



Mini-Circuits®

HIGH POWER

Bi-Directional Coupler **BDCA1-6-22+**

50Ω 6 dB DC Pass 950 to 2200 MHz

FEATURES

- Wideband, 950 to 2200 MHz
- Excellent VSWR, 1.15:1 Typ.
- Excellent Power Handling Capability, 44 W (1900 MHz)
- Hermetically Sealed
- Low Temperature Variation
- Protected by US Patent 7,049,905
- DC Current Through Input to Output, 0.25 A Max. at 1.0 Watt RF Input Power



Generic photo used for illustration purposes only

CASE STYLE: DZ944

+RoHS CompliantThe +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- DCS, PCS
- Mobile Satellite

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		950		2200	MHz
Coupling	950-1400		6.9±1.0		dB
	1400-1900		6.0±0.5		
	1900-2200		6.5±0.7		
Coupling Flatness	950-1400			±1.0	dB
	1400-1900			±0.3	
	1900-2200			±0.7	
Mainline Loss ¹	950-1400		1.4	1.9	dB
	1400-1900		1.7	2.1	
	1900-2200		1.7	2.1	
Directivity	950-1400	14	15		dB
	1400-1900	17	19		
	1900-2200	17	24		
VSWR	950-1400		1.3		:1
	1400-1900		1.2		
	1900-2200		1.1		
Input Power ²	950-1400			57	W
	1400-1900			44	
	1900-2200			37	

1. Includes theoretical coupled power loss of 1.25 dB at 6 dB coupling.

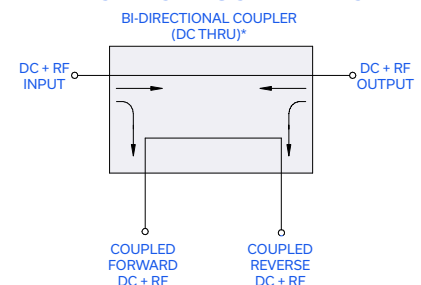
2. Derate linearly 1/3 at +100°C.

ABSOLUTE MAXIMUM RATINGS

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

Permanent damage may occur if any of these limits are exceeded.

ELECTRICAL SCHEMATIC



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

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ECO028422
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260206

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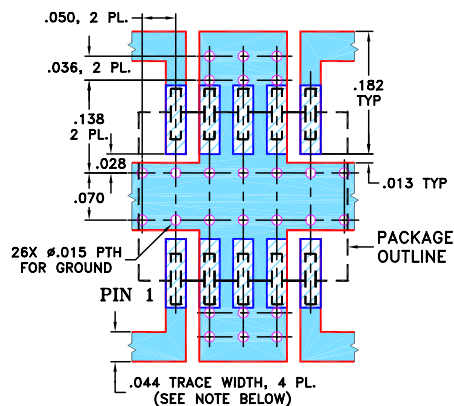
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PIN CONNECTIONS

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

PRODUCT MARKING: LA5C19B

DEMO BOARD MCL P/N: TB-BDCA1-6-22+
SUGGESTED PCB LAYOUT (PL-004)

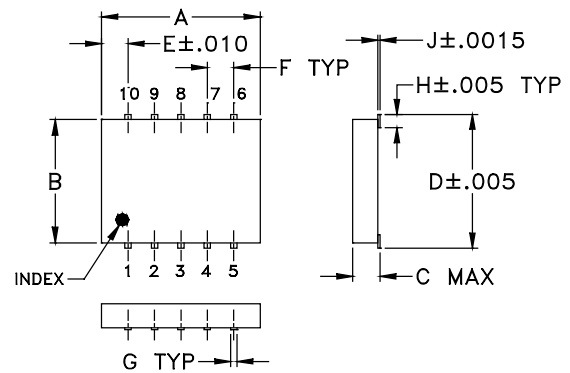
NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $.020 \pm .0015$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

