

Surface Mount Directional Coupler

75Ω 10dB 5 to 1250 MHz

ADC-10-4-75+



CASE STYLE: CD542

Features

- wideband, 5-1250 MHz
- low mainline loss, 1.0 dB typ.
- excellent coupling flatness, ± 0.3 typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

Applications

- cable tv
- communications

+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, 500
13"	500, 1000

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		1250	MHz
Mainline Loss ¹	5 - 500	—	0.9	1.2	dB
	500 - 1250	—	1.1	1.6	
Coupling	5 - 1250	—	10.5 \pm 0.5	—	dB
Coupling Flatness (\pm)	5 - 1000	—	0.2	0.5	dB
	5 - 1250	—	0.3	0.6	
Directivity	5 - 50	20	30	—	dB
	50 - 500	13	20	—	
	500 - 1000	10	15	—	
	1000 - 1250	8	10	—	
Return Loss (Input)	5 - 50	17	23	—	dB
	50 - 1250	16	20	—	
Return Loss (Output)	5 - 50	20	27	—	dB
	50 - 1250	16	25	—	
Return Loss (Coupling)	5 - 50	15	19	—	dB
	50 - 1250	11	18	—	
Input Power	5 - 1250	—	—	1.0	W

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

Maximum Ratings

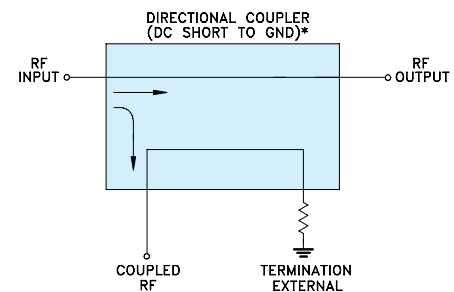
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

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

Pin Connections

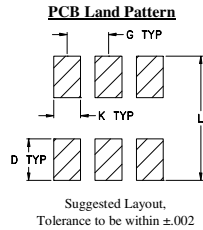
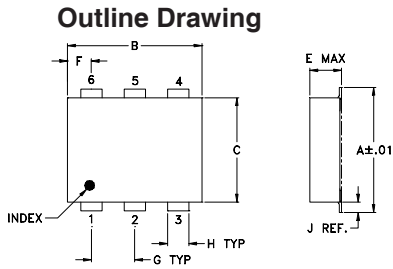
Function	Pin Number
INPUT	1
OUTPUT	6
COUPLED	3
GROUND	2
75Ω TERM EXTERNAL	4
ISOLATE (DO NOT USE)	5

Electrical Schematic



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

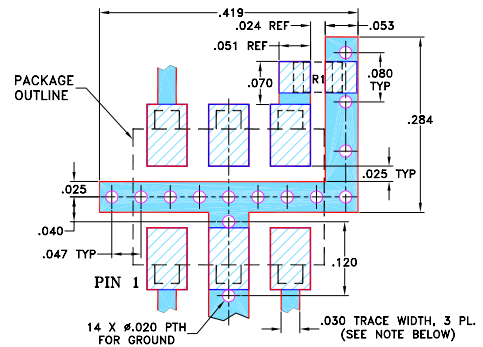




Outline Dimensions (inch/mm)

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)

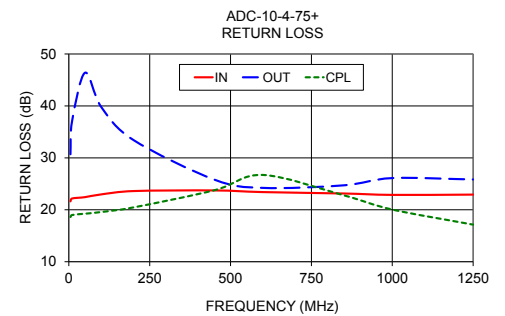
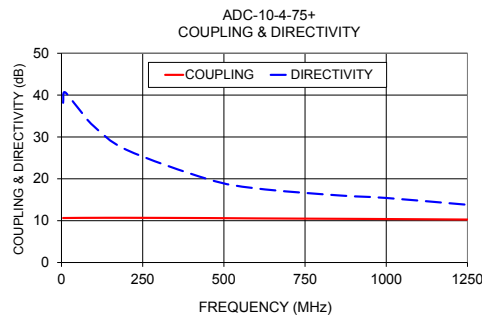
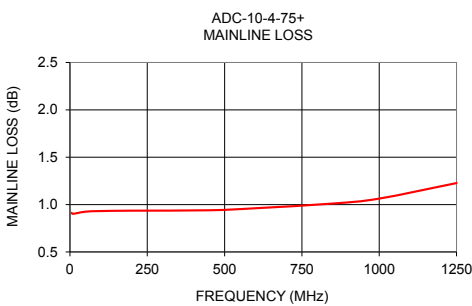


- RESISTOR R1: 75 Ohm, 0805 SIZE.
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
5	0.91	10.63	38.16	21.63	30.69	18.61
10	0.90	10.63	40.71	22.17	37.08	19.00
50	0.93	10.66	37.02	22.44	46.38	19.25
100	0.93	10.68	32.53	22.97	39.80	19.57
200	0.94	10.69	26.93	23.61	33.42	20.46
450	0.94	10.62	19.94	23.73	25.81	23.76
600	0.96	10.54	17.70	23.41	24.22	26.71
850	1.01	10.45	16.05	23.14	24.71	22.79
1000	1.06	10.39	15.42	22.87	26.11	20.05
1250	1.23	10.26	13.79	22.93	25.84	17.15



Additional Notes

- 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.
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