

# Surface Mount Directional Coupler

75Ω 5 to 1000 MHz

ADC-10-4-75+  
ADC-10-4-75



## Maximum Ratings

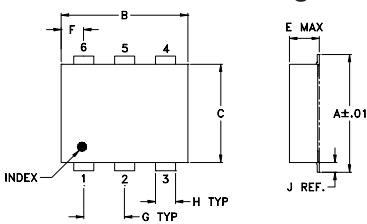
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

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

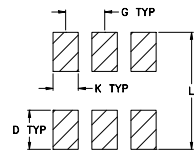
## Pin Connections

INPUT	1
OUTPUT	6
COUPLED	3
GROUND	2
75Ω TERM EXTERNAL	4
ISOLATE (DO NOT USE)	5

## Outline Drawing



## PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

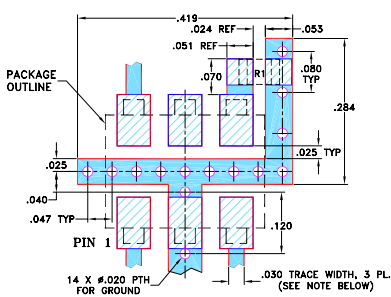
## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.272	.310	.220	.100	.112	.055	.100
6.91	7.87	5.59	2.54	2.84	1.40	2.54

H	J	K	L	wt
.030	.026	.065	.300	grams
0.76	0.66	1.65	7.62	0.20

## Demo Board MCL P/N: TB-08 Suggested PCB Layout (PL-042)



- RESISTOR R1: 75 Ohm, 0805 SIZE.
- 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.  
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Features

- wideband, 5-1000 MHz
- low mainline loss, 0.9 db typ.
- excellent coupling flatness, ±0.2 typ.
- aqueous washable
- protected by U.S Patents 6,133,525 & 6,140,887

## Applications

- cable tv
- communications

CASE STYLE: CD542  
PRICE:\$6.95 ea. QTY (10-49)

+ RoHS compliant in accordance  
with EU Directive (2002/95/EC)

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

## 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		Typ.	L	MU
f <sub>c</sub> -f <sub>u</sub>			Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Max.
5-1000	10.5±0.5	±0.5	0.85	1.4	0.9	1.4	1.0	1.4	40	20	18	12

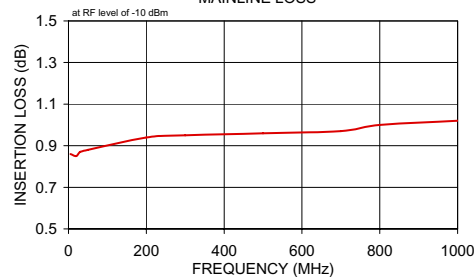
L= 5-50 MHz M= 50-500 MHz U= 500-1000 MHz

1. Mainline loss includes theoretical power loss at coupled port.

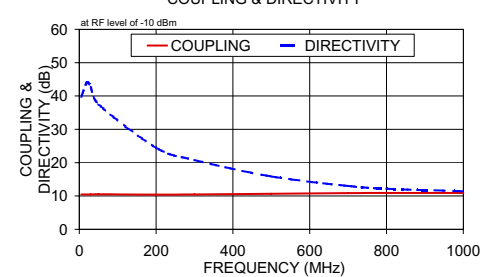
## Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
5.00	0.86	10.49	39.77	21.07	35.08	19.58
20.00	0.85	10.47	44.02	21.45	54.46	20.21
30.00	0.87	10.47	42.61	21.33	45.16	20.18
50.00	0.88	10.54	37.53	21.23	39.56	20.11
200.00	0.94	10.44	24.51	21.30	19.31	20.41
300.00	0.95	10.45	20.79	20.99	25.49	20.87
500.00	0.96	10.68	15.89	19.89	21.12	22.93
700.00	0.97	10.87	13.00	17.97	18.87	25.71
800.00	1.00	10.91	12.16	17.94	19.06	27.11
1000.00	1.02	10.93	11.40	17.55	20.58	24.44

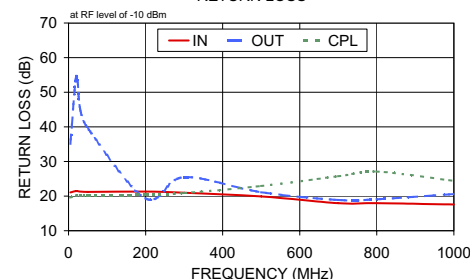
ADC-10-4-75  
MAINLINE LOSS



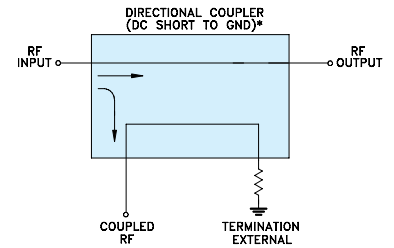
ADC-10-4-75  
COUPLING & DIRECTIVITY



ADC-10-4-75  
RETURN LOSS



## Electrical Schematic



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

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IF/RF MICROWAVE COMPONENTS

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