

# Surface Mount Directional Coupler

## ADC-18-4-75+ ADC-18-4-75

75Ω 20 to 1000 MHz



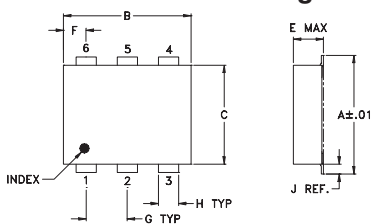
### Maximum Ratings

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

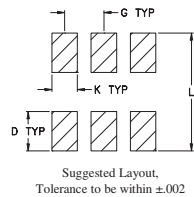
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern



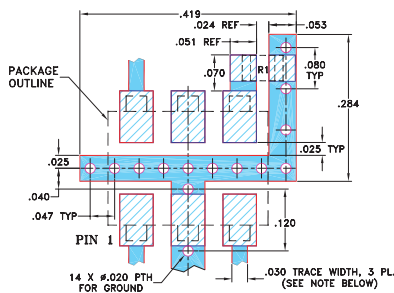
### Outline Dimensions (inch/mm)

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, 0.4 dB typ.
- good directivity, 18 dB typ.
- excellent coupling flatness, ±0.15 dB typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

### Applications

- cable tv
- communications

### Directional Coupler Electrical Specifications

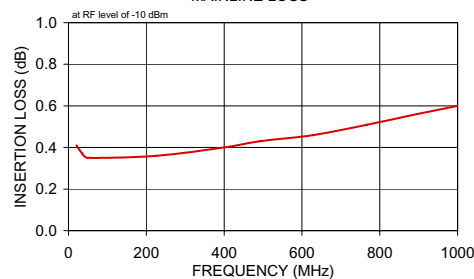
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)			DIRECTIVITY (dB)			VSWR (:1)	POWER INPUT, W							
	Nom.	Flatness	L	M	U	L	M	U		Typ.	L Max.	MU Max.					
20-1000	17.4±0.5	±0.5	0.4	0.8	0.4	1.0	0.5	1.2	17	14	18	14	17	12	1.15	1.0	1.0

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

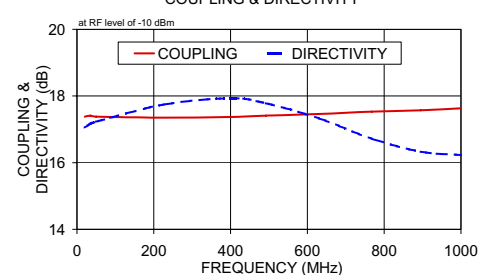
### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
	In-Out				In	Out	Cpl
20.60	0.41		17.38	17.05	25.15	26.01	19.37
35.30	0.37		17.41	17.17	26.48	29.41	21.55
50.00	0.35		17.38	17.23	27.69	31.77	22.76
225.00	0.36		17.35	17.74	28.16	31.23	26.30
400.00	0.40		17.37	17.93	24.88	24.39	30.25
492.00	0.43		17.41	17.78	22.40	21.78	33.74
630.00	0.46		17.46	17.33	20.56	19.28	44.74
768.00	0.51		17.53	16.72	19.50	18.43	34.24
895.00	0.56		17.57	16.33	19.13	18.15	27.95
1000.00	0.60		17.63	16.23	18.76	18.16	26.97

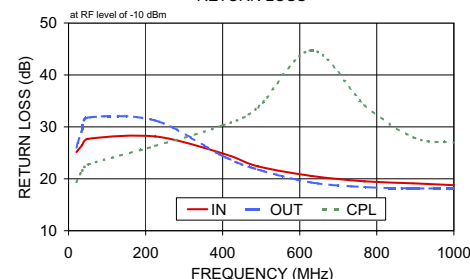
### ADC-18-4-75 MAINLINE LOSS



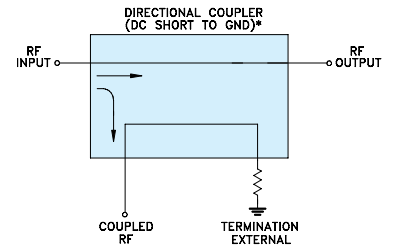
### ADC-18-4-75 COUPLING & DIRECTIVITY



### ADC-18-4-75 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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