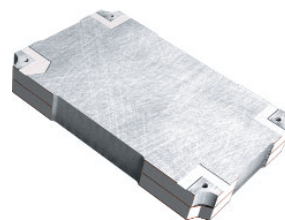


- 2.0 - 4.0 GHz
- LOWEST LOSS
- HIGHEST ISOLATION
- BEST PHASE/AMPLITUDE BALANCE
- SURFACE MOUNT
- TAPE & REEL



## TECHNICAL DESCRIPTION / APPLICATION

### MULTI-MIX® QUAD HYBRIDS

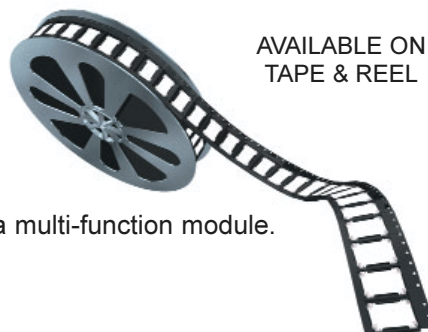
The Multi-Mix® QHD series provides a 3 dB coupler with low insertion loss, low VSWR, and high isolation. Accurate phase and amplitude balance make them ideal for applications involving IQ networks, power amplifiers, signal distribution and processing.

QHD quad hybrids are fusion bonded multilayer stripline assemblies. The fusion bonding process yields a homogeneous monolithic dielectric structure with reliability, ruggedness, and electrical performance that is superior to conventional adhesive bonding techniques.

The QHD series is an easy to install SMD designed specifically for the full spectrum of wireless applications. The high stability ceramic filled PTFE dielectrics utilized in these components are compatible with common substrates such as FR-4, G-10, and polyamide. The wrap around ground plane provides excellent EM shielding.

Additional benefits include:

- Available on tape and reel.
- Cost effective for commercial wireless applications.
- Industry standard size.
- Temperature stable from -65 to +125 degrees C.
- Can be integrated with other Multi-Mix® components in a multi-function module.



AVAILABLE ON  
TAPE & REEL

### RELIABILITY

All QHD series components are 100% tested. The product family has passed environmental screening per MIL-TSD-202 including Thermal shock, Burn-in, Acceleration, Vibration, Mechanical Shock, Moisture Resistance, Resistance to Solder Heat, and Thermal Cycling Life Test (1000 cycles).

### THE MULTI-MIX® PROCESS

Multi-Mix® is a manufacturing process based on fluoropolymer composite substrates that are fusion bonded together into a multilayer structure. The fusion bonding process yields a homogeneous monolithic structure with superior performance at microwave and millimeter wave frequencies. The bonded layers can contain embedded semiconductors, MMICs, etched resistors, circuit patterns, and plated-through vias to form a SMD module that requires no additional packaging and is ready for pick and place.

**THE MULTI-MIX MICROTECHNOLOGY® GROUP IS ISO-9001 REGISTERED**



# GENERAL SPECIFICATIONS

QHD-2M-3-0G

## ELECTRICAL

FREQUENCY RANGE	2.0 TO 4.0 GHz
INSERTION LOSS	0.35 dB (MAX)
AMPLITUDE BALANCE	+/- 0.5 dB (MAX)
PHASE BALANCE	90 +/- 3° (MAX)
ISOLATION	17 dB (MIN)
VSWR (ALL PORTS)	1.50:1 (MAX)
INPUT POWER (CW @ 1.2:1 OUTPUT VSWR)	100W (MAX)

## MECHANICAL

SIZE / OUTLINE	0.45 x 0.35 x 0.075 inches
WEIGHT	0.02 oz. (0.3 Grams)
RF INTERFACE	Surface Mount

