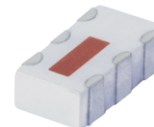


High Power Bi-Directional Coupler

BDCN-15-25+

50Ω 15dB Coupling DC Pass 824 to 2525 MHz



Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

+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

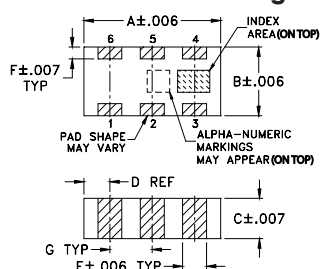
| | |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| DC Current | 0.5A |

Permanent damage may occur if any of these limits are exceeded.

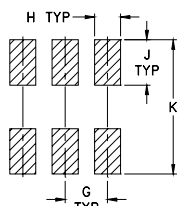
Pin Connections

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

Outline Drawing



PCB Land Pattern



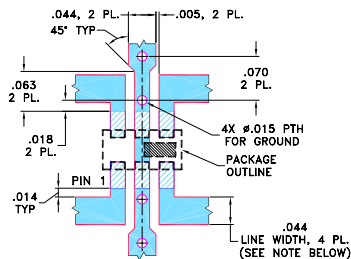
Suggested Layout, Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| A | B | C | D | E | F |
|------|------|------|------|------|------|
| .126 | .063 | .035 | .024 | .022 | .011 |
| 3.20 | 1.60 | 0.89 | 0.61 | 0.56 | 0.28 |

| G | H | J | K | wt |
|------|------|------|------|-------|
| .039 | .024 | .042 | .123 | grams |
| 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 • CDMA
- PCS • ISM
- GPS • DCS
- TDMA

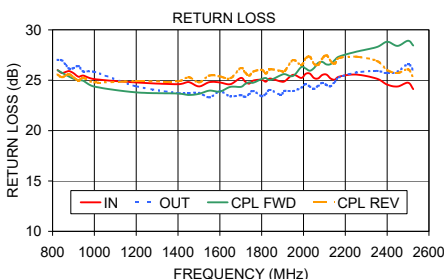
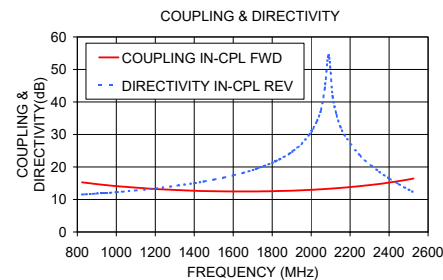
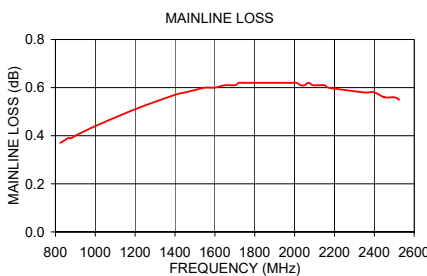
Electrical Specifications

| 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 |

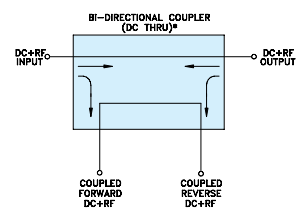
1. Includes theoretical power loss of 0.14 dB at 15 dB coupling.
2. Derate linearly 8W at 100°C

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 | 45.15 | 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 |



Electrical Schematic



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

