

# Directional Coupler

## ADC-20-4

50Ω 5 to 1000 MHz



Generic photo used for illustration purposes only  
CASE STYLE: CD542

### Maximum Ratings

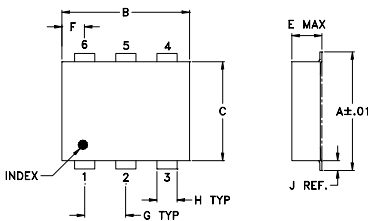
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

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

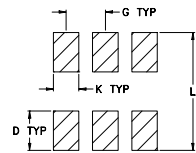
### Pin Connections

INPUT	1
OUTPUT	6
COUPLED	3
GROUND	2
50Ω TERM EXTERNAL	4
ISOLATE (DO NOT USE)	5

### Outline Drawing



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

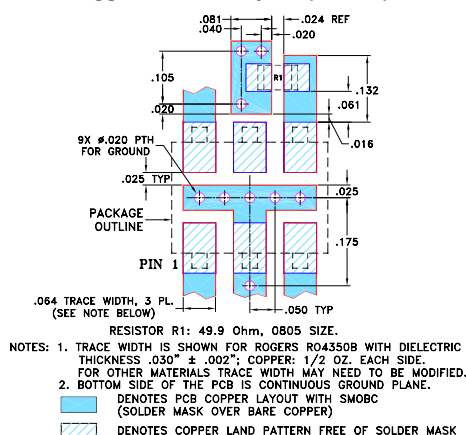
### Outline Dimensions (inch/mm)

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-05 Suggested PCB Layout (PL-095)



### Features

- wideband, 5-1000 MHz
- low mainline loss, 0.5 dB typ.
- high directivity, 21 dB typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

### Applications

- cable tv
- communications

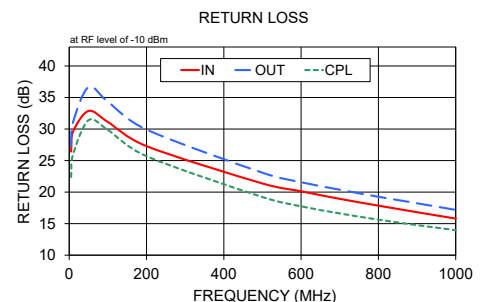
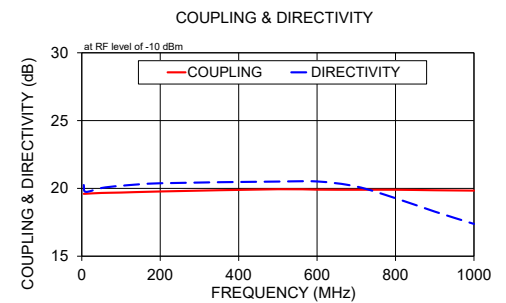
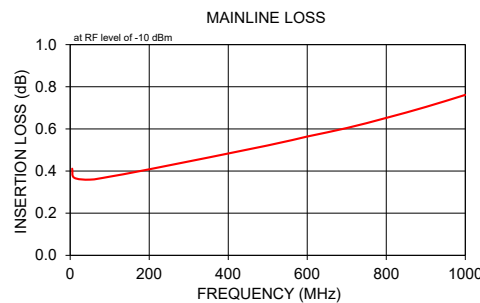
### Directional Coupler Electrical Specifications

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	MU					
f <sub>c</sub> -f <sub>u</sub>			Typ.	Max.	Typ.	Max.	Typ.	Max.		Max.	Max.						
5-1000	20.0±0.5	±0.8	0.4	0.8	0.5	1.0	0.7	1.3	20	18	21	17	21	15	1.1	1.0	1.0

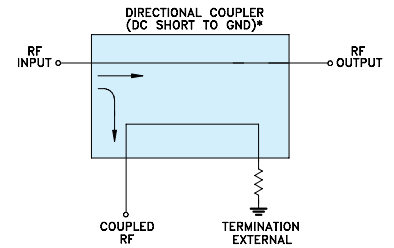
L= 5-50 MHz M= 50-500 MHz U= 500-1000 MHz  
1. Mainline loss includes theoretical power loss at coupled port.

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
	In-Out				In	Out	Cpl
5.00	0.41		19.60	20.25	26.42	27.32	22.39
10.00	0.37		19.61	19.75	29.58	31.08	25.96
50.00	0.36		19.67	20.03	32.86	36.64	31.40
100.00	0.37		19.69	20.19	31.12	34.33	29.86
200.00	0.41		19.77	20.38	27.29	29.92	25.70
500.00	0.52		19.94	20.50	21.37	23.07	19.21
600.00	0.56		19.91	20.51	20.13	21.56	17.75
700.00	0.60		19.90	20.14	18.93	20.38	16.62
800.00	0.65		19.90	19.28	17.86	19.26	15.63
900.00	0.70		19.86	18.29	16.81	18.23	14.77
1000.00	0.76		19.84	17.38	15.80	17.18	13.97



### Electrical Schematic



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

Notes  
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