## ENVIRONMENTAL

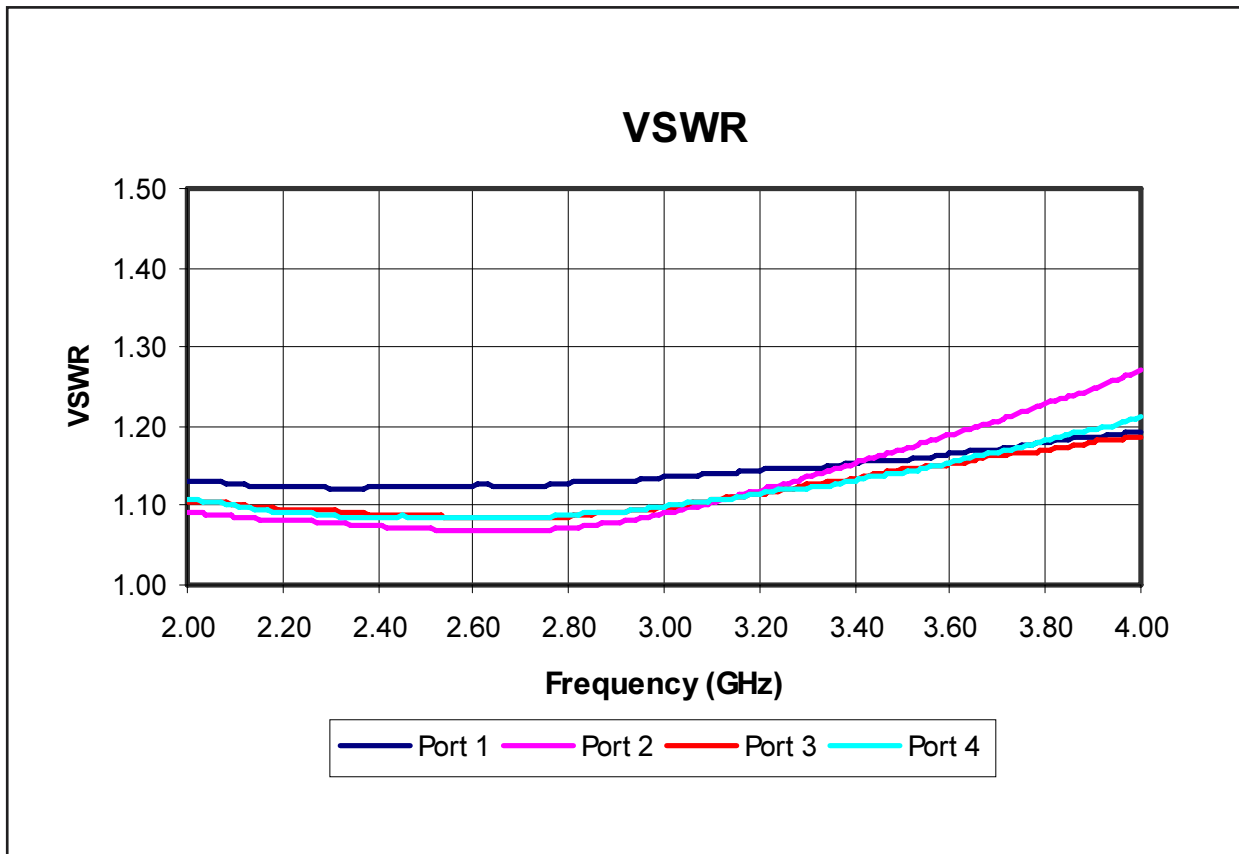
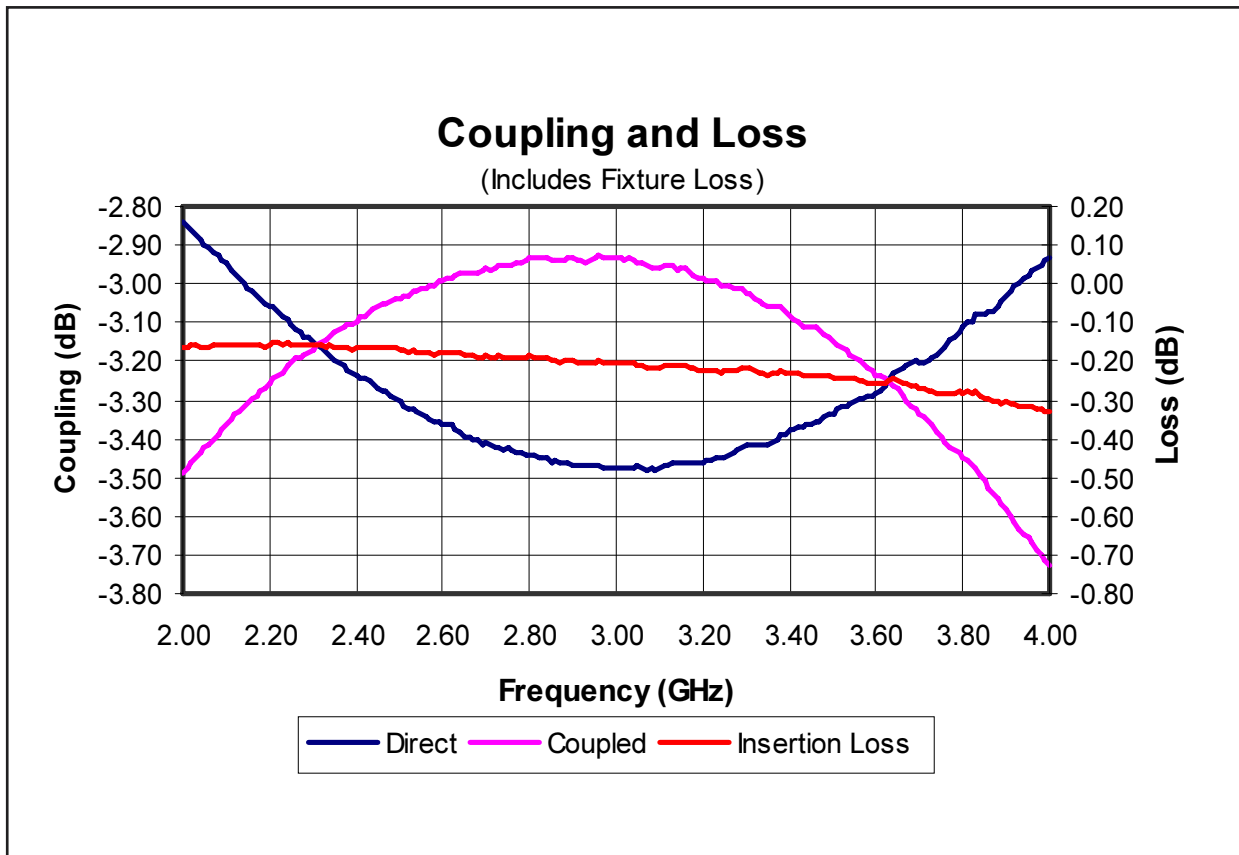
OPERATING TEMPERATURE RANGE	-55° To + 85°, C
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## TRUTH TABLE

