

# High Power Bi-Directional Coupler

## BDCN-17-25+ BDCN-17-25

50Ω 17dB Coupling DC Pass 824 to 2525 MHz



### Maximum Ratings

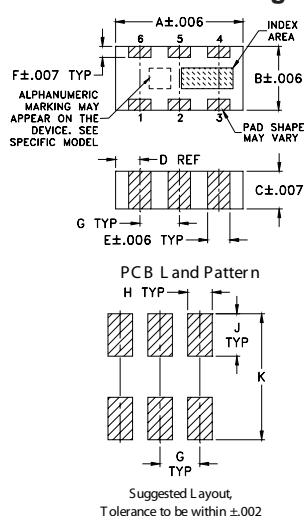
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	0.5A

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

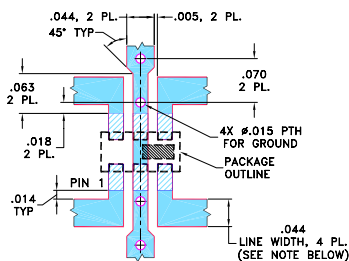
### Outline Drawing



### 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)



### 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 power

### Applications

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

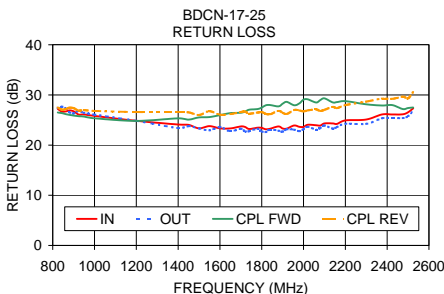
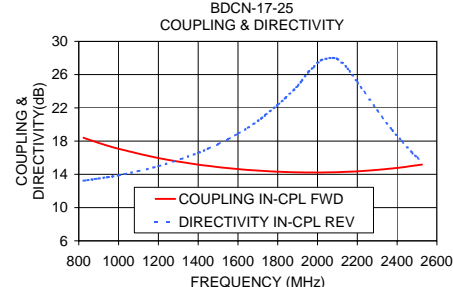
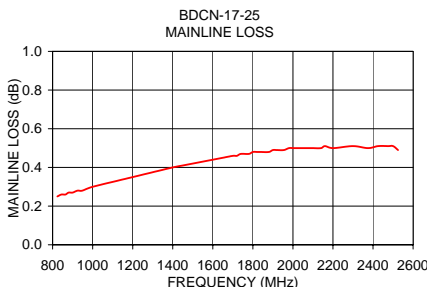
### Bi-Directional Coupler Electrical Specifications

FREQUENCY (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.		
f <sub>c</sub> -f <sub>u</sub>								
824-2525	16.8±2.0	±3.0	0.6	0.9	13	10	1.2	16
824-894	18.3±0.6	±0.6	0.3	0.8	13	10	1.2	16
880-960	17.6±0.6	±0.6	0.3	0.8	13	10	1.2	16
1710-1880	14.3±0.6	±0.4	0.5	0.9	22	17	1.2	16
1850-1990	14.3±0.6	±0.4	0.5	0.9	22	17	1.2	16
2110-2170	14.3±0.6	±0.5	0.5	0.9	25	20	1.2	16
2375-2525	15.0±0.6	±0.8	0.5	0.9	15	11	1.2	16

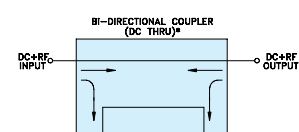
1. Includes theoretical power loss of 0.1 dB at 17 dB coupling.
2. Derate linearly 8W at 100°C

### 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
824.00	0.25	18.40	18.40	13.19	13.24	27.22	27.34	26.50	27.52
1000.00	0.30	17.07	17.08	13.85	13.88	25.83	26.07	25.35	26.82
1500.00	0.42	14.87	14.88	17.67	17.63	23.35	23.34	25.52	25.99
1700.00	0.46	14.45	14.46	20.65	20.43	23.72	23.26	26.46	26.58
1800.00	0.48	14.32	14.33	22.72	22.36	23.44	22.72	27.48	26.58
1880.00	0.48	14.25	14.26	24.64	24.13	23.72	22.87	27.72	26.82
2000.00	0.50	14.22	14.23	27.94	27.40	23.63	23.17	29.06	26.72
2100.00	0.50	14.26	14.26	28.30	27.88	24.33	23.91	29.31	27.02
2300.00	0.51	14.54	14.53	21.69	21.71	25.09	24.22	28.13	28.67
2525.00	0.49	15.18	15.16	15.51	15.42	27.33	26.72	27.50	30.60



### 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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