

# High Power Directional Coupler

50Ω 30 to 500 MHz

**JYDC-23-1HP+  
JYDC-23-1HP**



CASE STYLE: BJ937  
PRICE: \$22.95 ea. QTY. (10-49)

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

## Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Permanent damage may occur if any of these limits are exceeded.	

## Pin Connections

INPUT	1
OUTPUT	7
COUPLED	3
GROUND	2,4,6,8
50Ω TERM EXTERNAL	5

## Features

- high power handling, 10 watts
- low mainline loss, 0.2 dB typ.
- excellent VSWR, 1.10:1 typ.
- excellent directivity, 24 dB typ.
- protected by US Patent 6,140,887

## Applications

- VHF/UHF receivers
- cellular

## Directional Coupler Electrical Specifications

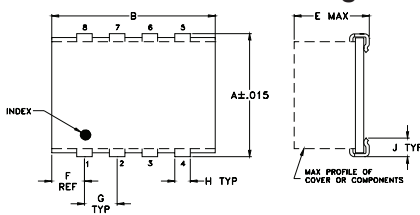
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)				DIRECTIVITY (dB)				VSWR (:1)	POWER INPUT, W		
	Nom.	Max. Flatness	L		U		L		U			Typ.	Max.	Max.
			Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.				
30-500	23.5±1.0	±1.2	0.1	0.3	0.2	0.4	26	20	23	19	1.1	10	10	

L = 30-250 MHz U = 250-500 MHz  
1. Mainline loss includes theoretical power loss at coupled port.

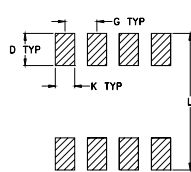
## Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
30.00	0.06	24.46	22.36	24.03	23.99	24.61
50.00	0.06	24.42	22.73	27.59	27.48	28.28
100.00	0.09	24.28	24.26	31.22	30.88	31.98
200.00	0.14	24.12	25.17	30.44	30.18	31.42
250.00	0.16	24.01	25.05	29.38	29.08	30.54
300.00	0.17	23.88	25.01	28.08	28.14	29.60
350.00	0.19	23.74	24.78	27.31	27.26	27.75
400.00	0.20	23.59	24.66	26.41	26.30	26.19
450.00	0.22	23.44	24.35	25.87	25.70	24.40
500.00	0.24	23.29	23.92	25.39	24.91	22.63

## Outline Drawing



## PCB Land Pattern

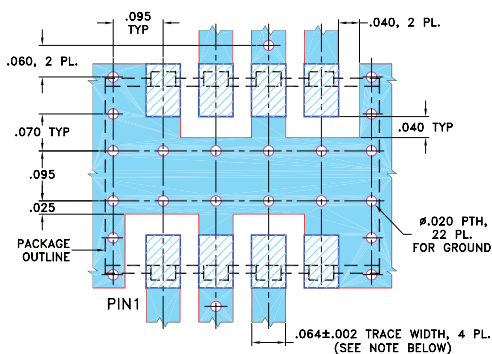


Suggested Layout,  
Tolerance to be within ±.002

## Outline Dimensions (inch mm)

A	B	C	D	E	F	G
.395	.520	--	.100	.230	.110	.100
10.03	13.21	--	2.54	5.84	2.79	2.54
H	J	K	L	wt		
.047	.065	.065	.425	grams		
1.19	1.65	1.65	10.80	0.85		

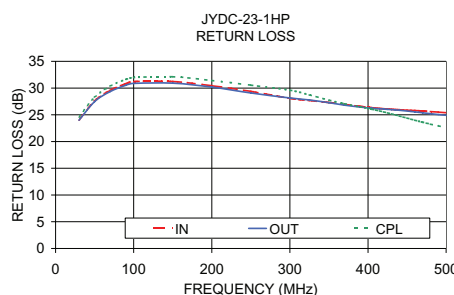
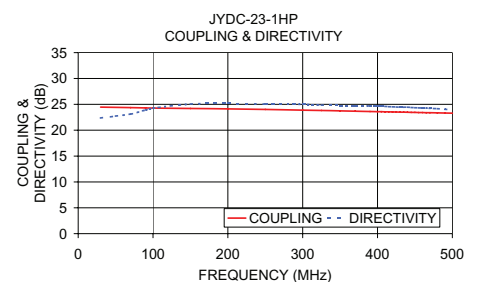
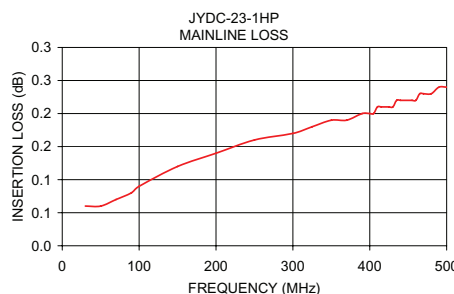
## Demo Board MCL P/N: TB-194 Suggested PCB Layout (PL-166)



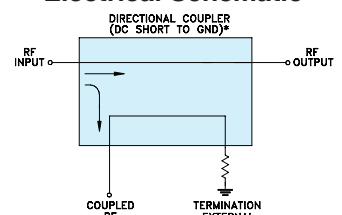
- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
  - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### 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-Circuit's applicable established test performance criteria and measurement instructions.
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## Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

