

High Power Bi-Directional Coupler

BDCN-15-25+ BDCN-15-25

50Ω 15dB Coupling DC Pass 824 to 2525 MHz



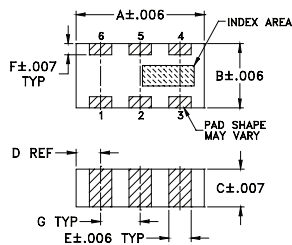
Maximum Ratings

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

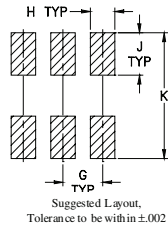
Pin Connections

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

Outline Drawing



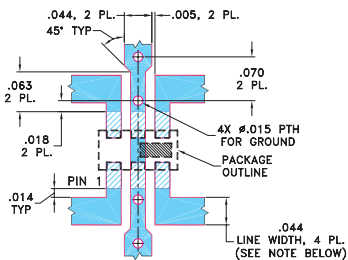
PCB L and Pattern



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	wt
.126	.063	.035	.024	.022	.011	.039	.024	.042	.123	grams
3.20	1.60	0.89	0.61	0.56	0.28	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 R04350B 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

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

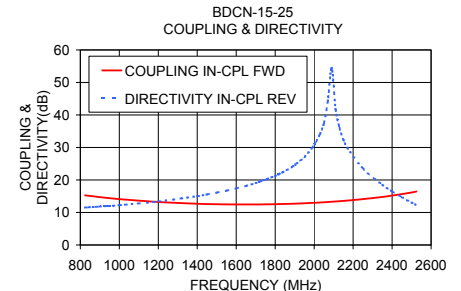
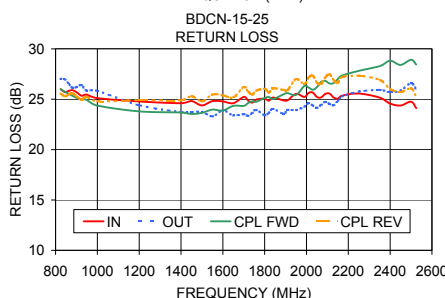
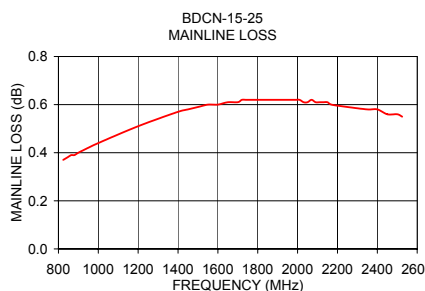
Bi-Directional Coupler Electrical Specifications

FREQUENCY (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT ² (W)	
	Nom.	Max. Flatness	Typ.	Max.	Typ.	Min.		Typ.	Max.
f_c - f_u									
824-2525	14.5±2.0	±3.0	0.6	0.9	13	8	1.2	16	16
824-894	15.0±0.6	±0.6	0.4	0.8	12	8	1.2	16	16
880-960	14.5±0.6	±0.6	0.5	0.9	13	8	1.2	16	16
1710-1880	12.5±0.6	±0.4	0.6	0.9	22	16	1.2	16	16
1850-1990	12.6±0.6	±0.4	0.5	0.9	22	16	1.2	16	16
2110-2170	13.3±0.6	±0.5	0.6	1.0	22	16	1.2	16	16
2375-2525	15.5±0.6	±1.5	0.6	1.0	12	8	1.2	16	16

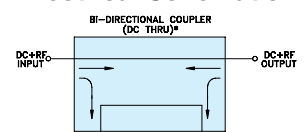
1. Includes theoretical power loss of 0.14 dB at 15 dB coupling.
2. Derate linearly 8W at 100°C

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.

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IF/RF MICROWAVE COMPONENTS

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