

## PRODUCT DATA SHEET

QH9139

### Our patented 3 dB 90° Hybrid Couplers provide:

- Superior component performance starting at 3:1 Bandwidth.
- Thicker center boards for high power and increased repeatability.
- Bonded structures which eliminate any air gaps between substrates.
- More sections per bandwidth for better coupling flatness.
- Electrically shorter and physically smaller RF components.

### Features:

High Power      Wide Bandwidths      Small Size      Connectorized      Drop-In & Surface Mount

### Electrical Specifications:

Frequency: 1000 - 2500 MHz  
Power: 250 W CW  
Insertion Loss: 0.2 dB Max.  
VSWR: 1.25:1 Max.  
Phase Balance:  $\pm 5^\circ$  dB Max.  
Amplitude Balance: 0.65dB Max.  
Isolation: 20 dB Min.

### Mechanical Specifications:

Type: Surface Mount  
Plating Options: QH9139-Pb: Electrodeposited Tin/Lead  
QH9139-Sn: Immersion Tin (RoHS Compliant)  
QH9139-Ag: Immersion Silver (RoHS Compliant)  
Size: 0.56 x 0.35 x 0.98"

### Port Configurations:

| J1          | J2          | J3          | J4          |
|-------------|-------------|-------------|-------------|
| Input       | -3 dB, 0°   | -3 dB, -90° | Isolated    |
| -3 dB, 0°   | -3 dB, 90°  | Isolated    | -3 dB, -90° |
| -3 dB, -90° | Isolated    | Input       | -3 dB, 0°   |
| Isolated    | -3 dB, -90° | -3 dB, 0°   | Input       |

**Werlatone's** breakthrough technology allows us to build our existing line of Broadband 3 dB High Power 90° Hybrid Couplers. Connectorized 3 dB 90° Hybrid Coupler models are available with a choice of connectors. Several of our existing High Power 3 dB 90° RF Couplers are three port designs, wherein the difference port is internally terminated with a high power termination. This eliminates the need for a customer supplied external load for each Hybrid Coupler.

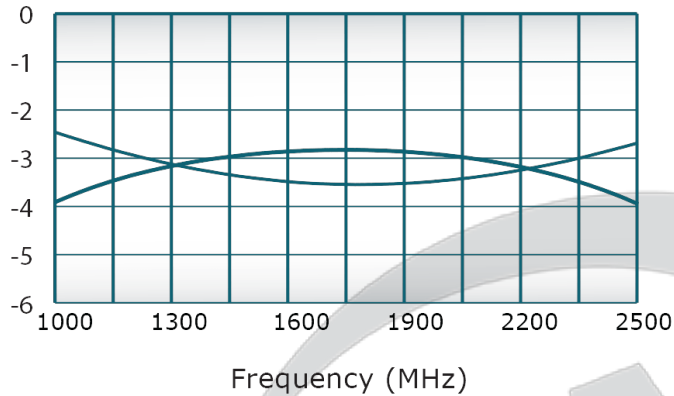


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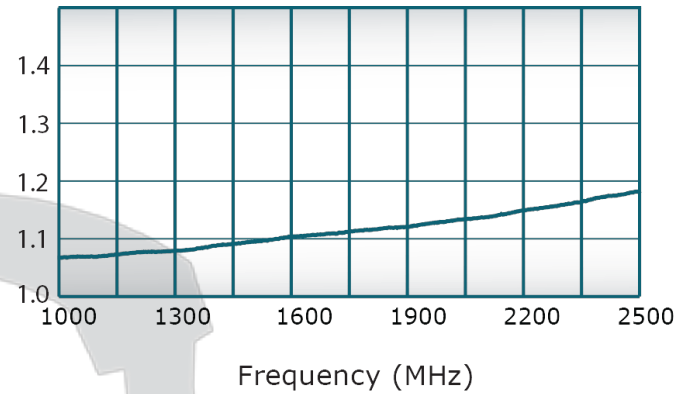
QH9139

### Performance Data (Specifications subject to change without notice):

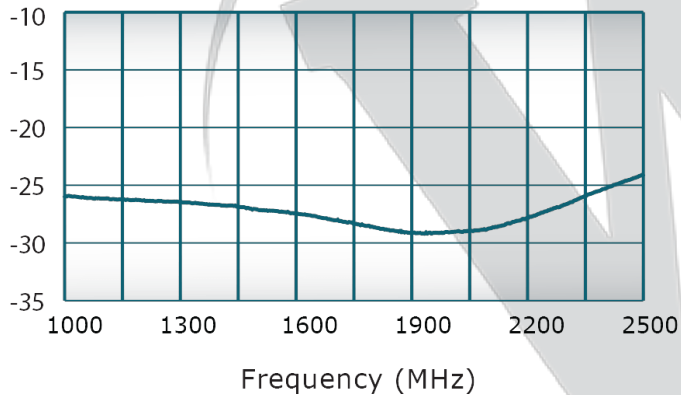
Coupling:



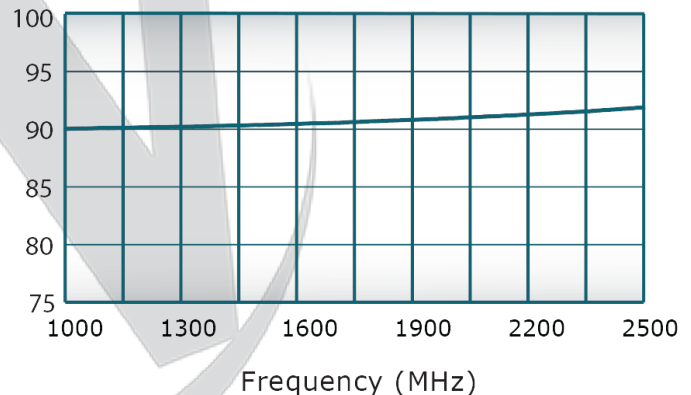
VSWR:



