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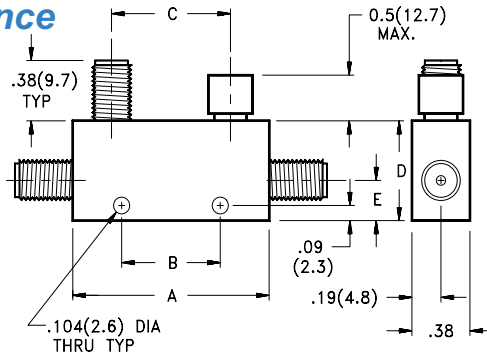
# Couplers

## Directional Couplers • Octave Bandwidth

### SMA Miniature High Performance

- Full Octave Frequency Band Performance
- Low VSWR - High Directivity
- Small Lightweight
- Meets Mil-E-5400 and Mil-E16400

Midwest Microwave's SMA miniature series of high performance directional couplers are small, lightweight, ruggedly constructed stripline units that possess inherently low insertion loss and VSWR with high directivity. Units are available in octave frequency bandwidths covering the entire range of 0.5-18.0 GHz.



### ELECTRICAL SPECIFICATIONS

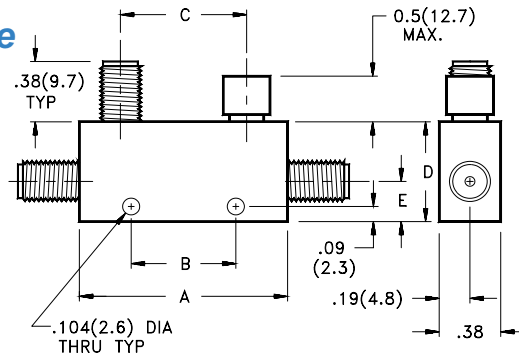
| FREQUENCY RANGE (GHz) | CASE STYLE | MODEL NUMBER       | COUPLING (dB) (incl Freq Sensitivity) | FREQUENCY SENSITIVITY | INSERTION LOSS (dB) max | DIRECTIVITY (dB) min | VSWR max | Input Avg (W) | Power Refl Avg (W) | Peak (kW) (W) |
|-----------------------|------------|--------------------|---------------------------------------|-----------------------|-------------------------|----------------------|----------|---------------|--------------------|---------------|
| 0.5 - 1.0             | 4          | CPL-5210-06-SMA-79 | 6 + 1.0                               | + 0.60                | 0.15                    | 25                   | 1.10     | 50            | 4                  | 4             |
|                       | 4          | CPL-5210-10-SMA-79 | 10 + 1.0                              | + 0.75                | 0.15                    | 25                   | 1.10     | 50            | 10                 | 4             |
|                       | 4          | CPL-5210-20-SMA-79 | 20 + 1.0                              | + 0.75                | 0.15                    | 25                   | 1.10     | 50            | 50                 | 4             |
|                       | 4          | CPL-5210-30-SMA-79 | 30 + 1.0                              | + 0.75                | 0.15                    | 25                   | 1.10     | 50            | 50                 | 4             |
| 1.0 - 2.0             | 3          | CPL-5211-06-SMA-79 | 6 + 1.0                               | + 0.60                | 0.20                    | 25                   | 1.15     | 50            | 4                  | 4             |
|                       | 3          | CPL-5211-10-SMA-79 | 10 + 1.0                              | + 0.75                | 0.20                    | 25                   | 1.15     | 50            | 10                 | 4             |
|                       | 3          | CPL-5211-20-SMA-79 | 20 + 1.0                              | + 0.75                | 0.20                    | 25                   | 1.15     | 50            | 50                 | 4             |
|                       | 3          | CPL-5211-30-SMA-79 | 30 + 1.0                              | + 0.75                | 0.20                    | 25                   | 1.15     | 50            | 50                 | 4             |
| 2.0 - 4.0             | 2          | CPL-5212-06-SMA-79 | 6 + 1.0                               | + 0.60                | 0.20                    | 22                   | 1.15     | 50            | 4                  | 4             |
|                       | 2          | CPL-5212-10-SMA-79 | 10 + 1.0                              | + 0.75                | 0.20                    | 22                   | 1.15     | 50            | 10                 | 4             |
|                       | 2          | CPL-5212-20-SMA-79 | 20 + 1.0                              | + 0.75                | 0.20                    | 22                   | 1.15     | 50            | 50                 | 4             |
|                       | 2          | CPL-5212-30-SMA-71 | 30 + 1.0                              | + 0.75                | 0.20                    | 22                   | 1.15     | 50            | 50                 | 4             |
| 2.6 - 5.2             | 1          | CPL-5213-06-SMA-79 | 6 + 1.0                               | + 0.60                | 0.25                    | 20                   | 1.25     | 50            | 4                  | 4             |
|                       | 1          | CPL-5213-10-SMA-79 | 10 + 1.0                              | + 0.75                | 0.25                    | 20                   | 1.25     | 50            | 10                 | 4             |