	1	2	3	4
1	Input	Iso	-90°	0°
2	Iso	Input	0°	-90°
3	-90°	0°	Input	Iso
4	0°	-90°	Iso	Input

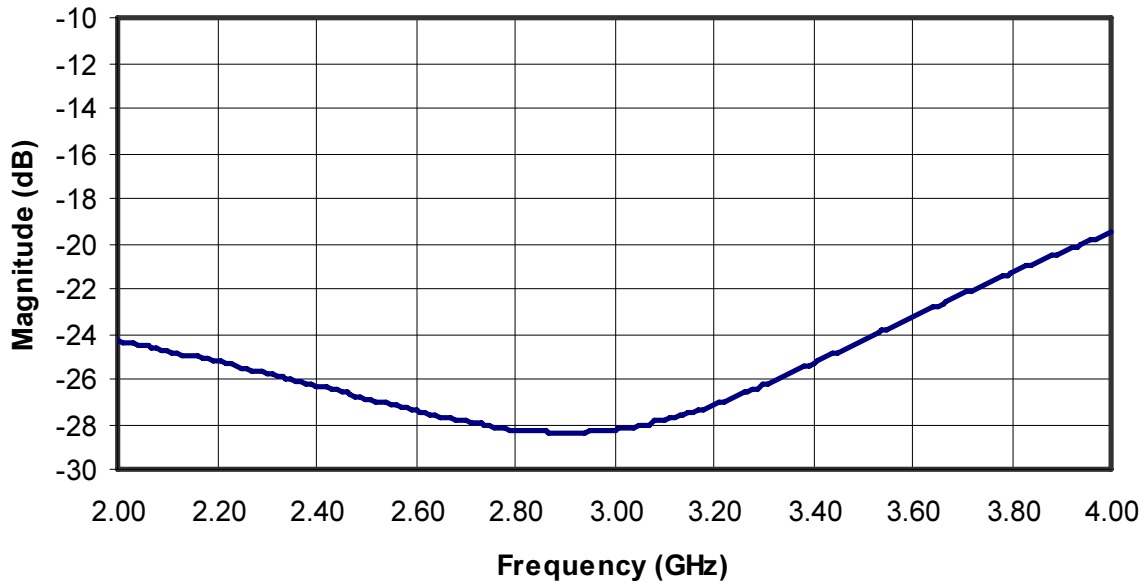
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Merrimac Industries / 41 Fairfield Place, West Caldwell, NJ 07006  
Tel: 1.888.434.MMFM / Fax: 973.882.5990 / Email: MMFM@merrimacind.com / www.Multi-Mix.com

