

# High Power Bi-Directional Coupler

## BDCN-10-25+

50Ω 10dB Coupling 824 to 2525 MHz



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

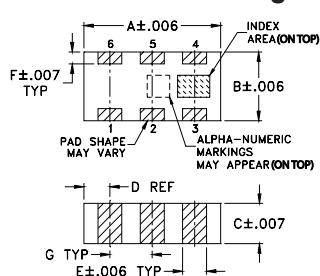
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C

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

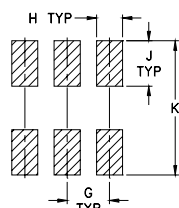
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

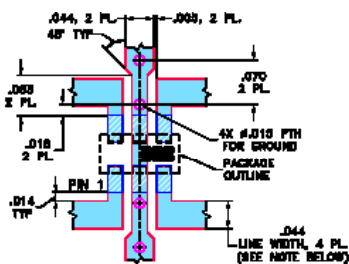


Suggested Layout,  
Tolerance to be within ±.002

### 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 ROHS RO4380B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE ADJUSTED.  
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

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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/MICLStore/terms.jsp](http://www.minicircuits.com/MICLStore/terms.jsp)

### Features

- four-port coupler
- wideband, 824-2525 MHz
- excellent VSWR, 1.2:1 typ., all ports
- minimal variation with temperature
- ultra small size, hermetically sealed

### Applications

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

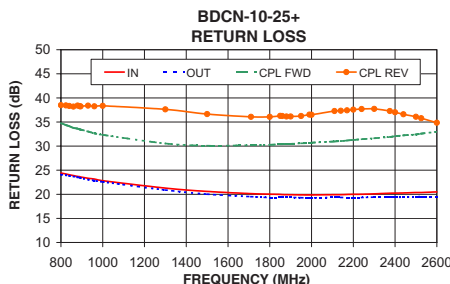
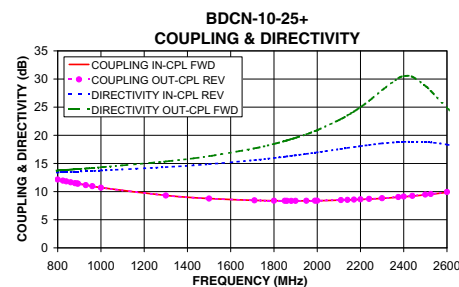
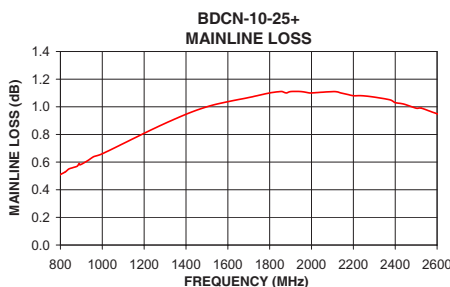
### Electrical Specifications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT <sup>2</sup> , W	
	Nom.	Max. Flatness	Typ.	Max.	Typ.	Min.		Typ.	Max.
824 - 2525	10.2 ± 1.8	±2.2	1.0	1.5	17	9	1.2	15	15
824 - 894	11.7 ± 0.5	±0.4	0.6	0.9	14	9	1.2	15	15
880 - 960	11.3 ± 0.5	±0.4	0.6	1.0	14	9	1.2	15	15
1710 - 1880	8.5 ± 0.5	±0.3	1.1	1.5	17	10	1.2	15	15
1850 - 1990	8.5 ± 0.5	±0.3	1.1	1.5	17	10	1.2	15	15
2110 - 2170	8.6 ± 0.5	±0.3	1.1	1.5	19	12	1.2	15	15
2375 - 2525	9.4 ± 0.5	±0.4	1.0	1.4	19	12	1.2	15	15

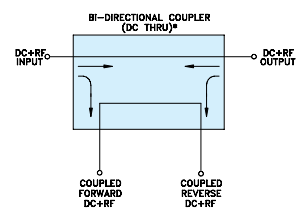
1. Mainline loss includes theoretical power loss of 0.43 dB at the 10.2 dB coupling.
2. Derate linearly 8W at 100°C

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	In-Cpl Rev	Out-Cpl Rev	In-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
824	0.53	11.95	11.95	13.82	13.44	24.22	23.96	34.36	38.44	
880	0.57	11.51	11.50	13.97	13.52	23.71	23.52	33.63	38.42	
894	0.58	11.41	11.41	14.00	13.55	23.60	23.39	33.42	38.24	
960	0.64	10.96	10.96	14.19	13.65	23.16	22.83	32.66	38.26	
1500	1.00	8.77	8.76	16.29	14.87	20.60	20.02	30.09	36.65	
1710	1.07	8.44	8.44	17.68	15.59	20.13	19.50	30.19	36.07	
1850	1.11	8.36	8.37	18.98	16.19	19.98	19.36	30.38	36.27	
1880	1.10	8.35	8.35	19.32	16.35	19.92	19.36	30.45	36.15	
1990	1.10	8.37	8.38	20.75	16.92	19.87	19.25	30.62	36.53	
2110	1.11	8.48	8.49	22.88	17.58	19.92	19.36	30.96	37.28	
2170	1.09	8.56	8.58	24.23	17.91	19.96	19.32	31.17	37.43	
2375	1.05	9.01	9.04	30.15	18.79	20.22	19.38	31.90	37.28	
2525	0.99	9.52	9.58	27.88	18.73	20.37	19.53	32.58	35.78	



### Electrical Schematic



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