|                       | 1          | CPL-5213-20-SMA-79 | 20 + 1.0                              | + 0.75                | 0.25                    | 20                   | 1.25     | 50            | 50                 | 4             |
|                       | 5          | CPL-5213-30-SMA-79 | 30 + 1.0                              | + 0.75                | 0.25                    | 20                   | 1.25     | 50            | 50                 | 4             |
| 4.0 - 8.0             | 1          | CPL-5214-6-SMA-79  | 6 + 1.0                               | + 0.50                | 0.35                    | 20                   | 1.25     | 50            | 4                  | 4             |
|                       | 1          | CPL-5214-10-SMA-79 | 10 + 1.0                              | + 0.50                | 0.35                    | 20                   | 1.25     | 50            | 10                 | 4             |
|                       | 1          | CPL-5214-20-SMA-79 | 20 + 1.0                              | + 0.50                | 0.35                    | 20                   | 1.25     | 50            | 50                 | 4             |
|                       | 5          | CPL-5214-30-SMA-79 | 30 + 1.0                              | + 0.50                | 0.35                    | 20                   | 1.25     | 50            | 50                 | 4             |
| 7.0 - 12.4            | 1          | CPL-5215-06-SMA-79 | 6 + 1.0                               | + 0.40                | 0.50                    | 17                   | 1.35     | 50            | 4                  | 4             |
|                       | 1          | CPL-5215-10-SMA-79 | 10 + .75                              | + 0.50                | 0.40                    | 17                   | 1.35     | 50            | 10                 | 4             |
|                       | 1          | CPL-5215-20-SMA-79 | 20 + .75                              | + 0.50                | 0.30                    | 17                   | 1.35     | 50            | 50                 | 4             |
|                       | 5          | CPL-5215-30-SMA-79 | 30 + 1.0                              | + 0.50                | 0.30                    | 17                   | 1.35     | 50            | 50                 | 4             |
| 7.0 - 18.0            | 1          | CPL-5216-06-SMA-79 | 6 + 1.0                               | + 0.50                | 0.65                    | 15                   | 1.35     | 50            | 4                  | 3             |
|                       | 1          | CPL-5216-10-SMA-79 | 10 + 1.0                              | + 0.50                | 0.50                    | 15                   | 1.40     | 50            | 10                 | 3             |
|                       | 1          | CPL-5216-20-SMA-79 | 20 + 1.0                              | + 0.75                | 0.50                    | 15                   | 1.45     | 50            | 50                 | 3             |
|                       | 5          | CPL-5216-30-SMA-79 | 30 + 1.0                              | + 0.75                | 0.50                    | 15                   | 1.45     | 50            | 50                 | 3             |
| 12.4 - 18.0           | 1          | CPL-5217-06-SMA-79 | 6 + 1.0                               | + 0.40                | 0.65                    | 15                   | 1.35     | 50            | 4                  | 2             |
|                       | 1          | CPL-5217-10-SMA-79 | 10 + 1.0                              | + 0.50                | 0.50                    | 15                   | 1.45     | 50            | 10                 | 2             |
|                       | 1          | CPL-5217-20-SMA-79 | 20 + 1.0                              | + 0.75                | 0.50                    | 15                   | 1.45     | 50            | 50                 | 2             |
|                       | 5          | CPL-5217-30-SMA-79 | 30 + 1.0                              | + 0.75                | 0.50                    | 15                   | 1.45     | 50            | 50                 | 2             |

Note: TNC or Type N output connectors are available by substituting "TNC" or "NNN" for "SMA" in the Model Number. See next page for dimensions.

