

QH-0440

3 dB Quadrature Hybrid

DEVICE OVERVIEW

General Description

The QH-0440 is a 4 to 40 GHz quadrature (90°) hybrid. The QH-0440 is suitable for applications such as single sideband upconverters, image rejection downconverters, IQ modulators, balanced amplifiers, microwave correlators, and microwave Butler matrices.

[Download s-parameters here](#)

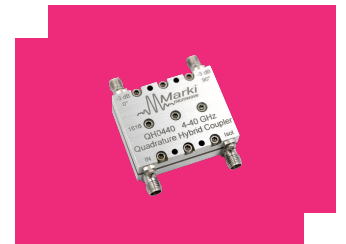
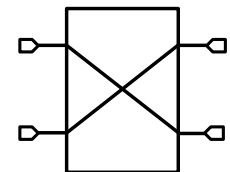
Features

- 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-0440	3 dB Quadrature Hybrid	-	-	RoHS	Released	EAR99

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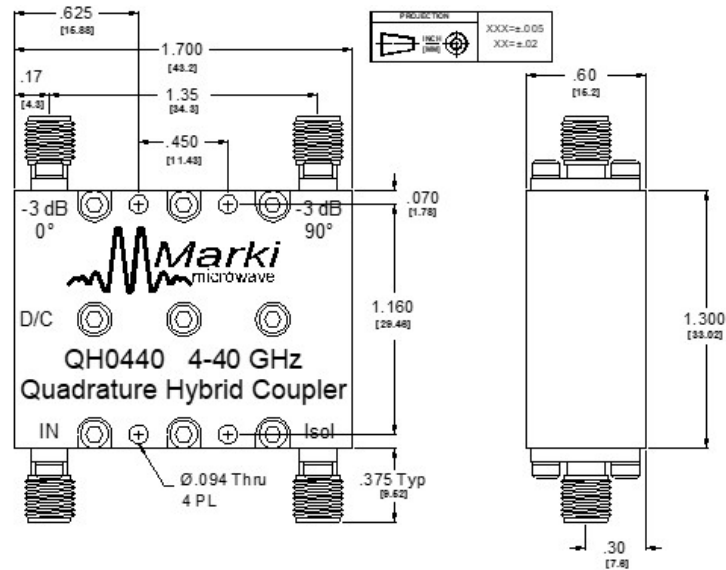
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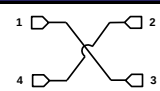
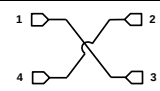
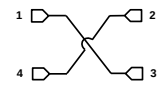
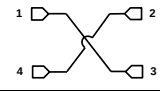
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Port Configuration and Functions

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	-	70g
Dimensions	-	43.20 x 33.02 mm

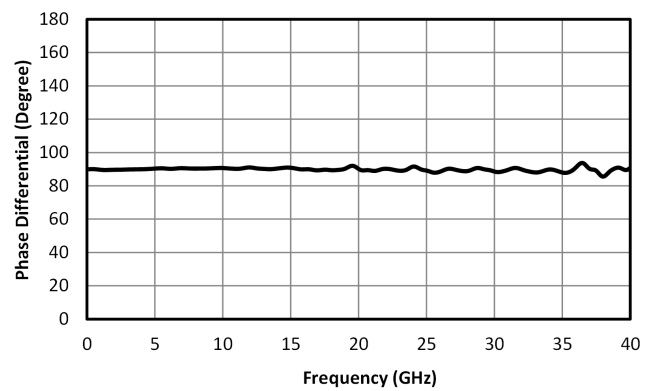
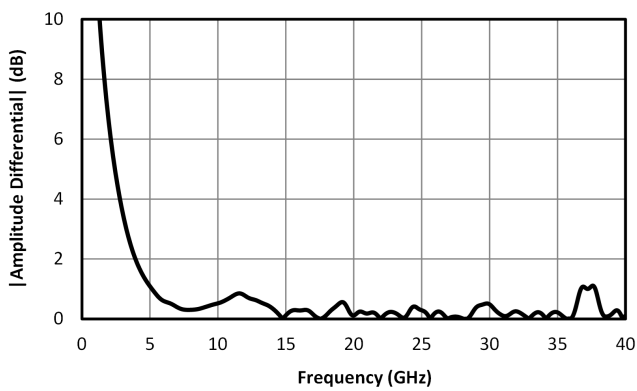
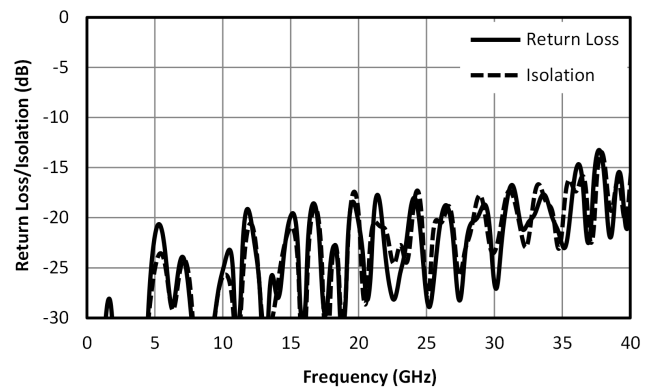
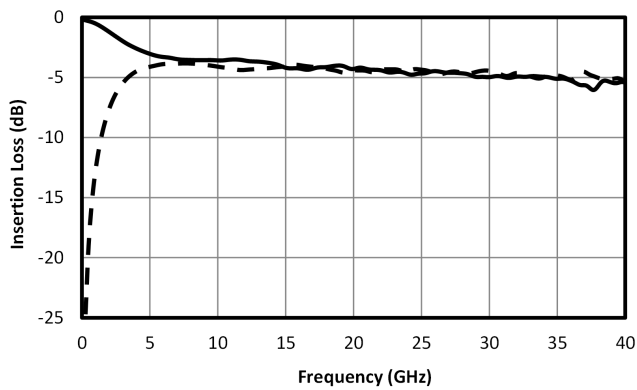
Electrical Specifications

