

# 90° HYBRIDS - 2:1 TO 4:1 BANDWIDTH

Hybrids  
90° & 180°

| Bandwidth | Frequency Range (MHz) | Insertion Loss (dB) max. | Isolation (dB) min. | Amplitude Balance (dB) max. | Phase Balance (Deg) max. | VSWR max. | P/N     |
|-----------|-----------------------|--------------------------|---------------------|-----------------------------|--------------------------|-----------|---------|
| 2:1       | 10-20                 | 0.5                      | 25                  | 0.6                         | 2.0                      | 1.20:1    | Q2-01-* |
| 2:1       | 15-30                 | 0.5                      | 25                  | 0.6                         | 2.0                      | 1.20:1    | Q2-02-* |
| 2:1       | 20-40                 | 0.5                      | 25                  | 0.6                         | 2.0                      | 1.20:1    | Q2-03-* |
| 2:1       | 30-60                 | 0.5                      | 25                  | 0.6                         | 2.0                      | 1.20:1    | Q2-04-* |
| 2:1       | 40-80                 | 0.5                      | 25                  | 0.6                         | 2.0                      | 1.20:1    | Q2-05-* |
| 2:1       | 50-100                | 0.5                      | 23                  | 0.6                         | 2.0                      | 1.20:1    | Q2-06-* |
| 2:1       | 60-120                | 0.5                      | 23                  | 0.6                         | 2.0                      | 1.30:1    | Q2-07-* |
| 2:1       | 70-140                | 0.5                      | 22                  | 0.6                         | 2.0                      | 1.30:1    | Q2-08-* |
| 2:1       | 80-160                | 0.5                      | 22                  | 0.6                         | 2.0                      | 1.30:1    | Q2-09-* |
| 2:1       | 90-180                | 0.5                      | 20                  | 0.6                         | 2.0                      | 1.30:1    | Q2-10-* |
| 2:1       | 100-200               | 0.5                      | 20                  | 0.8                         | 3.0                      | 1.40:1    | Q2-11-* |
| 2:1       | 150-300               | 0.6                      | 20                  | 0.8                         | 3.0                      | 1.40:1    | Q2-12-* |
| 2:1       | 200-400               | 0.7                      | 18                  | 0.8                         | 3.0                      | 1.40:1    | Q2-13-* |
| 2:1       | 300-600               | 0.8                      | 18                  | 1.0                         | 5.0                      | 1.50:1    | Q2-14-* |
| 3:1       | 5-15                  | 0.6                      | 25                  | 1.0                         | 2.0                      | 1.30:1    | Q3-01-* |
| 3:1       | 10-30                 | 0.6                      | 23                  | 1.0                         | 2.0                      | 1.30:1    | Q3-02-* |
| 3:1       | 20-60                 | 0.6                      | 23                  | 1.0                         | 3.0                      | 1.30:1    | Q3-03-* |
| 3:1       | 40-120                | 0.6                      | 20                  | 1.2                         | 3.0                      | 1.30:1    | Q3-04-* |
| 3:1       | 80-240                | 0.6                      | 20                  | 1.2                         | 4.0                      | 1.30:1    | Q3-05-* |

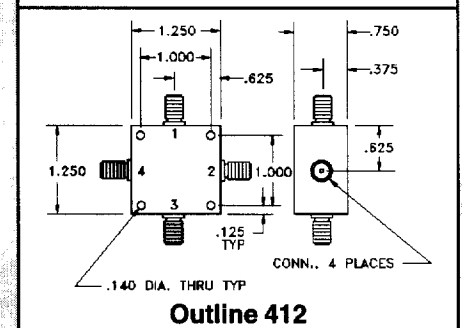
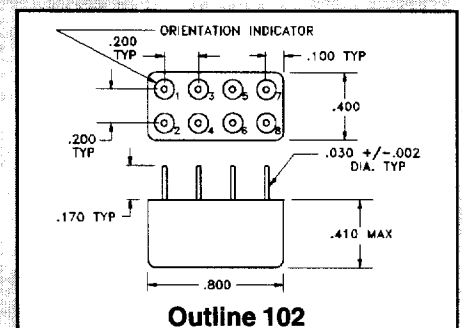
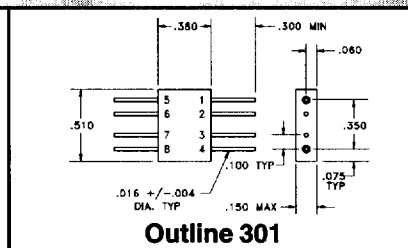
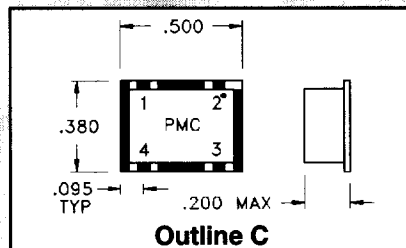
\* Available in outline # 102, 301, 412, & C

SMA female connectors standard on outline # 412, refer to page 98 for more information.

Notes: Power rating 1 watt max. for load VSWR better than 1.20:1.  
Higher power models available, please consult factory.

## Port Configuration

| Outline | Input | 90° Output | 0° Output | Isolated | Ground               |
|---------|-------|------------|-----------|----------|----------------------|
| 102     | 1     | 2          | 5         | 6        | 3,4,7,8              |
| 301     | 1     | 5          | 8         | 4        | 2,3,6,7              |
| 412     | 1     | 4          | 2         | 3        | Housing<br>4 Corners |
| C       | 1     | 4          | 3         | 2        |                      |



**PULSAR** MICROWAVE CORPORATION