### Ultra-Wideband Performance

- Full 0.5 - 18.0 GHz bandwidth units
- Low VSWR - High Directivity
- Rugged Stripline Construction
- Meets Mil-E-5400 and Mil-E16400

Midwest Microwave's SMA miniature series of Ultra-Wideband high performance directional couplers are small, lightweight, components that perform extremely well over multi-octave and Ultra-Wideband frequencies covering the entire range of 0.5 - 18.0 GHz. .



### ELECTRICAL SPECIFICATIONS

| FREQUENCY RANGE (GHZ) | CASE STYLE | MODEL NUMBER                       | COUPLING (dB) (Incl Freq Sensitivity) | FREQUENCY SENSITIVITY | INSERTION LOSS (dB) max | DIRECTIVITY (dB) min | VSWR max | Input Avg (W) | POWER Refl Avg (W) | Peak (kW) (W) |
|-----------------------|------------|------------------------------------|---------------------------------------|-----------------------|-------------------------|----------------------|----------|---------------|--------------------|---------------|
| 0.5 - 2.0             | 6          | <a href="#">CPL-5220-06-SMA-79</a> | 6 + 1.0                               | + 0.50                | 0.40                    | 22                   | 1.20     | 50            | 10                 | 4             |
|                       | 6          | <a href="#">CPL-5220-10-SMA-79</a> | 10 + 1.0                              | + 0.50                | 0.40                    | 22                   | 1.20     | 50            | 10                 | 4             |
|                       | 6          | <a href="#">CPL-5220-16-SMA-79</a> | 16 + 1.0                              | + 0.50                | 0.40                    | 22                   | 1.20     | 50            | 40                 | 4             |
|                       | 6          | <a href="#">CPL-5220-20-SMA-79</a> | 20 + 1.0                              | + 0.50                | 0.40                    | 22                   | 1.20     | 50            | 50                 | 4             |
| 1.0 - 4.0             | 6          | <a href="#">CPL-5221-06-SMA-79</a> | 6 + 1.0                               | + 0.50                | 0.50                    | 22                   | 1.25     | 50            | 10                 | 4             |
|                       | 6          | <a href="#">CPL-5221-10-SMA-79</a> | 10 + 1.0                              | + 0.50                | 0.50                    | 22                   | 1.25     | 50            | 10                 | 4             |
|                       | 6          | <a href="#">CPL-5221-16-SMA-79</a> | 16 + 1.0                              | + 0.50                | 0.50                    | 22                   | 1.25     | 50            | 40                 | 4             |
|                       | 6          | <a href="#">CPL-5221-20-SMA-79</a> | 20 + 1.0                              | + 0.50                | 0.50                    | 22                   | 1.25     | 50            | 50                 | 4             |
| 2.0 - 8.0             | 7          | <a href="#">CPL-5222-06-SMA-79</a> | 6 + 1.0                               | + 0.50                | 0.60                    | 20                   | 1.25     | 50            | 10                 | 4             |
|                       | 7          | <a href="#">CPL-5222-10-SMA-79</a> | 10 + 1.0                              | + 0.50                | 0.60                    | 20                   | 1.25     | 50            | 10                 | 4             |
|                       | 7          | <a href="#">CPL-5222-16-SMA-79</a> | 16 + 1.0                              | + 0.50                | 0.60                    | 20                   | 1.25     | 50            | 40                 | 4             |
|                       | 7          | <a href="#">CPL-5222-20-SMA-79</a> | 20 + 1.0                              | + 0.50                | 0.60                    | 20                   | 1.25     | 50            | 50                 | 4             |
| 6.0 - 18.0            | 1          | <a href="#">CPL-5226-06-SMA-79</a> | 6 + 1.0                               | + 0.50                | 0.65                    | 15                   | 1.40     | 50            | 10                 | 3             |
|                       | 1          | <a href="#">CPL-5226-10-SMA-79</a> | 10 + 1.0                              | + 0.50                | 0.60                    | 15                   | 1.40     | 50            | 10                 | 3             |
|                       | 1          | <a href="#">CPL-5226-16-SMA-79</a> | 16 + 1.0                              | + 0.50                | 0.60                    | 15                   | 1.40     | 50            | 40                 | 3             |
|                       | 1          | <a href="#">CPL-5226-20-SMA-79</a> | 20 + 1.0                              | + 0.50                | 0.60                    | 15                   | 1.40     | 50            | 50                 | 3             |
| 0.5 - 18.0            | 6          | <a href="#">CPL-5230-10-SMA-79</a> | 10* + 1.5                             | + 1.00                | 0.80                    | 15**                 | 1.50     | 50            | 10                 | 3             |
|                       | 6          | <a href="#">CPL-5230-16-SMA-79</a> | 16* + 1.5                             | + 1.00                | 0.80                    | 15**                 | 1.50     | 50            | 40                 | 3             |
|                       | 6          | <a href="#">CPL-5230-20-SMA-79</a> | 20* + 1.5                             | + 1.00                | 0.80                    | 15**                 | 1.50     | 50            | 50                 | 3             |
| 1.0 - 18.0            | 6          | <a href="#">CPL-5231-10-SMA-79</a> | 10* + 1.0                             | + 0.60                | 1.05                    | 15**                 | 1.50     | 50            | 10                 | 3             |
|                       | 6          | <a href="#">CPL-5231-16-SMA-79</a> | 16* + 1.0                             | + 0.60                | 0.80                    | 15**                 | 1.50     | 50            | 40                 | 3             |
|                       | 6          | <a href="#">CPL-5231-20-SMA-79</a> | 20* + 1.0                             | + 0.50                | 0.80                    | 15**                 | 1.50     | 50            | 50                 | 3             |
| 2.0 - 18.0            | 7          | <a href="#">CPL-5232-06-SMA-79</a> | 6* + 1.0                              | + 0.50                | 0.80                    | 15**                 | 1.40     | 50            | 10                 | 3             |
|                       | 7          | <a href="#">CPL-5232-10-SMA-79</a> | 10* + 1.0                             | + 0.50                | 0.80                    | 15**                 | 1.40     | 50            | 10                 | 3             |
|                       | 7          | <a href="#">CPL-5232-16-SMA-79</a> | 16* + 1.0                             | + 0.50                | 0.80                    | 15**                 | 1.40     | 50            | 40                 | 3             |
|                       | 7          | <a href="#">CPL-5232-20-SMA-79</a> | 20* + 1.0                             | + 0.50                | 0.80                    | 15**                 | 1.40     | 50            | 50                 | 3             |