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Phase Shift	-	4	40	-	90	-	°
Amplitude Balance ¹	-	4	40	-	0.4	1.2	dB
Phase Balance	-	4	40	-	5	12	°
Excess Through Line Insertion Loss ²	-	4	40	-	2	-	dB
Isolation	-	4	30	13	18	-	dB
Isolation	-	30	40	8	12	-	dB
VSWR	-	4	30	-	-	1.65	-
VSWR	-	30	40	-	1.9	-	-
Weight	-	-	-	-	70	-	g
Mean Coupling	-	4	40	-	3	-	dB

^[1] Maximum amplitude differential is twice the magnitude of the amplitude balance

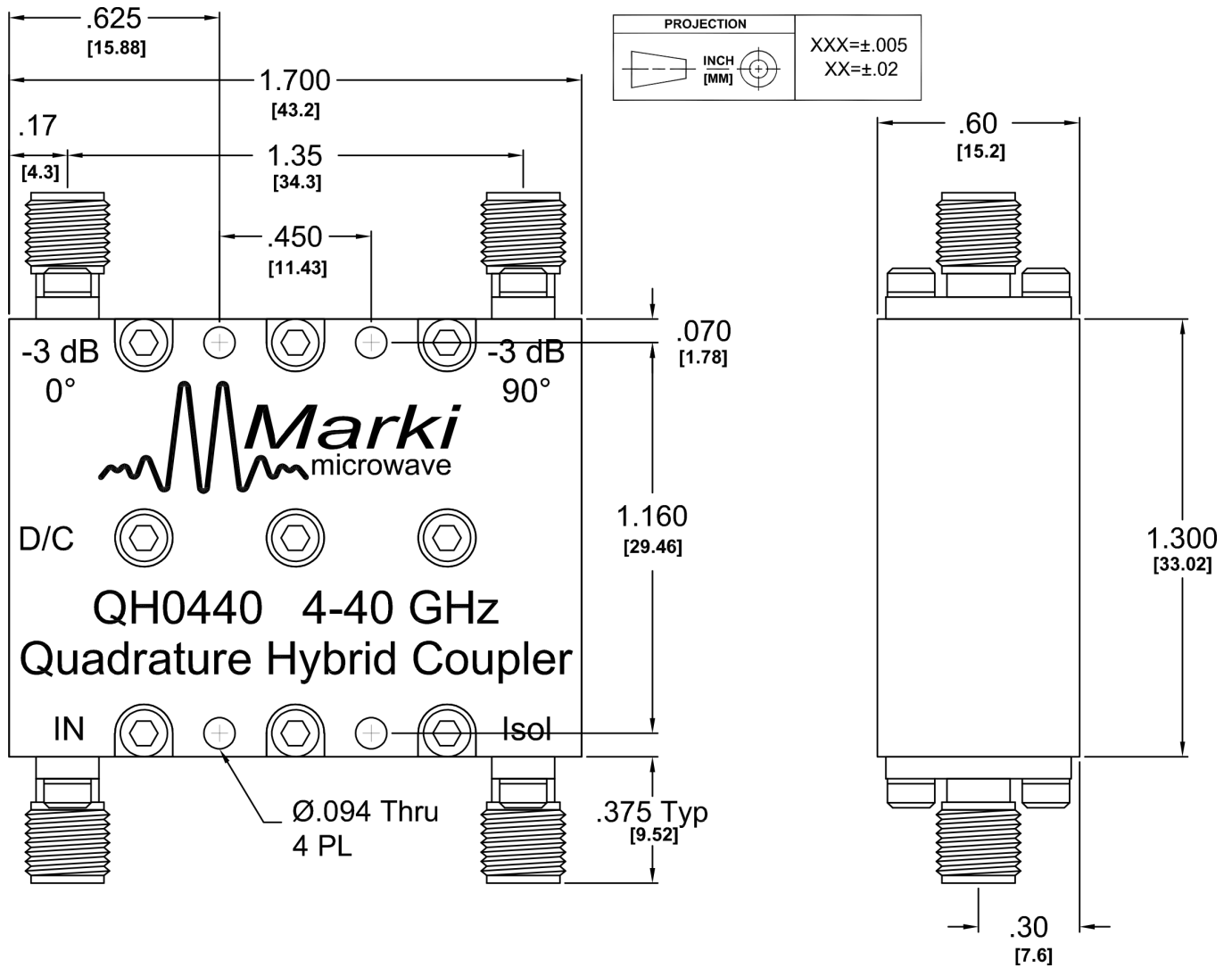
^[2] Excess Insertion Loss = (Input to Output Insertion Loss) – 3 dB

Typical Performance



Mechanical Data

Outline Drawing



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