

Surface Mount Directional Coupler

ADC-6-13+

50Ω 200 to 1300 MHz

Maximum Ratings

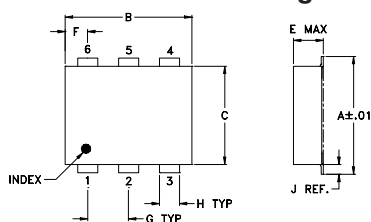
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

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

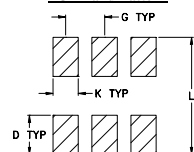
Pin Connections

INPUT	1
OUTPUT	6
COUPLED	3
GROUND	2
50Ω TERM EXTERNAL	4
GROUND or NO CONNECTION	5

Outline Drawing



PCB Land Pattern



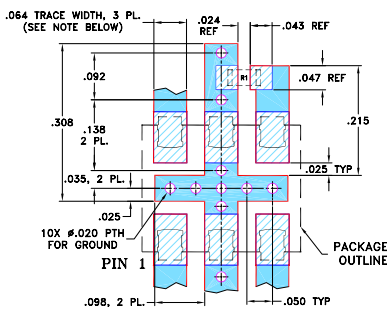
Suggested Layout,
Tolerance to be within ±.002

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-041)



RESISTOR R1: 49.9 Ohm, 0603 SIZE.

- NOTES:
- 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

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
 C. The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

Features

- wideband, 200-1300 MHz
- excellent VSWR: 1.3:1 typ.
- excellent coupling flatness, ±0.5 typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

Applications

- cellular
- VHF/UHF receivers



Generic photo used for illustration purposes only
CASE STYLE: CD542

+RoHS Compliant

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

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200
13"	500, 1000

Directional Coupler Electrical Specifications

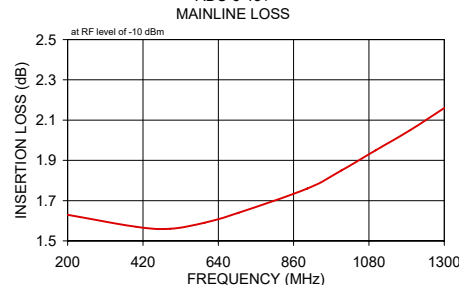
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT, W	
	Nom.	Flatness	Typ.	Max.	Typ.	Min.		L Max.	MU Max.
f _L -f _U									
200-1300	6.2±0.5	±0.9	1.8	2.5	17	10	1.3	0.5	0.5

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

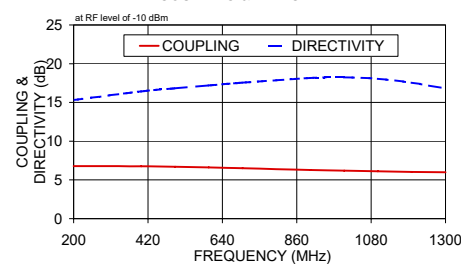
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
200.00	1.63	6.78	15.32	16.16	16.80	16.37
400.00	1.57	6.77	16.43	19.27	20.03	18.22
500.00	1.56	6.70	16.81	20.80	20.81	18.74
600.00	1.59	6.61	17.19	22.02	21.37	18.95
700.00	1.64	6.52	17.56	22.08	21.46	19.14
900.00	1.76	6.29	18.16	20.57	20.96	20.03
1000.00	1.85	6.20	18.24	19.80	21.45	20.54
1100.00	1.95	6.11	18.05	18.83	19.86	21.08
1200.00	2.05	6.04	17.55	17.57	19.28	21.80
1300.00	2.16	5.98	16.79	16.32	18.80	22.81

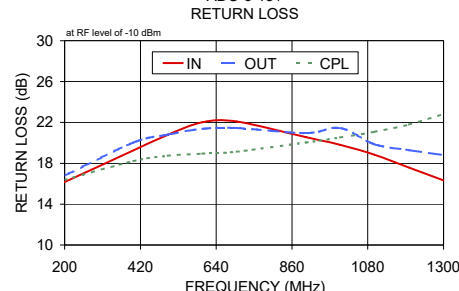
ADC-6-13+ MAINLINE LOSS



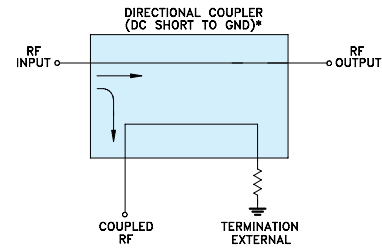
ADC-6-13+ COUPLING & DIRECTIVITY



ADC-6-13+ RETURN LOSS



Electrical Schematic



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

