

# Directional Coupler

## ADC-10-4-75R+

75Ω

5 to 1000 MHz



### 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	6
COUPLED	3
GROUND	2,5
NOT USED	4

### Features

- wideband, 5-1000 MHz
- good directivity, 20 dB typ.
- good VSWR, 1.2:1 typ.
- internal load, no external components required
- aqueous washable
- protected by US Patents 6,133,525 & 6,140,887

CASE STYLE: CD636  
PRICE: \$7.95 ea. QTY (10)

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

### Applications

- CATV power tap

Available Tape and Reel at no extra cost

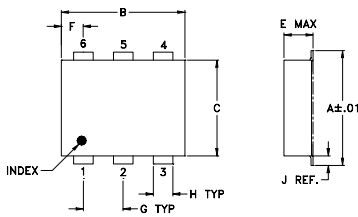
Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200, 500
13"	500, 1000

### Directional Coupler Electrical Specifications

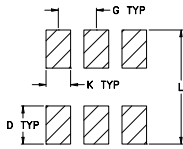
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)			DIRECTIVITY (dB)			VSWR (:1)	POWER INPUT, W
	Nom.	Flatness	L	M	U	L	M	U		
$f_L$ - $f_U$			Typ. Max.	Typ. Max.	Typ. Max.	Typ. Min.	Typ. Min.	Typ. Min.	Typ.	Max.
5-1000	9.6±0.5	±0.5	1.0 1.8	1.1 1.6	1.5 1.8	22 17	21 16	20 14	1.2	1.0

L= 5-50 MHz M= 50-500 MHz U= 500-1000 MHz  
1. Mainline loss includes theoretical power loss at coupled port.

### Outline Drawing



### PCB Land Pattern

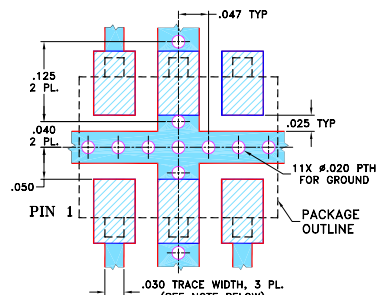


Suggested Layout, Tolerance to be within ±.002

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.272	.310	.220	.100	.162	.055	.100
6.91	7.87	5.59	2.54	4.11	1.40	2.54
H	J	K	L	wt		
.030	.026	.065	.300	grams		
0.76	0.66	1.65	7.62	0.25		

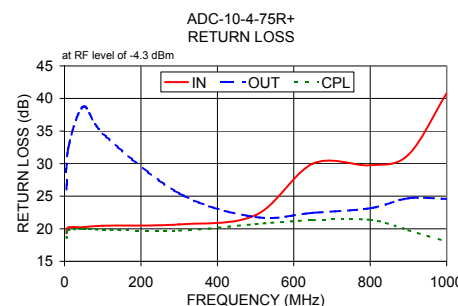
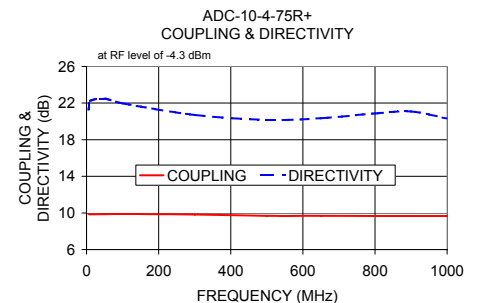
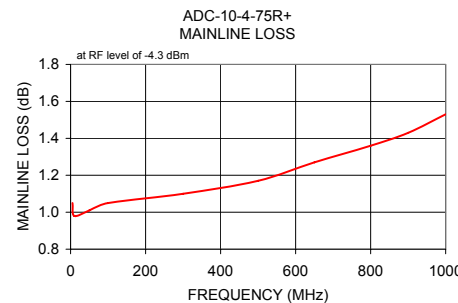
### Demo Board MCL P/N: TB-356 Suggested PCB Layout (PL-213)



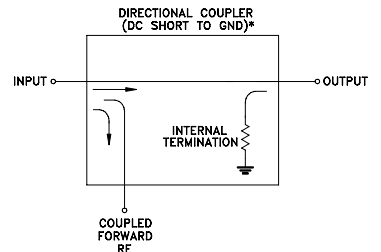
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
3. DENOTES PCB COPPER LAYOUT WITH SMOBS (SOLDER MASK OVER BARE COPPER)  
4. DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB)	Directivity (dB)	Return Loss (dB)		
	In-Out	In-Cpl			In	Out	Cpl
5.00	1.05	9.88	21.29	19.29	26.04	18.58	
10.00	0.98	9.85	22.23	20.18	32.36	19.76	
50.00	1.01	9.86	22.50	20.25	38.76	19.95	
100.00	1.05	9.88	21.97	20.46	34.63	19.87	
300.00	1.10	9.83	20.70	20.68	25.43	19.72	
500.00	1.17	9.69	20.16	22.10	21.80	20.73	
650.00	1.27	9.69	20.34	30.01	22.46	21.32	
800.00	1.36	9.67	20.86	29.75	23.14	21.37	
900.00	1.43	9.67	21.08	31.38	24.67	19.79	
1000.00	1.53	9.67	20.31	40.80	24.59	18.03	



### Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.

### Notes

- A. 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.  
B. 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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