Isolation:



Phase Balance:

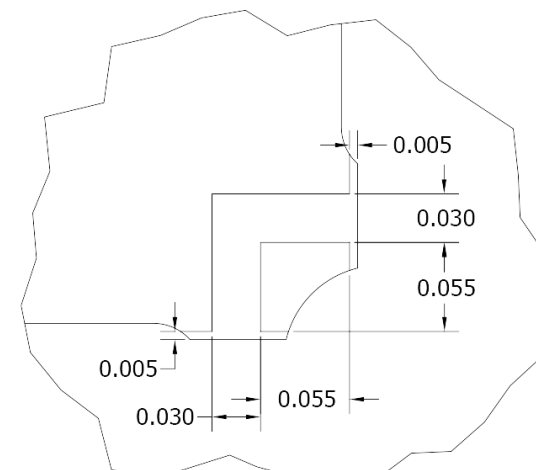
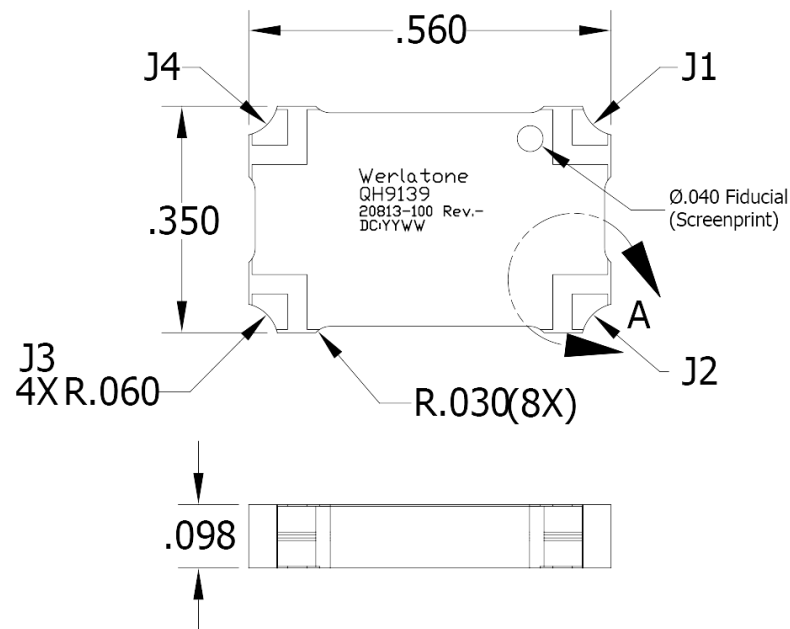


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**REVISION HISTORY**

| REV | REVISION RECORD | DATE       | APPROVED |
|-----|-----------------|------------|----------|
| -   | PRE-RELEASE     | 10/13/2011 | BW       |
|     |                 |            |          |
|     |                 |            |          |
|     |                 |            |          |



**DETAIL A  
SCALE 10:1**

**Port Configurations**

| J1          | J2          | J3          | J4          |
|-------------|-------------|-------------|-------------|
| Input       | -3 dB, 0°   | -3 dB, -90° | Isolated    |
| -3 dB, 0°   | Input       | Isolated    | -3 dB, -90° |
| -3 dB, -90° | Isolated    | Input       | -3 dB, 0°   |
| Isolated    | -3 dB, -90° | -3 dB, 0°   | Input       |

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. SMT Component. Reference Tech Note for Mounting Recommendations.

2. Plating Options:

- QH9139-Pb : Electrodeposited Tin/Lead
- QH9139-Sn : Immersion Tin (ROHS COMPLIANT)
- QH9139-Ag : Immersion Silver (ROHS COMPLIANT)
- QH9139-Au : ENIG (ROHS COMPLIANT)

|                                                                                                              |  |      |            |                                                                                                              |                                          |              |     |
|--------------------------------------------------------------------------------------------------------------|--|------|------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------|-----|
| UNLESS OTHERWISE SPECIFIED                                                                                   |  | DWN  | DATE       |  WERLATONE   SINCE 1965 | 17 Jon Barrett Rd<br>Patterson, NY 12563 |              |     |
| • INTERPRET DRAWING IAW MIL-STD-100                                                                          |  | GP   | 10/13/2011 |                                                                                                              |                                          |              |     |
| • DIMENSIONING PER ASME Y14.5M-2009                                                                          |  | CHK  | DATE       | TITLE                                                                                                        |                                          |              |     |
| • PARENTHEetical INFO FOR REF ONLY                                                                           |  | NH   | 10/13/2011 |                                                                                                              |                                          |              |     |
| • DIMENSIONS ARE IN INCHES                                                                                   |  | ENGR | DATE       | QH9139 3dB 90° Hybrid Coupler                                                                                |                                          |              |     |
| • DIMENSIONAL LIMITS APPLY BEFORE PROCESSES                                                                  |  | BW   | 10/13/2011 |                                                                                                              |                                          |              |     |
| • TOLERANCES: ANGLES ± 2                                                                                     |  | MFGR | DATE       |                                                                                                              |                                          |              |     |
| 3 PL ± .005                                                                                                  |  | QA   | DATE       | SIZE                                                                                                         | CAGE CODE                                | DWG NO       | REV |
| 2 PL ± .015                                                                                                  |  | RLSE | DATE       | A                                                                                                            | 28812                                    | 20813-500    | -   |
| THIRD ANGLE PROJECTION  |  |      |            | SCALE                                                                                                        | 4:1                                      | SHEET 1 OF 1 |     |

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