

Surface Mount ^{top hat} Directional Coupler

TCD-10-1W-75+

75Ω 10 to 750 MHz

Features

- wideband, 10 to 750 MHz
- low mainline loss, 1.4 dB typ.
- aqueous washable
- leads for excellent solderability
- protected by US Patent 6,140,887

Applications

- VHF/UHF
- CATV
- communications



Generic photo used for illustration purposes only

CASE STYLE: DB714

+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

Electrical Specifications

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		10		750	MHz
Mainline Loss ¹	10 - 100	—	1.6	2.1	dB
	100 - 350	—	1.4	1.9	
	350 - 750	—	1.5	2.0	
Nominal Coupling		—	10.5±0.5	—	dB
Coupling Flatness(±)		—	±0.7	—	dB
Directivity	10 - 100	17	22	—	dB
	100 - 350	14	18	—	
	350 - 750	—	14	—	
VSWR	10 - 750		1.3		:1
Input Power	10 - 100	—	—	0.5	W
	100 - 750	—	—	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

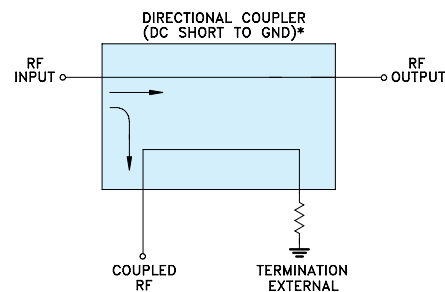
Permanent damage may occur if any of these limits are exceeded.

* Case temperature is defined as temperature on ground leads.

Pin Connections

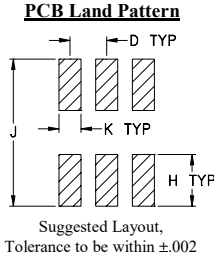
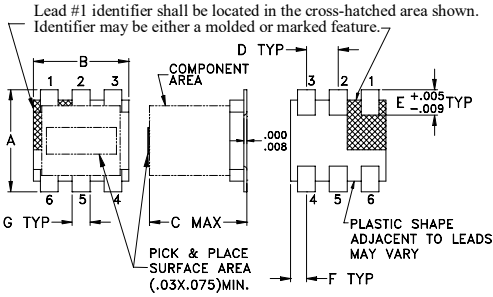
Function	Pin Number
INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
75Ω TERM EXTERNAL	6
NOT USED	5

Electrical Schematic

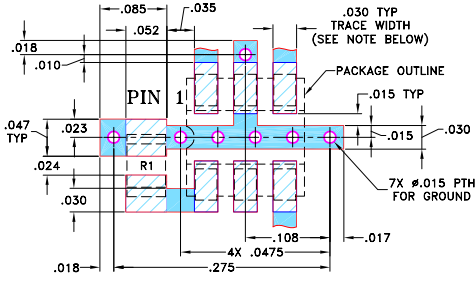


* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

Outline Drawing



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



RESISTOR R1: 75 ± 1% Ohm, 0805 SIZE

Outline Dimensions (inch/mm)

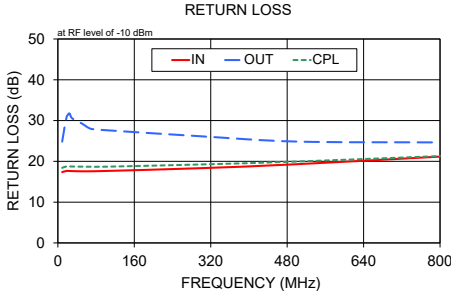
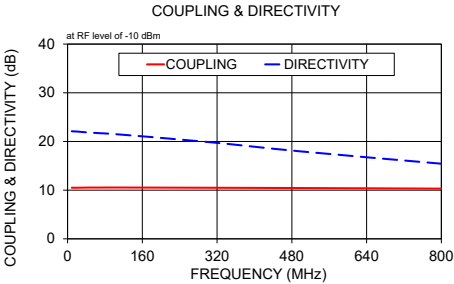
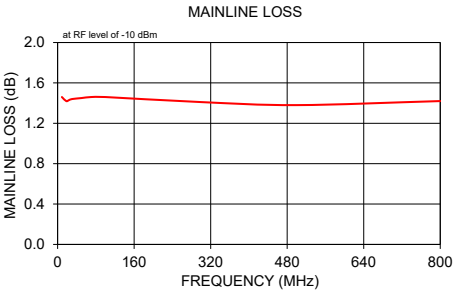
A	B	C	D	E	F	
.160	.150	.160	.050	.040	.025	
4.06	3.81	4.06	1.27	1.02	0.64	
G	H	J	K		wt	
.028	.065	.190	.030		grams	
0.71	1.65	4.83	0.76		0.15	

NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B 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

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
9.00	1.46	10.50	22.09	17.37	24.83	18.42
18.00	1.42	10.49	22.05	17.64	30.73	18.75
24.00	1.43	10.50	22.01	17.64	31.76	18.75
30.00	1.44	10.51	21.95	17.61	30.54	18.73
50.00	1.45	10.53	21.81	17.56	29.29	18.70
70.00	1.46	10.53	21.69	17.57	27.94	18.68
100.00	1.46	10.54	21.52	17.64	27.64	18.69
300.00	1.41	10.49	19.89	18.33	26.14	19.24
500.00	1.38	10.43	17.95	19.30	24.85	19.95
800.00	1.42	10.31	15.43	21.16	24.64	21.29



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.
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