

Surface Mount Directional Coupler

75Ω

5 to 2000 MHz

TCD-9-1W-75+
TCD-9-1W-75



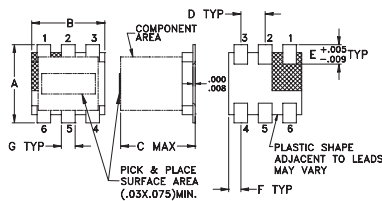
Maximum Ratings

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

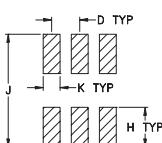
Pin Connections

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

Outline Drawing



PCB Land Pattern

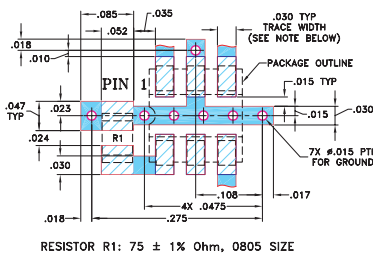


Suggested Layout,
Tolerance to be within ±0.02

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

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

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

Directional Coupler Electrical Specifications

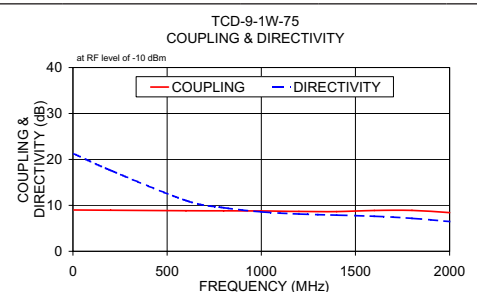
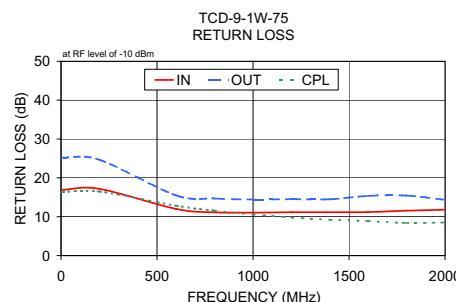
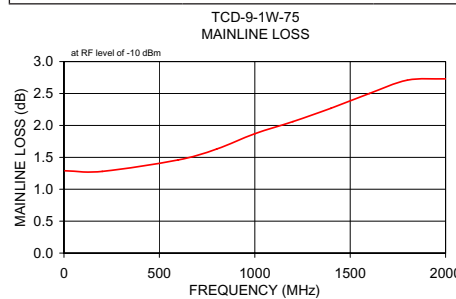
FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS¹ (dB)						DIRECTIVITY (dB)						VSWR (:1)	POWER INPUT, W	
			L		M		U		L		M		U				
	f _L -f _U	Nom.	Flatness	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.		Min.	Typ.
5-1000	8.9±0.5	±0.6	1.3	2.1	1.3	2.0	1.8	2.4	21	17	15	—	10	—	1.30	0.5	1.0
1000-2000	8.9±0.5	±0.6	—	—	2.5	—	—	—	—	—	10	—	—	—	1.60	—	1.0

L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

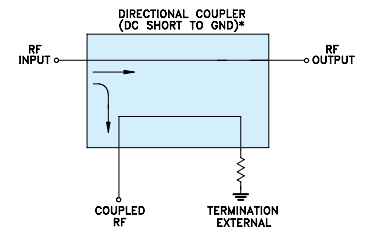
1. Mainline loss includes theoretical power loss at coupled port.

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)	Directivity (dB)	Return Loss (dB)		
	In-Out	In-Cpl		In	Out	Cpl
5.00	1.29	8.99	21.24	16.92	25.24	16.42
200.00	1.28	8.94	17.61	17.17	24.67	16.49
600.00	1.46	8.84	11.06	12.00	15.49	12.84
800.00	1.63	8.81	9.49	11.14	14.69	11.57
1000.00	1.87	8.78	8.59	11.05	14.44	10.62
1200.00	2.06	8.67	8.12	11.15	14.53	9.81
1400.00	2.27	8.65	7.88	11.16	14.51	9.22
1600.00	2.50	8.89	7.63	11.20	15.36	8.91
1800.00	2.71	8.90	7.19	11.56	15.46	8.40
2000.00	2.73	8.41	6.49	11.81	14.35	8.53



Electrical Schematic



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

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