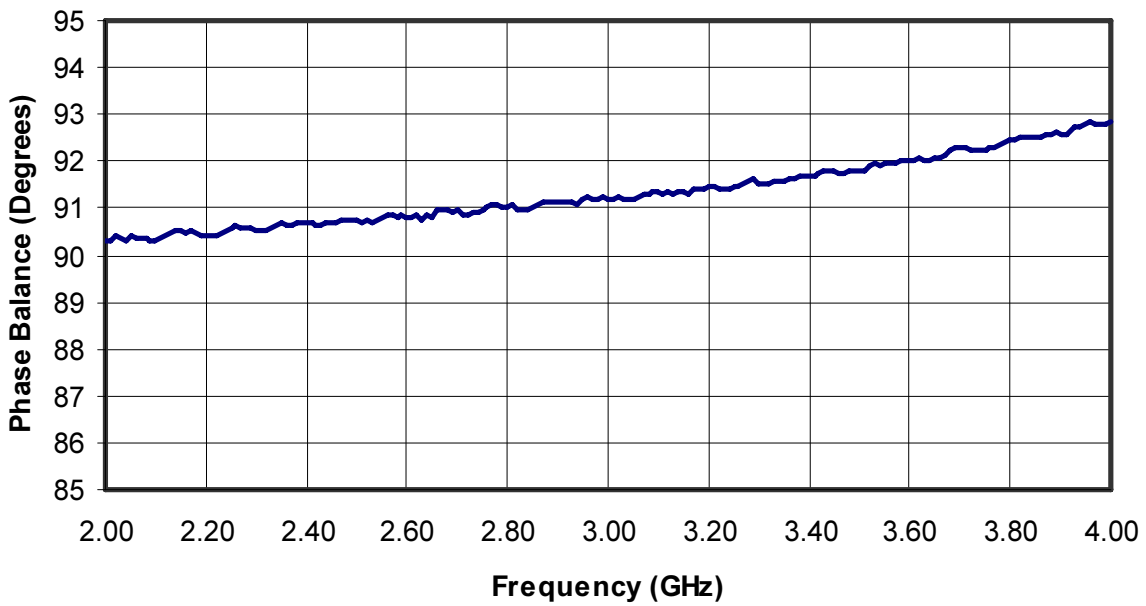


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### Isolation



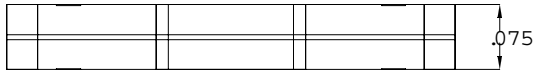
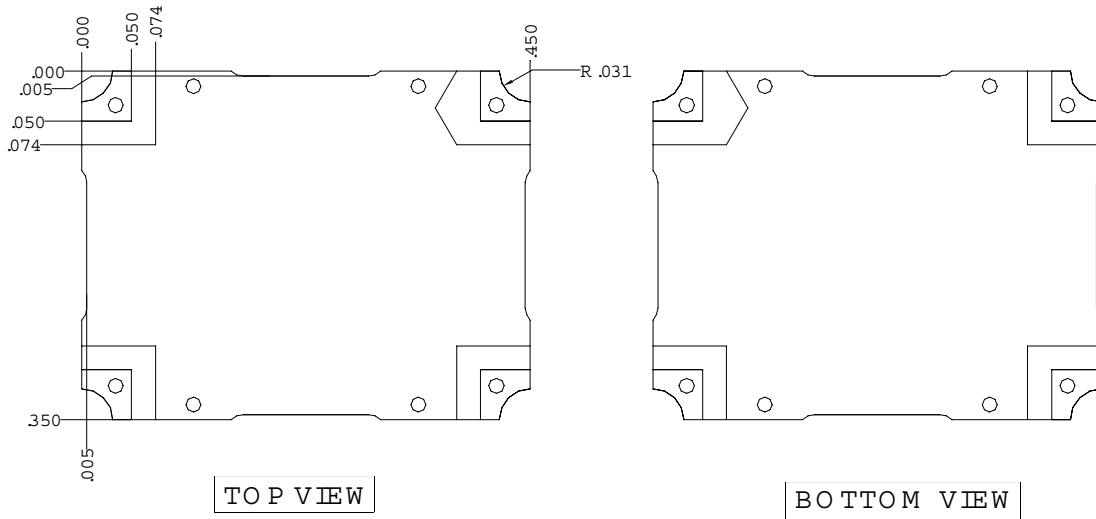
### Phase Balance



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PACKAGE OUTLINE

QHD-2M-3-0G



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