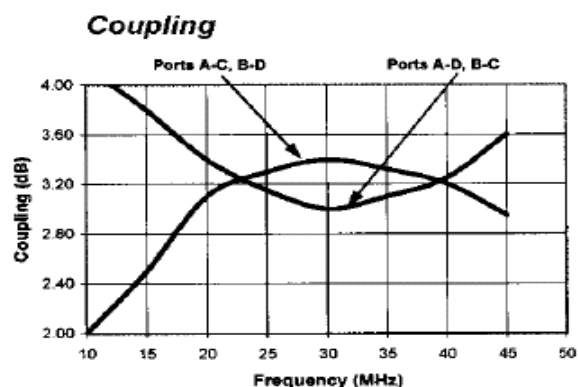
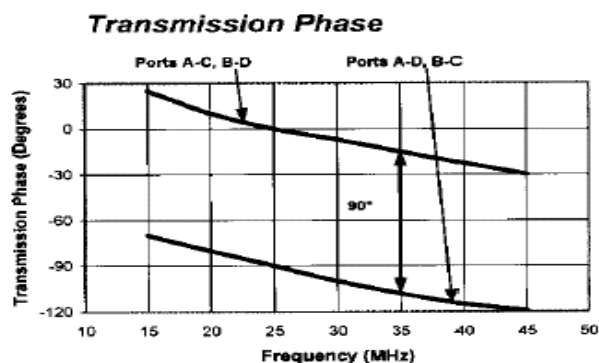
### Pin Configuration (JHS-114)

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1       | A        | 3       | D        |
| 2       | B        | 4       | C        |

### Pin Configuration (JH-133)

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1       | GND      | 7       | GND      |
| 2       | B        | 8       | D        |
| 3       | GND      | 9       | GND      |
| 4       | GND      | 10      | GND      |
| 5       | A        | 11      | C        |
| 6       | GND      | 12      | GND      |

## Typical Performance Curves



## Ordering Information

| Part Number | Package |
|-------------|---------|
| JH-114 PIN  | FP-2    |
| JHS-114 PIN | SF-1    |
| JH-133 PIN  | TO-8-2  |

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