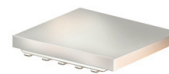


# High Power Bi-Directional Coupler

## BDCA1-6-11+

50Ω 6dB Coupling DC Pass 600 to 1100 MHz



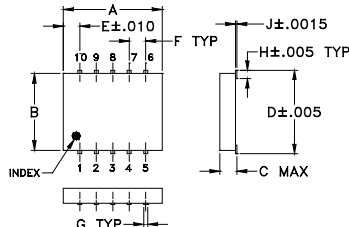
### Maximum Ratings

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.	

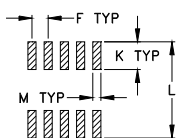
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

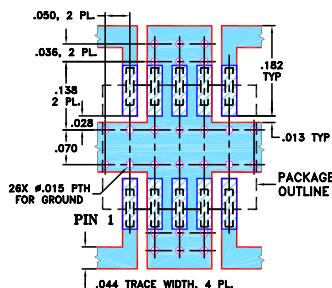


Suggested Layout  
Tolerance to be within ±0.002

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.052	.266	.050	.050	.012
7.62	6.35	1.32	6.76	1.27	1.27	0.30
H	J	K	L	M	wt	
.029	.004	.085	.296	.030	grams	
0.74	0.10	2.16	7.52	0.76	0.25	

### 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

### Features

- wideband, 600 to 1100 MHz
- excellent VSWR 1.1:1 typ. all ports
- excellent power handling capability, 42W (1 GHz)
- hermetically sealed
- low temperature variation
- 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
- CDMA
- ISM

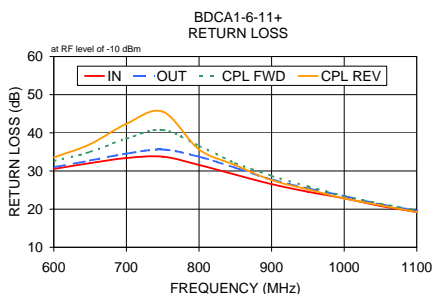
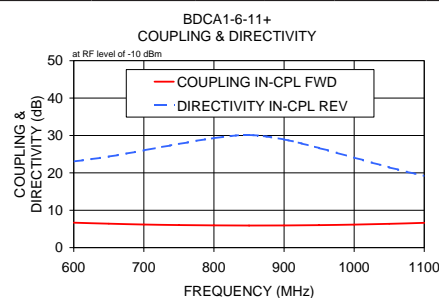
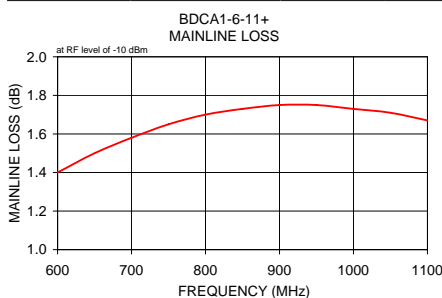
### Bi-Directional Coupler Electrical Specifications

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.		
<b>600-1100</b>								
600-700	6.3±0.5	±0.5	1.5	1.8	23	20	1.05	50
700-1000	6.0±0.4	±0.3	1.8	2.0	27	19	1.08	42
1000-1100	6.3±0.5	±0.5	1.8	2.0	21	15	1.10	38

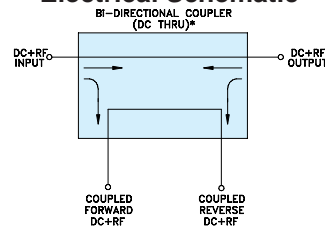
1. Includes theoretical power loss of 1.25 dB at 6 dB coupling.  
2. Derate linearly 1/3 at 100°C

### 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
600.00	1.40	6.68	6.69	24.78	23.05	30.54	30.97	32.60	33.54
650.00	1.50	6.40	6.42	26.63	24.36	32.07	32.74	34.99	37.02
700.00	1.58	6.19	6.21	29.10	26.01	33.40	34.55	38.51	42.38
750.00	1.65	6.04	6.06	31.85	27.74	33.76	35.61	40.76	45.57
800.00	1.70	5.95	5.97	34.62	29.30	31.57	33.73	36.58	35.64
850.00	1.73	5.92	5.93	33.02	30.12	29.03	30.84	32.11	31.53
900.00	1.75	5.94	5.95	28.89	28.92	26.56	27.76	28.72	27.61
950.00	1.75	6.02	6.03	25.64	26.63	24.56	25.44	25.96	25.17
1000.00	1.73	6.16	6.17	22.95	24.09	22.83	23.43	23.48	22.80
1050.00	1.71	6.36	6.38	20.36	21.47	20.81	21.27	21.48	21.01
1100.00	1.67	6.64	6.66	18.23	19.16	19.25	19.61	19.68	19.22



### 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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