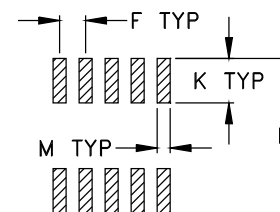
 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

OUTLINE DIMENSIONS (Inches/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	

TAPE & REEL INFORMATION: F34



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50Ω

6 dB

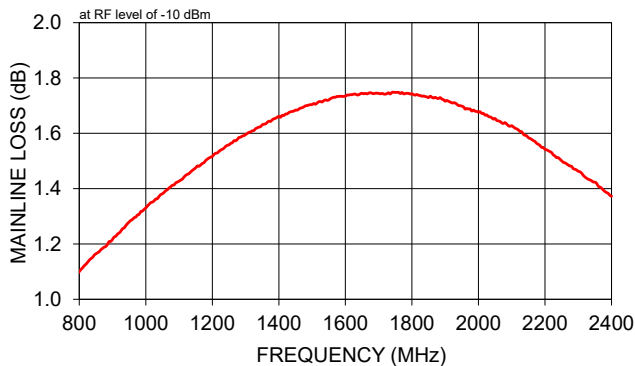
DC Pass

950 to 2200 MHz

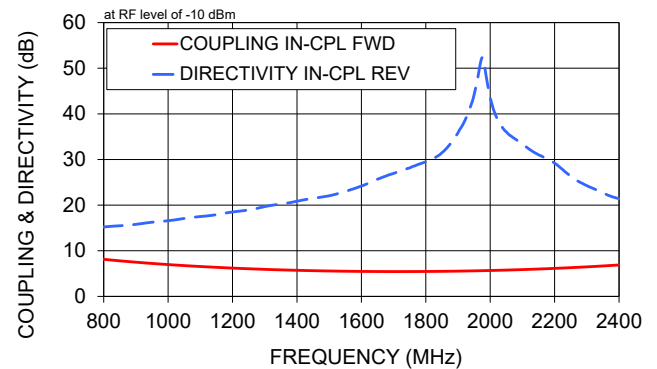
TYPICAL PERFORMANCE DATA

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
900	1.22	7.5	7.54	15.23	15.8	18.64	18.67	17.72	17.69
1100	1.43	6.55	6.56	16.29	17.5	19.41	19.76	18.76	18.92
1200	1.52	6.2	6.2	17.12	18.5	20.21	20.71	19.46	19.66
1300	1.6	5.93	5.92	18.12	19.68	21.24	21.86	20.49	20.95
1400	1.66	5.72	5.7	19.24	20.86	22.49	23.23	21.6	22.31
1500	1.7	5.57	5.55	20.62	22.05	23.97	25.13	22.81	23.7
1600	1.73	5.48	5.45	22.24	24.18	25.83	27.52	24.95	25.98
1800	1.74	5.46	5.44	28.31	29.48	31.68	37.22	28.96	32.3
2000	1.68	5.68	5.65	63.76	43.54	33.63	34.59	31.77	39.12
2200	1.54	6.14	6.11	27.43	29.18	28.27	26.73	29.16	30.27

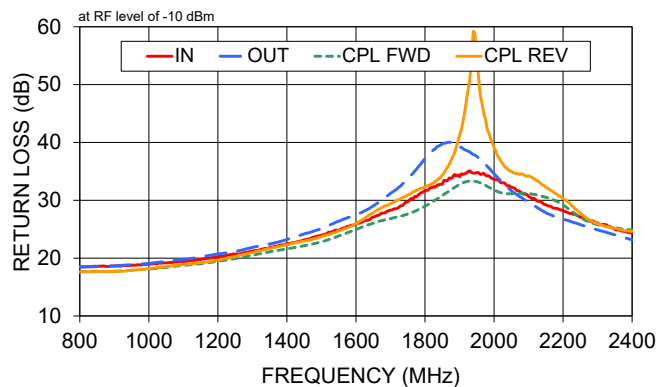
MAINLINE LOSS



COUPLING & DIRECTIVITY



RETURN LOSS



NOTES

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html

