

DC Pass Bi-Directional Coupler

High Power, 50Ω 800 to 2500 MHz

BDCA-10-25+
BDCA-10-25



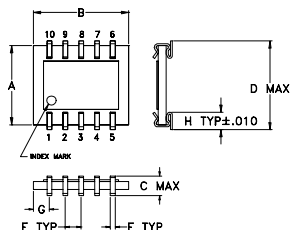
Maximum Ratings

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

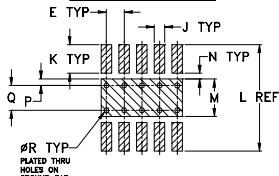
Pin Connections

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

Outline Drawing



PCB Land Pattern

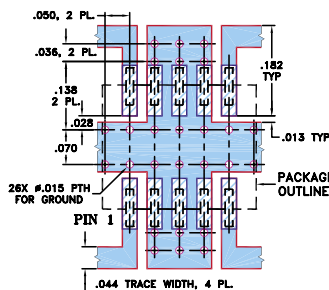


Suggested Layout,
Tolerance to be within ± 0.02

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	8.13	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 $\pm$.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

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

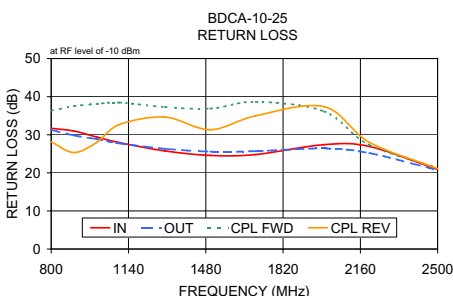
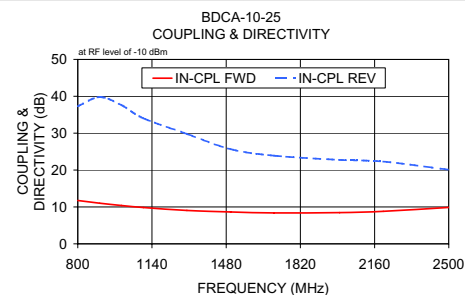
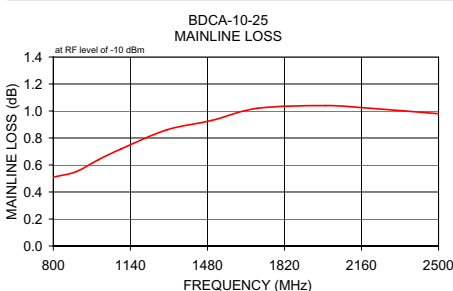
Bi-Directional Coupler Electrical Specifications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT ² (W)
	Nom.	Max. Flatness	Typ.	Max.	Typ.	Min.		
800-2500	10.1 $\pm$ 2.0	$\pm$ 2.0	1.0	1.5	25	11	1.05	24
800-1000	11.0 $\pm$ 0.8	$\pm$ 1.2	0.6	1.0	32	20	1.05	50
1700-2000	8.5 $\pm$ 0.5	$\pm$ 0.6	1.1	1.5	23	16	1.05	34
2000-2500	9.4 $\pm$ 1.2	$\pm$ 1.5	1.0	1.5	22	11	1.05	24

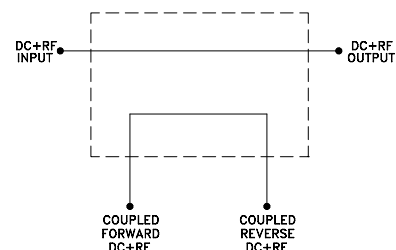
1. Includes theoretical power loss of 0.46 dB at 10 dB coupling.
2. Derate linearly 1/3 at 100°C

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	0.51	11.74	11.94	33.32	37.31	31.70	31.27	36.30	28.13
900.00	0.55	11.01	11.20	35.71	39.79	30.99	29.85	37.54	25.34
1000.00	0.64	10.39	10.56	38.83	37.62	29.41	28.87	38.07	27.99
1100.00	0.72	9.85	10.07	39.71	34.05	27.94	27.76	38.46	32.68
1300.00	0.86	9.06	9.49	34.58	29.81	25.76	26.33	37.29	34.65
1500.00	0.93	8.63	8.86	30.88	25.68	24.58	25.59	36.88	31.32
1700.00	1.02	8.39	8.67	29.45	23.91	24.82	25.69	38.65	34.99
2000.00	1.04	8.47	8.73	30.20	22.76	27.40	26.41	36.15	37.39
2200.00	1.02	8.82	9.02	29.36	22.31	26.92	25.20	27.33	27.99
2500.00	0.98	9.86	9.92	21.31	20.10	20.89	20.70	21.30	21.10



electrical schematic



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