

High Power Bi-Directional Coupler

NON-CATALOG

BDCA-10-25

50Ω 10dB Coupling DC Pass 800 to 2500 MHz

Maximum Ratings

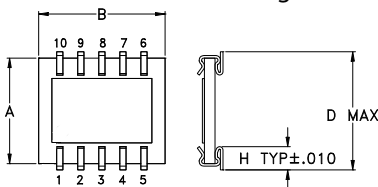
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
DC Current	0.25 A

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

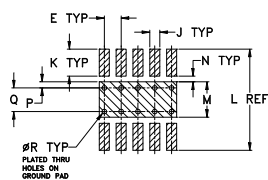
Pin Connections

INPUT	1
OUTPUT	6
COUPLED (forward)	10
COUPLED (reverse)	5
GROUND	2,3,4,7,8,9

Outline Drawing



PCB Land Pattern

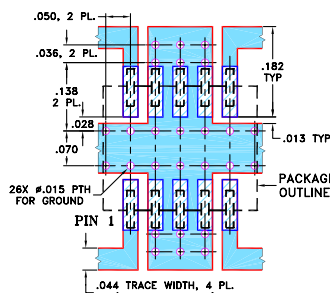


Suggested Layout,
Tolerance to be within ±.002
ADJACENT GROUND PINS SHALL BE CONNECTED
TO EACH OTHER AND TO GROUND PAD

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	
.250	.300	.070	.320	.050	.015	.050	.075	
6.35	7.62	1.78	8.12	1.27	0.38	1.27	1.91	
J	K	L	M	N	P	Q	R	Wt
.030	.095	.330	.100	.020	.015	.070	.014	grams
0.76	2.41	8.38	2.54	0.51	0.38	1.78	0.36	0.3

Demo Board MCL P/N: TB-115+ Suggested PCB Layout (PL-004)



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020 ± .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.
3. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
4. 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-Circuits' 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, 800 to 2500 MHz
- excellent VSWR, 1.05:1 typ. all ports
- good flatness, ±0.6 dB typ.
- excellent power handling capability, 50W (800-1000 MHz)
- hermetically sealed
- minimal variation with temperature variation
- low profile, 0.07" height
- protected by US Patent 7,049,905
- DC current through input to output 0.25A Max. at 1.0 watt RF input power.

Applications

- cellular, PCS, PCN, UMTS
- ISM
- GPS

Bi-Directional Coupler Electrical Specifications

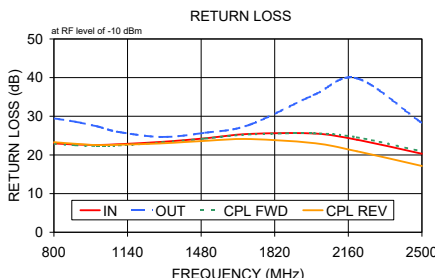
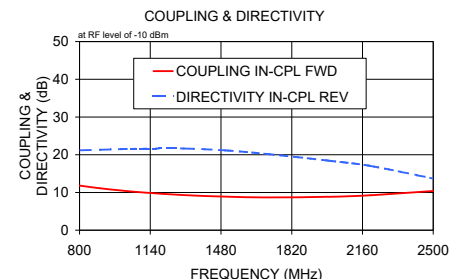
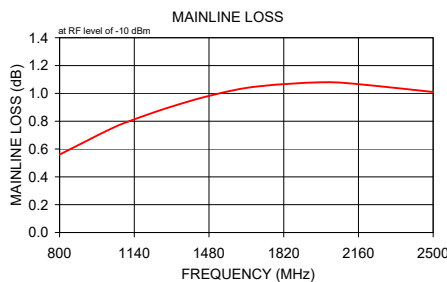
FREQUENCY (MHz)	COUPLING (dB)	MAINLINE LOSS ¹ (dB)	DIRECTIVITY (dB)	VSWR (:1)	POWER INPUT ² (W)
f_L - f_U	Nom. Max. Flatness	Typ. Max.	Typ. Min.	Typ.	Max.
800-2500	10.1±2.0 ±2.0	1.0 1.5	22 14	1.05	24
800-1000	11.0±0.8 ±1.2	0.6 1.0	22 18	1.05	50
1700-2000	8.5±0.5 ±0.6	1.1 1.5	23 19	1.05	34
2000-2500	9.4±1.2 ±1.5	1.0 1.5	22 14	1.05	24

1. Includes theoretical power loss of 0.46 dB at 10 dB coupling.

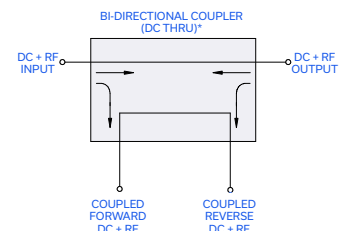
2. Derate linearly 1/3 at 100°C

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
800.00	0.56	11.83 11.88	20.59 21.17	22.99 29.46 22.90 23.30
900.00	0.64	11.11 11.16	20.65 21.33	28.69 28.57 22.52 22.87
1000.00	0.72	10.52 10.58	20.79 21.48	28.57 27.38 22.33 22.55
1100.00	0.79	10.03 10.10	20.92 21.62	27.77 25.93 22.47 22.63
1300.00	0.90	9.32 9.43	21.40 21.66	23.38 24.65 23.22 23.01
1500.00	0.99	8.89 9.04	21.96 21.15	24.32 25.75 24.26 23.65
1700.00	1.05	8.70 8.92	22.46 20.21	25.42 27.72 25.30 24.11
2000.00	1.08	8.86 9.21	22.63 18.42	25.54 35.50 25.58 23.07
2200.00	1.06	9.27 9.77	22.30 17.02	23.92 39.80 24.56 20.95
2500.00	1.01	10.40 11.25	19.70 13.69	20.32 28.28 20.94 17.14



Electrical Schematic



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



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