

**Quadrature Hybrid,  
20 - 40 MHz**

**JH-/JHS-114/JH-133  
V3**

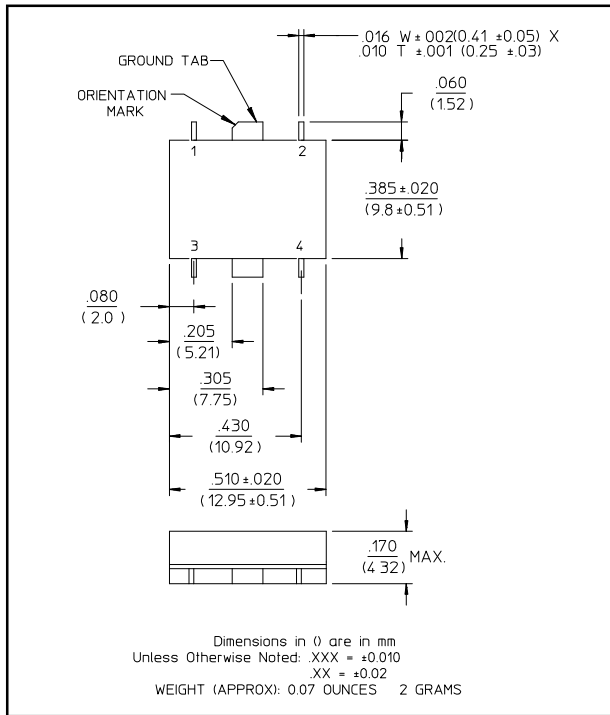
**Features**

- 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

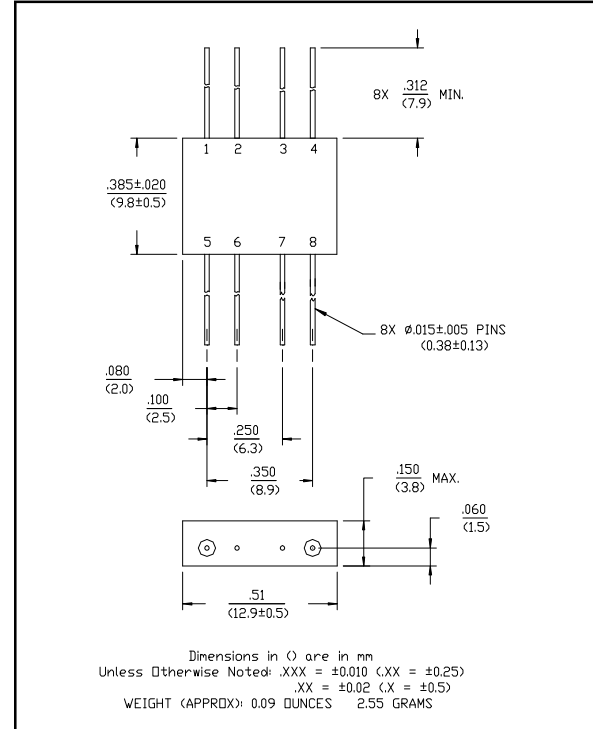
**Description**

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.

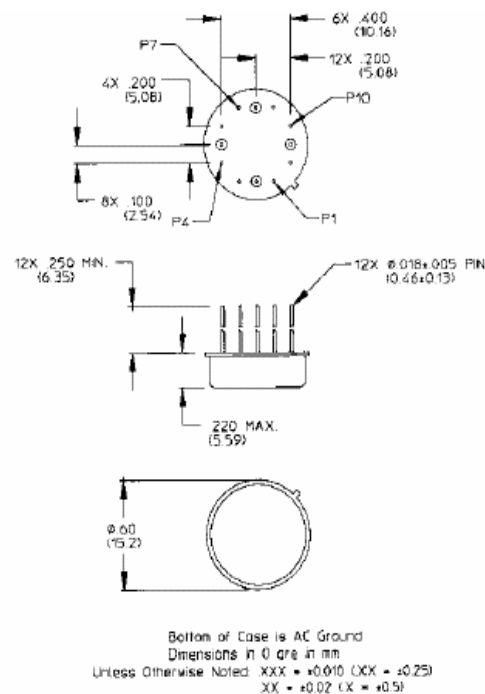
**SF-1 (JHS-114)**



**FP-2 (JH-114)**



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



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**Electrical Specifications<sup>1</sup>: T<sub>A</sub> = -55°C to +85°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

- All specifications apply with 50 ohm source and load impedance.
  - Average of coupled output less 3 dB.
- This product contains elements protected by United States Patent Number 3,484,724.