\* Coupling is referenced to the output port.

\*\* Directivity is 12 dB from 12.4 - 18.0 GHz.

### MECHANICAL SPECIFICATIONS - INCHES (mm)

| CASE STYLE | A           | B           | C           | D           | E          | WEIGHT |      |
|------------|-------------|-------------|-------------|-------------|------------|--------|------|
|            |             |             |             |             |            | Oz     | Gr   |
| 1          | 1.00 (25.4) | N/A         | 0.50 (12.7) | 0.50 (12.7) | 0.22 (5.6) | 0.60   | 17.0 |
| 2          | 1.16 (29.4) | 0.34 (8.7)  | 0.66 (16.7) | 0.50 (12.7) | 0.22 (5.6) | 0.64   | 18.2 |
| 3          | 1.78 (45.2) | 0.94 (23.8) | 1.28 (32.5) | 0.50 (12.7) | 0.22 (5.6) | 0.82   | 23.2 |
| 4          | 3.00 (76.2) | 1.00 (25.4) | 2.5 (63.5)  | 0.75 (19.1) | 0.31 (7.9) | 1.50   | 43.0 |
| 5          | 1.00 (25.4) | N/A         | 0.50 (12.7) | 0.63 (15.9) | 0.22 (5.6) | 0.67   | 19.0 |
| 6          | 3.50 (88.9) | 2.00 (50.8) | 3.00 (76.2) | 0.75 (19.1) | 0.25 (6.3) | 1.75   | 49.6 |
| 7          | 2.00 (50.8) | 0.95 (24.2) | 1.50 (38.1) | 0.63 (16.0) | 0.22 (5.6) | 1.30   | 36.9 |

Note: TNC or Type N output connectors are available by substituting "TNC" or "NNN" for "SMA" in the Model Number.