

Surface Mount Directional Coupler

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

75Ω 5 to 1000 MHz

Maximum Ratings

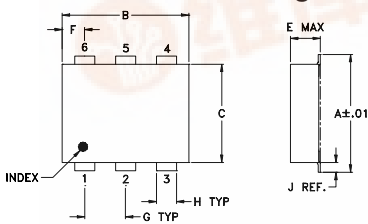
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

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

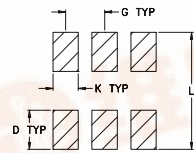
Pin Connections

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

Outline Drawing



PCB Land Pattern



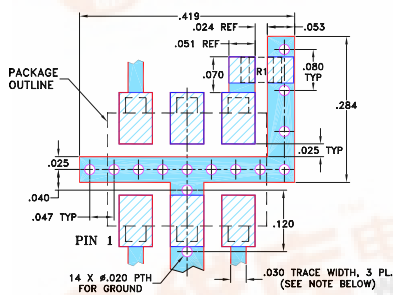
Suggested Layout,
Tolerance to be within ±0.02

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

Directional Coupler Electrical Specifications

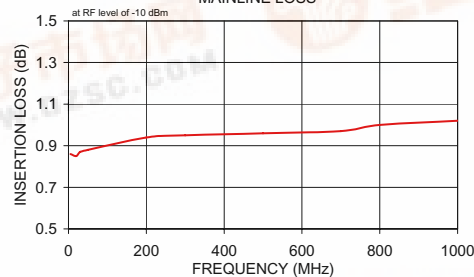
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)			DIRECTIVITY (dB)			VSWR (:1)	POWER INPUT, W							
	Nom.	Flatness	L Typ.	M Max.	U Max.	L Typ. Min.	M Typ. Min.	U Typ. Min.		L Max.	MU Max.						
f _c -f _u																	
5-1000	10.5±0.5	±0.5	0.85	1.4	0.9	1.4	1.0	1.4	40	20	18	12	12	8	1.2	1.0	1.0

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

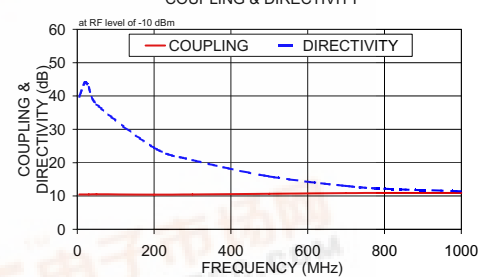
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) 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

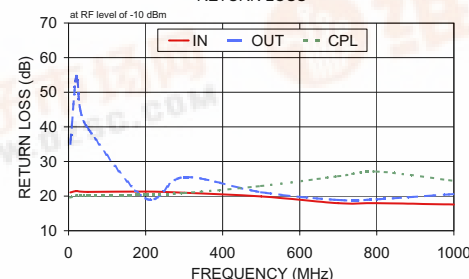
ADC-10-4-75
MAINLINE LOSS



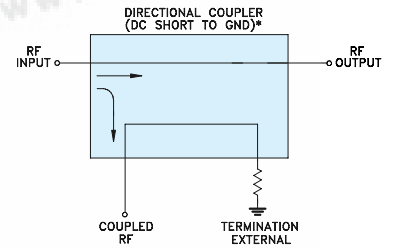
ADC-10-4-75
COUPLING & DIRECTIVITY



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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