

High Power Bi-Directional Coupler

50Ω 15dB Coupling DC Pass 824 to 2525 MHz

BDCN-15-25+ BDCN-15-25



CASE STYLE: FV1206-1
PRICE: \$2.99 ea. QTY (20)
\$2.11 ea. QTY (1000)

+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost
Reel Size Devices/Reel
7" 20, 50, 100, 200, 500, 1000, 3000

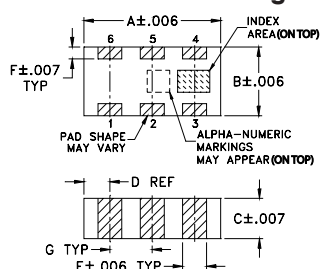
Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| DC Current | 0.5A |
| Permanent damage may occur if any of these limits are exceeded. | |

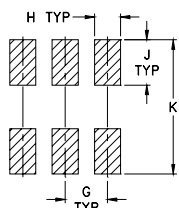
Pin Connections

| | |
|-------------------|-----|
| INPUT | 1 |
| OUTPUT | 4 |
| COUPLED (forward) | 6 |
| COUPLED (reverse) | 3 |
| GROUND | 2,5 |

Outline Drawing



PCB Land Pattern

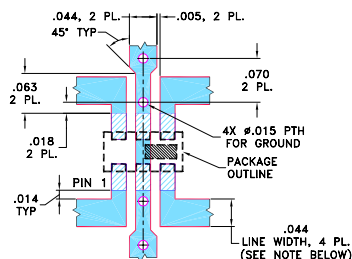


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H | J | K | wt |
|------|------|------|------|------|------|------|------|------|------|-------|
| .126 | .063 | .035 | .024 | .022 | .011 | .039 | .024 | .042 | .123 | grams |
| 3.20 | 1.60 | 0.89 | 0.61 | 0.56 | 0.28 | 0.99 | 0.61 | 1.07 | 3.12 | .020 |

Demo Board MCL P/N: TB-255+ Suggested PCB Layout (PL-131)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Features

- four-port coupler
- wideband, 824 to 2525 MHz
- excellent VSWR, 1.2:1 typ., all ports
- ultra small size, hermetically sealed
- minimal variation with temperature variation
- protected by US Patent 7,049,905
- DC Current through input to output 0.5A Max. at 1.0 watt RF input.

Applications

- UMTS
- PCS
- GPS
- TDMA
- CDMA
- ISM
- DCS

Electrical Specifications

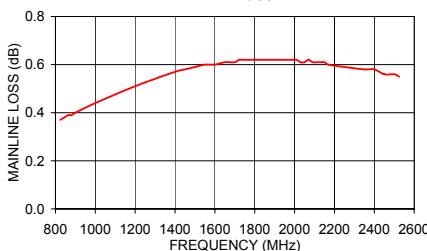
| FREQUENCY (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | DIRECTIVITY (dB) | | VSWR (:1) | POWER INPUT ² (W) |
|-----------------|---------------|---------------|---------------------------------|------|------------------|------|-----------|------------------------------|
| | Nom. | Max. Flatness | Typ. | Max. | Typ. | Min. | | |
| $f_c - f_u$ | | | | | | | | |
| 824-2525 | 14.5±2.0 | ±3.0 | 0.6 | 1.0 | 13 | 8 | 1.2 | 16 |
| 824-894 | 15.0±0.6 | ±0.6 | 0.4 | 0.8 | 12 | 8 | 1.2 | 16 |
| 880-960 | 14.5±0.6 | ±0.6 | 0.5 | 0.9 | 13 | 8 | 1.2 | 16 |
| 1710-1880 | 12.5±0.6 | ±0.4 | 0.6 | 0.9 | 22 | 16 | 1.2 | 16 |
| 1850-1990 | 12.6±0.6 | ±0.4 | 0.5 | 0.9 | 22 | 16 | 1.2 | 16 |
| 2110-2170 | 13.3±0.6 | ±0.5 | 0.6 | 1.0 | 22 | 16 | 1.2 | 16 |
| 2375-2525 | 15.5±0.6 | ±1.5 | 0.6 | 1.0 | 12 | 8 | 1.2 | 16 |

1. Includes theoretical power loss of 0.14 dB at 15 dB coupling.
2. Derate linearly 8W at 100°C

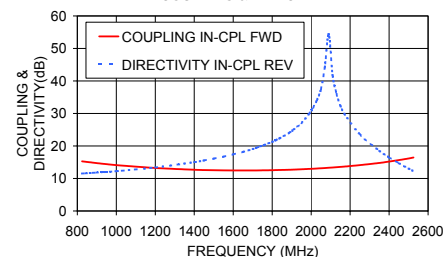
Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) | | Coupling (dB) | | Directivity (dB) | | Return Loss (dB) | | |
|-----------------|--------------------|------------|---------------|-------------|------------------|-------|------------------|---------|---------|
| | In-Out | In-Cpl Fwd | Out-Cpl Rev | Out-Cpl Fwd | In-Cpl Rev | In | Out | Cpl Fwd | Cpl Rev |
| 824 | 0.37 | 15.28 | 15.27 | 11.53 | 11.52 | 26.01 | 27.03 | 25.99 | 25.58 |
| 1000 | 0.44 | 14.11 | 14.11 | 12.25 | 12.24 | 25.11 | 25.83 | 24.37 | 24.79 |
| 1500 | 0.59 | 12.54 | 12.55 | 16.08 | 16.10 | 24.39 | 23.75 | 23.65 | 24.79 |
| 1700 | 0.61 | 12.47 | 12.47 | 19.01 | 19.05 | 25.23 | 23.52 | 24.34 | 26.21 |
| 1840 | 0.62 | 12.61 | 12.61 | 22.34 | 22.42 | 25.17 | 24.04 | 25.02 | 26.08 |
| 1990 | 0.62 | 12.94 | 12.93 | 29.95 | 29.96 | 25.23 | 24.26 | 26.32 | 26.52 |
| 2070 | 0.62 | 13.21 | 13.20 | 45.18 | 44.15 | 25.18 | 24.44 | 26.72 | 26.51 |
| 2170 | 0.60 | 13.65 | 13.63 | 29.61 | 29.91 | 25.36 | 25.28 | 27.35 | 27.20 |
| 2350 | 0.58 | 14.78 | 14.74 | 18.39 | 18.50 | 25.16 | 25.93 | 28.29 | 26.93 |
| 2525 | 0.55 | 16.45 | 16.40 | 12.11 | 12.23 | 24.12 | 25.98 | 28.45 | 25.25 |

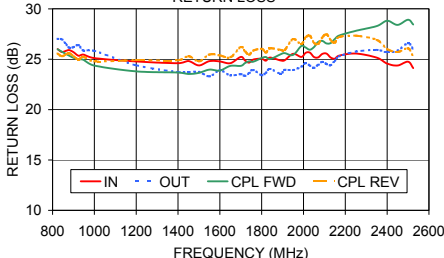
BDCN-15-25
MAINLINE LOSS



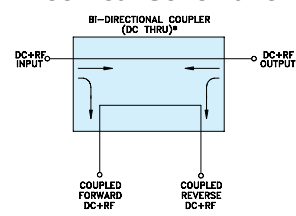
BDCN-15-25
COUPLING & DIRECTIVITY



BDCN-15-25
RETURN LOSS



Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS.

