## Features

- $0^{\circ}-180^{\circ}$ Hybrid with High Isolation
- Usable from $500 \mathrm{KHz}-500 \mathrm{MHz}$
- MIL-STD-202 Screening Available


## Description

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

## SF-1 (HHS-109)



## Pin Configuration (HHS-109)

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

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FP-2 (HH-109)


Pin Configuration (HH-109)

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

## Functional Diagram



Electrical Specifications ${ }^{1}$ : $\mathrm{T}_{\mathrm{A}}=-55^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Insertion Loss | Less Coupling | $5-200 \mathrm{MHz}$ | dB | - | - | 1.4 |
| Isolation |  | $5-100 \mathrm{MHz}$ | dB | 30 | - | - |
|  |  | $100-200 \mathrm{MHz}$ | dB | 25 | - | - |
| Amplitude Balance | - | $5-200 \mathrm{MHz}$ | dB | - | - | 0.3 |
| VSWR | - | $5-100 \mathrm{MHz}$ | Ratio | - | - | $1.5: 1$ |
|  | $100-200 \mathrm{MHz}$ | Ratio | - | - | $1.7: 1$ |  |
| Phase Balance | - | $5-100 \mathrm{MHz}$ | $\circ$ | - | - | 4 |
| Impedance | - | - | - | Ohms | - | 50 |

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

## Typical Performance Curves

Insertion Loss
Ports A-C, A-D


VSWR


Isolation


## Ordering Information

| Part Number | Package |
| :---: | :---: |
| HH-109 PIN | FP-2 |
| HHS-109 PIN | SF-1 |