**Phasing Diagram**

OUT \ 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-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

**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

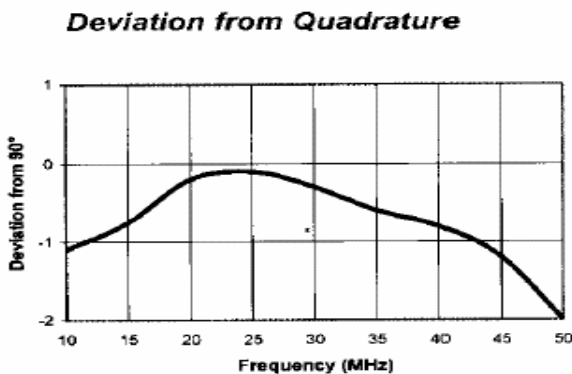
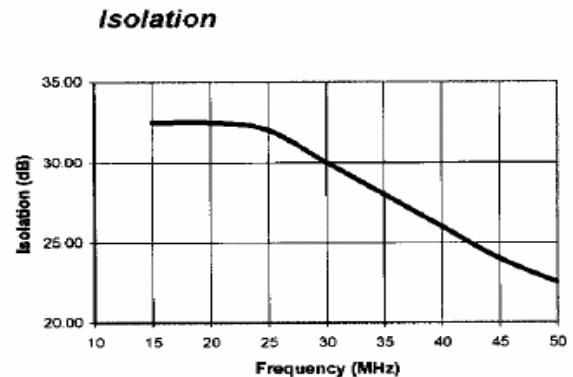
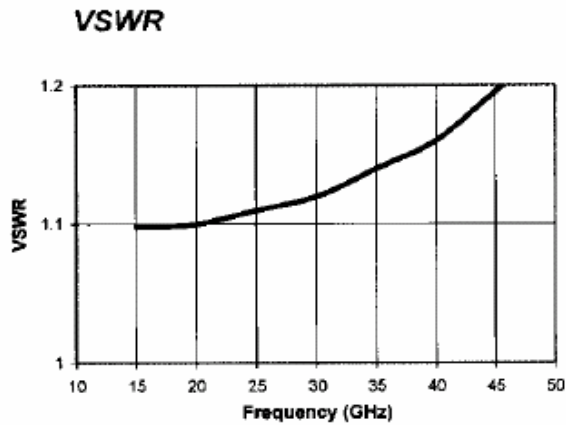
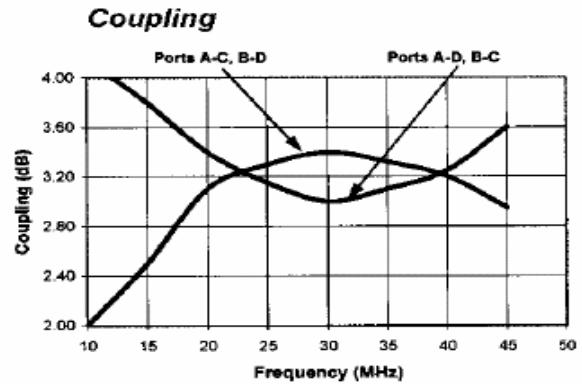
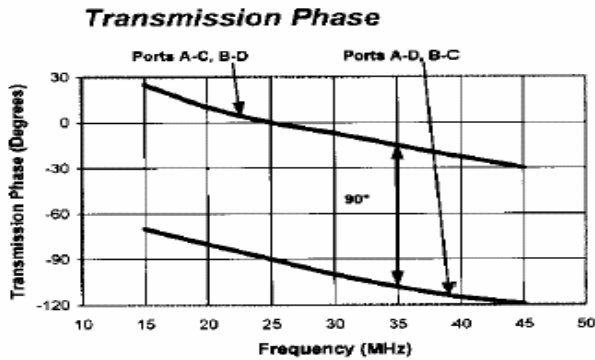
**Pin Configuration (JHS-114)**

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

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**Typical Performance Curves**



**Ordering Information**

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