

**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 &amp; Surface Mount

**Electrical Specifications:**

|                    |                  |
|--------------------|------------------|
| Frequency:         | 200 - 1000 MHz   |
| Power:             | 200 W CW         |
| Insertion Loss     | 0.4 dB Max.      |
| VSWR:              | 1.30:1 Max.      |
| Phase Balance:     | 90° ± 5° dB Max. |
| Amplitude Balance: | ± 0.7 dB Max.    |
| Isolation:         | 18 dB Min.       |

**Mechanical Specifications:**

|                  |                                                                                                                                      |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Type:            | Surface Mount                                                                                                                        |
| Plating Options: | QH11643-Pb: Electrodeposited Tin/Lead<br>QH11643-Sn: Immersion Tin (RoHS Compliant)<br>QH11643-Ag: Immersion Silver (RoHS Compliant) |
| Size:            | 2.8 x 0.75 x 0.16"                                                                                                                   |

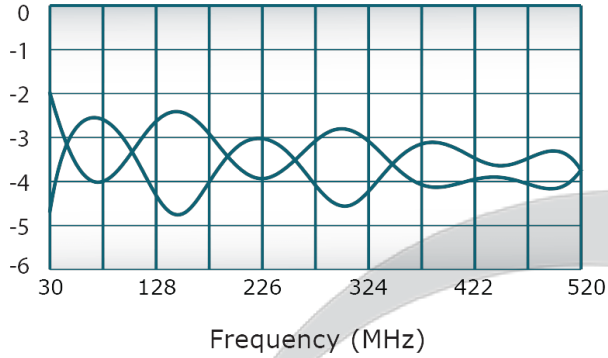
**Port Configurations:**

| <b>J1</b>  | <b>J2</b> | <b>J3</b>  | <b>J4</b>  |
|------------|-----------|------------|------------|
| 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      |

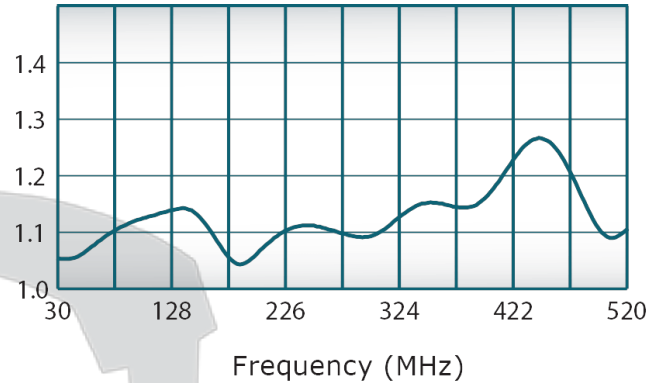
**Werlatone's** breakthrough technology allows us to build our existing line of Broadband 3 dB High Power 90° Hybrid Couplers. Connectorized 3 dB 90° Hybrid Coupler models are available with a choice of connectors. Several of our existing High Power 3 dB 90° RF Couplers are three port designs, wherein 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.

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

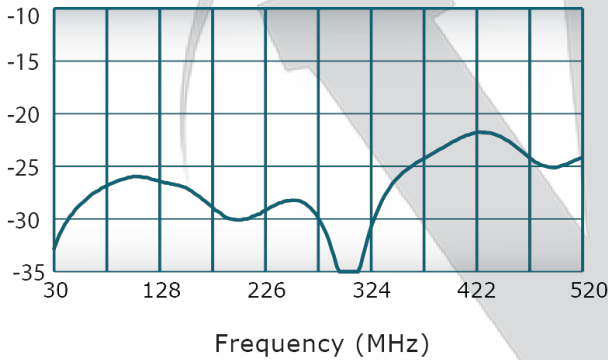
Coupling:



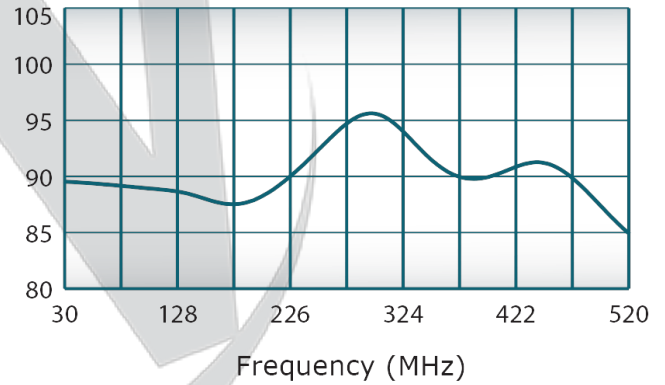
VSWR:



Isolation:



Phase Balance:



