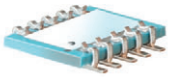
High Power
Bi-Directional Coupler

BDCA-10-25+
BDCA-10-25

50Ω 10dB Coupling DC Pass 800 to 2500 MHz



CASE STYLE: SM1L
PRICE: $5.95 ea. QTY (10-49)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

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

Maximum Ratings

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

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

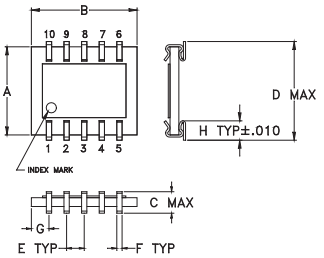
Features

- 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.

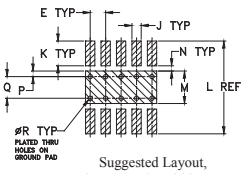
Applications

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

Outline Drawing



PCB Land Pattern

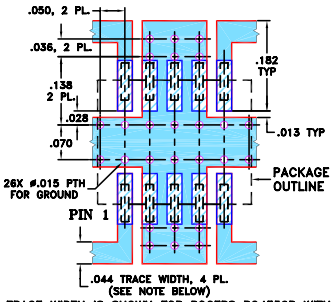


Suggested Layout,
Tolerance to be within ±.002

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 ± .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

Bi-Directional Coupler Electrical Specifications

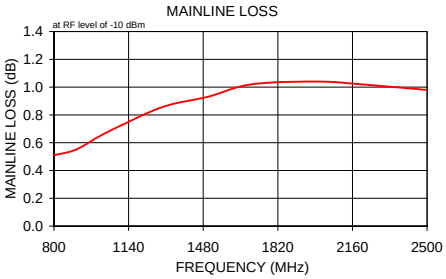
FREQUENCY (MHz)	COUPLING (dB)		MAINLINE LOSS[1] (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT[2] (W)
f_L-f_U	Nom.	Max. Flatness	Typ.	Max.	Typ.	Min.	Typ.	Max.
800-2500	**10.1±2.0**	**±2.0**	**1.0**	**1.5**	**25**	**11**	**1.05**	**24**
800-1000	11.0±0.8	±1.2	0.6	1.0	32	20	1.05	50
1700-2000	8.5±0.5	±0.6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

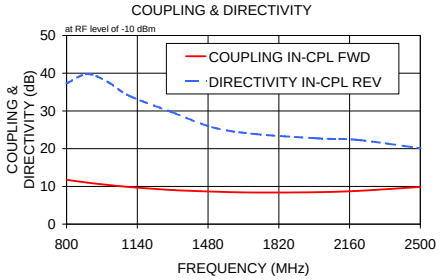
Typical Performance Data

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

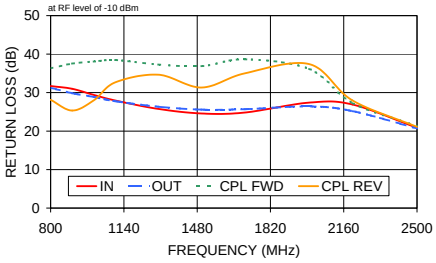
BDCA-10-25
MAINLINE LOSS



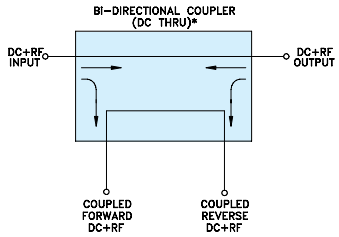
BDCA-10-25
COUPLING & DIRECTIVITY



BDCA-10-25
RETURN LOSS



Electrical Schematic



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

For detailed performance specs & shopping online see web site

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