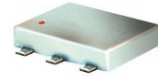


# Surface Mount Directional Coupler

75Ω 20 to 1000 MHz

ADC-12-4-75+  
ADC-12-4-75



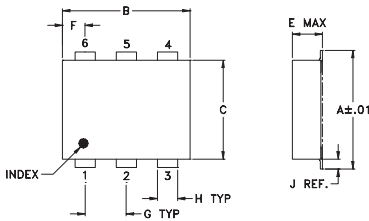
## Maximum Ratings

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

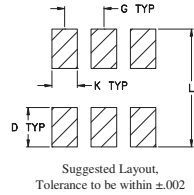
## Pin Connections

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

## Outline Drawing



## PCB Land Pattern



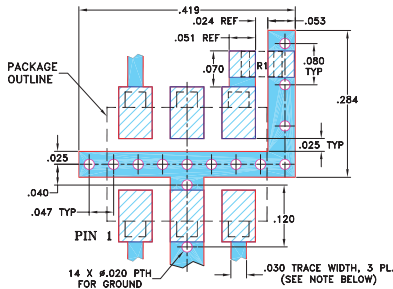
## Outline Dimensions (inch/mm)

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.
- 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.
  - 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, 20-1000 MHz
- low mainline loss, 0.9 dB typ.
- good directivity, 23 dB typ.
- good VSWR, 1.2:1 typ.
- excellent coupling flatness, ±0.1 dB typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

## Applications

- cable tv

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

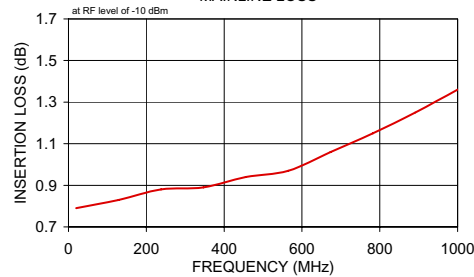
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)			DIRECTIVITY (dB)			VSWR (:1)	POWER INPUT, W							
	Nom.	Flatness	L	M	U	L	M	U		Typ.	L	MU					
f <sub>c</sub> -f <sub>u</sub>			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.						
20-1000	12.6±0.5	±0.5	0.8	1.2	0.9	1.3	1.2	1.8	28	20	23	15	17	10	1.2	1.0	1.0

L= 20-200 MHz M= 200-500 MHz U= 500-1000 MHz  
1. Mainline loss includes theoretical power loss at coupled port.

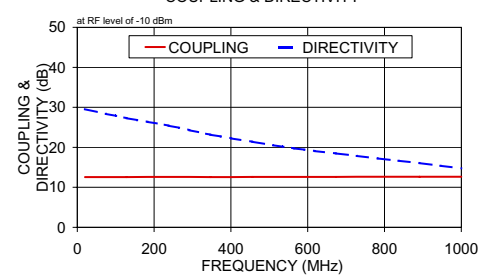
## Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
	In-Out				In	Out	Cpl
20.00	0.79		12.57	29.56	21.10	28.80	21.67
128.88	0.83		12.57	27.28	22.02	31.66	22.60
237.77	0.88		12.59	25.42	22.65	30.27	23.48
346.66	0.89		12.58	23.17	22.53	27.89	25.13
455.55	0.94		12.61	21.41	24.48	26.33	27.78
564.44	0.97		12.59	19.76	24.67	25.28	30.58
673.33	1.06		12.61	18.47	24.46	24.46	33.77
782.22	1.15		12.65	17.23	24.58	24.36	27.91
891.11	1.25		12.64	16.05	24.75	24.23	44.40
1000.00	1.36		12.63	14.72	24.40	23.10	43.64

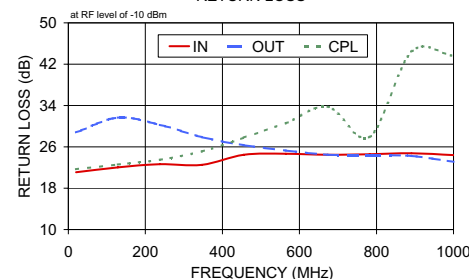
ADC-12-4-75  
MAINLINE LOSS



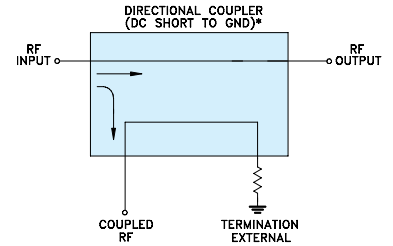
ADC-12-4-75  
COUPLING & DIRECTIVITY



ADC-12-4-75  
RETURN LOSS



## Electrical Schematic



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

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