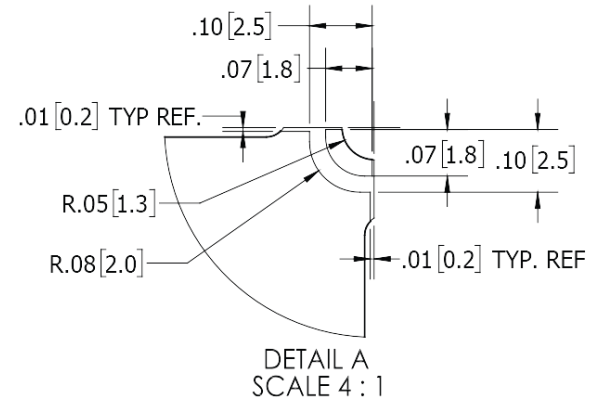
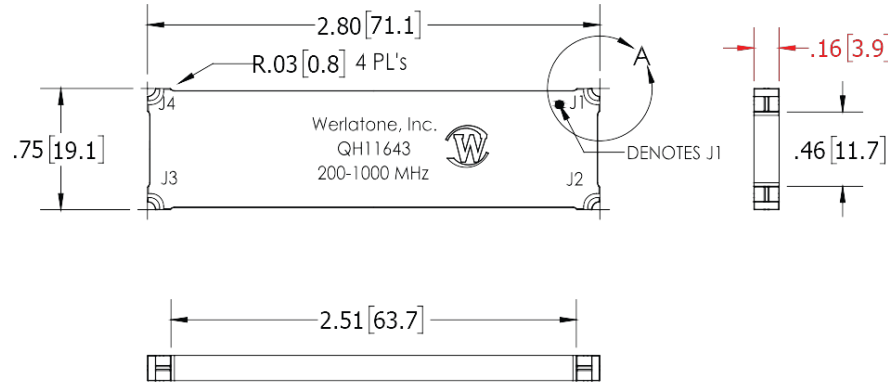
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Werlatone, Inc.

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| REVISION HISTORY |                 |           |          |
|------------------|-----------------|-----------|----------|
| REV.             | DESCRIPTION     | DATE      | APPROVED |
| -                | INITIAL RELEASE | 3/9/2018  | BW       |
| A                | ECN 9543        | 3/30/2018 | BW       |



| FINISH     |                  |
|------------|------------------|
| P/N        | TYPE             |
| QH11643-Ag | RoHS Imm. Silver |
| QH11643-Au | RoHS Nickel Gold |
| QH11643-Pb | ED Tin/Lead      |
| QH11643-Sn | RoHS Imm. Tin    |

| 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. SEE SMT APPLICATION NOTE FOR FURTHER INFORMATION

|             |         |                                                                                                                                                                                               |  |      |          |                                                                                 |
|-------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------|----------|---------------------------------------------------------------------------------|
|             |         | UNLESS OTHERWISE SPECIFIED                                                                                                                                                                    |  | DWN  | DATE     | <b>WERLATONE SINCE 1965</b><br>17 Jon Barrett Rd<br>Patterson, NY 12563         |
|             |         | * INTERPRET DRAWING IAW MIL-STD-100<br>* DIMENSIONING PER ASME Y14.5M-2009<br>* PARENTHETICAL BUFD FOR REF ONLY<br>* DIMENSIONS ARE IN INCHES<br>* DIMENSIONAL LIMITS APPLY BEFORE PROCESSING |  | GP   | 3/9/2018 |                                                                                 |
|             |         | TOLERANCES:                                                                                                                                                                                   |  | CHK  | DATE     | <b>TITLE</b><br><b>OUTLINE, QH11643 90° HYBRID COUPLER, 200-1000 MHz, 200 W</b> |
|             |         | ANGLES ± 2°<br>3 PL ± .005<br>2 PL ± .015                                                                                                                                                     |  | PR   | 3/9/2018 |                                                                                 |
|             |         | * REMOVE BURRS AND SHARP EDGES R.01 MAX<br>* CONCENTRICITY MACHINED DIA: .002 FIM<br>* MACHINE TOOL MISMATCH .003 MAX                                                                         |  | ENGR | DATE     |                                                                                 |
|             |         | THIRD ANGLE PROJECTION                                                                                                                                                                        |  | GP   | 3/9/2018 |                                                                                 |
| NEXT ASSY   | QH11643 | USED ON                                                                                                                                                                                       |  | MFGR | DATE     | SIZE: <b>A</b><br>CAGE CODE: <b>28812</b><br>DWG NO: <b>21596-500</b>           |
| APPLICATION |         |                                                                                                                                                                                               |  | QA   | DATE     | REV: <b>A</b>                                                                   |
|             |         |                                                                                                                                                                                               |  | RLSE | DATE     | SCALE: <b>1:1</b>                                                               |
|             |         |                                                                                                                                                                                               |  |      |          | SHEET: <b>1 OF 1</b>                                                            |

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