

Surface Mount Directional Coupler

TCD-9-1W-75X+

75Ω

5 to 2000 MHz



Generic photo used for illustration purposes only

CASE STYLE: DB1627

+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"	1000, 2000

Features

- wideband, 5 to 2000 MHz
- low mainline loss, 1.3 dB typ. (5-1000 MHz)
- aqueous washable
- leads for excellent solderability
- protected by US Patent 6,140,887

Applications

- GPS
- cellular
- satellite distribution
- CATV

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		2000	MHz
Mainline Loss ¹ (above theoretical 0.1 dB)	5 - 50	—	1.3	2.1	dB
	50 - 500	—	1.3	2.0	
	500 - 1000	—	1.8	2.4	
	1000 - 2000	—	2.5	—	
Nominal Coupling	5 - 1000	—	8.9±0.5	—	dB
	1000 - 2000	—	8.5±0.5	—	
Coupling Flatness(±)	5 - 2000	—	±0.6	—	dB
Directivity	5 - 50	17	21	—	dB
	50 - 500	—	15	—	
	500 - 1000	—	10	—	
	1000 - 2000	—	10	—	
VSWR	5 - 1000	—	1.30	—	:1
	1000 - 2000	—	1.60	—	
Input Power	5 - 1000			0.5	W
	1000 - 2000			1.0	

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

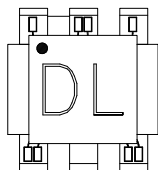
Permanent damage may occur if any of these limits are exceeded.

* Case temperature is defined as temperature on ground leads.

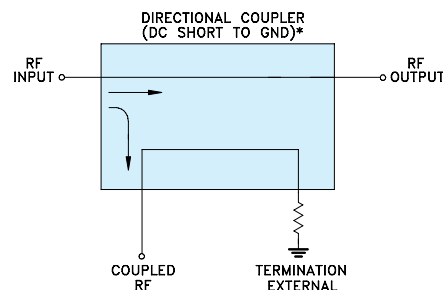
Pin Connections

Function	Pin Number
INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
75Ω TERM EXTERNAL	6
NOT USED	5

Product Marking

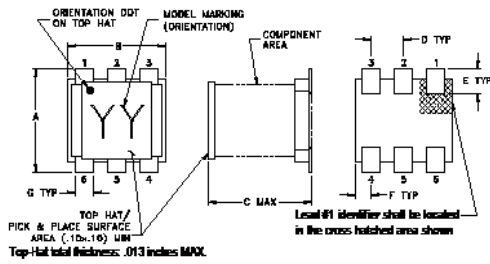


Electrical Schematic

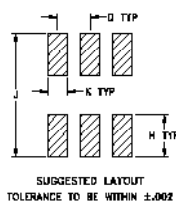


* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

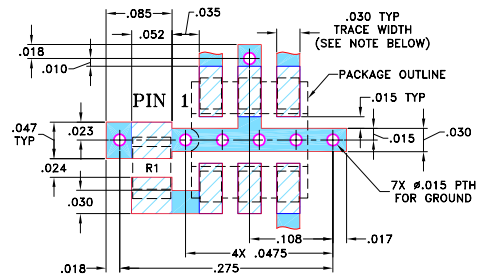
Outline Drawing



PCB Land Pattern



Demo Board MCL P/N: TB-72
Suggested PCB Layout (PL-010)



RESISTOR R1: 75 ± 1% Ohm, 0805 SIZE

NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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.

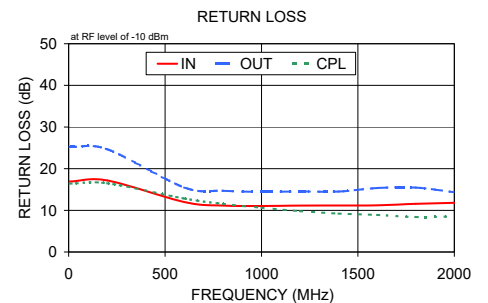
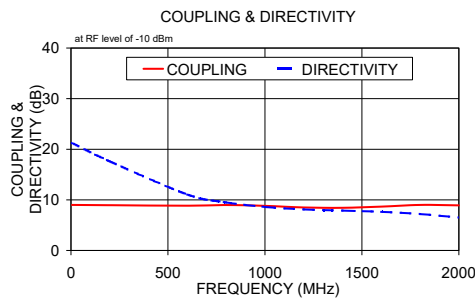
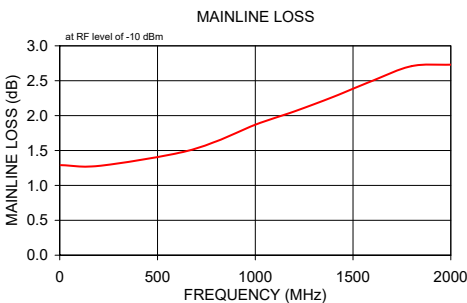
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Outline Dimensions (inch/mm)

A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K	wt	
.028	.065	.190	.030	grams	
0.71	1.65	4.83	0.76	0.15	

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
	In	Out			In	Out	Cpl
5.00	1.29	1.29	8.99	21.24	16.92	25.24	16.42
200.00	1.28	1.28	8.94	17.61	17.17	24.67	16.49
600.00	1.46	1.46	8.84	11.06	12.00	15.49	12.84
800.00	1.63	1.63	8.98	9.49	11.14	14.69	11.57
1000.00	1.87	1.87	8.81	8.59	11.05	14.44	10.62
1200.00	2.06	2.06	8.50	8.12	11.15	14.53	9.81
1400.00	2.27	2.27	8.43	7.88	11.16	14.51	9.22
1600.00	2.50	2.50	8.66	7.63	11.20	15.36	8.91
1800.00	2.71	2.71	9.00	7.19	11.56	15.46	8.40
2000.00	2.73	2.73	8.92	6.49	11.81	14.35	8.53



Additional 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-Circuits 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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp