

3 dB QUADRATURE HYBRID

QH-0550

The QH-0550 is a 5-50 GHz, multi-purpose broadband 3dB 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
- High isolation
- Low VSWR
- [Microwave Power Dividers & Couplers App Note](#)

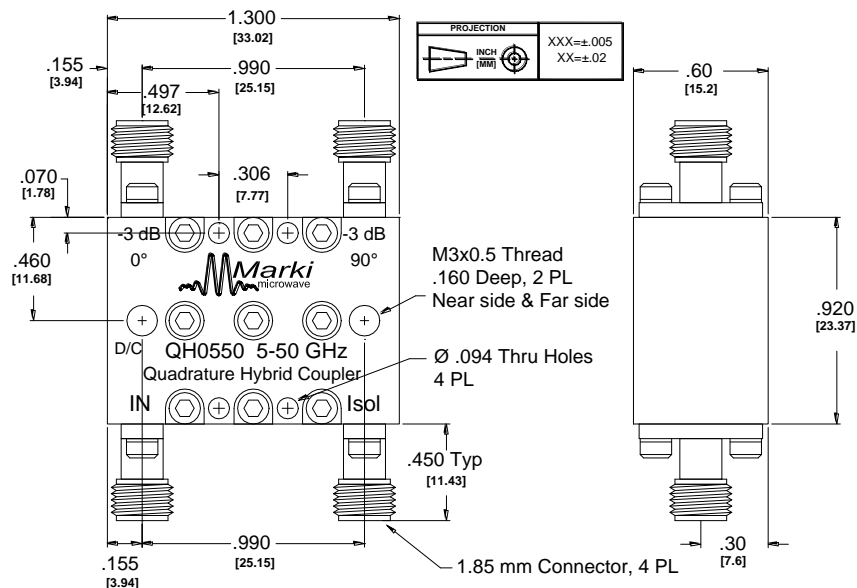
Electrical Specifications

Parameter ¹	Frequency Range (GHz)	Min	Typ	Max	
Coupling (dB)	5 to 50		3		
Phase Shift (Degrees)			90		
Amplitude Balance (dB) ²				±0.6	±1.2
Phase Balance (Degrees)				±5	±15
Excess Through Line Insertion Loss (dB) ³				1	
VSWR				1.3	1.65
Isolation (dB)	5 to 30	16	22		
	30 to 50	13	18		
Weight (g)			42		

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.



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Typical Performance

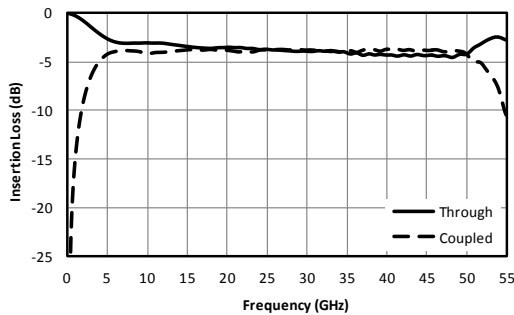


Fig. 1. Through and coupled line insertion loss.

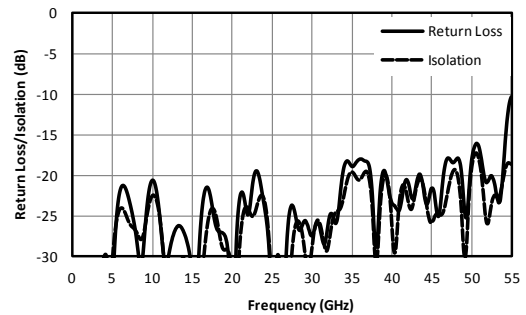


Fig. 2. Typical port return loss and isolation (all ports 50 Ω terminated).

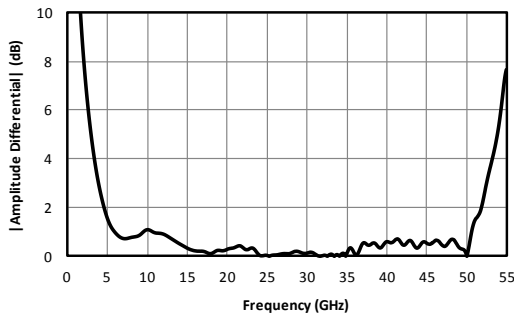


Fig. 3. Amplitude difference between the 0° and 90° output ports.

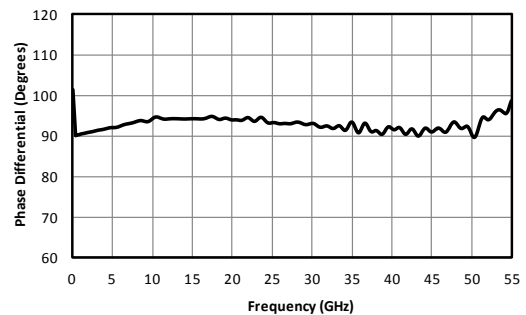


Fig. 4. Phase difference between the 0° and 90° output ports.

Model Number	Description
QH-0550	5-50 GHz 3 dB Quadrature Hybrid with 1.85 mm connectors ¹

¹Default is 1.85 mm female connectors. Consult factory for other connector options.

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