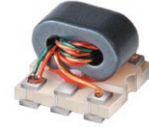


# Surface Mount Directional Coupler

## TCD-10-4-75+

75Ω

5 to 1000 MHz



### 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

### Features

- wideband, 5-1000 MHz
- excellent flatness, ±0.1 dB typ.
- better performance than MA-COM EMDC-10-1-75
- footprint compatible to EMDC-10-1-75
- aqueous washable

### Applications

- CATV

CASE STYLE: AT224-1

PRICE: \$1.49 ea. QTY (25-49)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

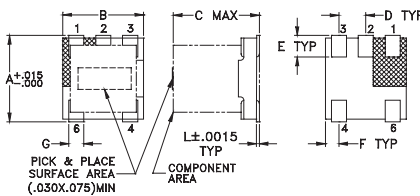
### Directional Coupler Electrical Specifications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)						DIRECTIVITY (dB)						VSWR (:1)	POWER INPUT, W
	Nom.	Flatness	L		M		U		L		M		U			
f <sub>L</sub> -f <sub>U</sub>			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.
5-1000	9.9±0.5	±0.3	1.0	1.5	1.1	1.5	1.3	1.9	22	19	20	13	15	11	1.25	1.0

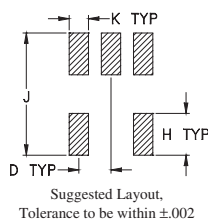
L= 5-50 MHz M= 50-500 MHz U= 500-1000 MHz

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

### Outline Drawing



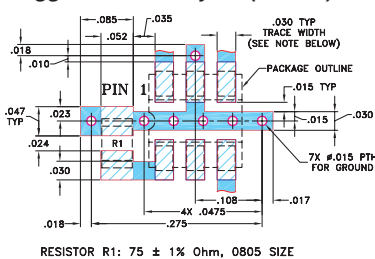
### PCB Land Pattern



### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.150	.150	.160	.050	.040	.025
3.81	3.81	4.06	1.27	1.02	0.64
G	H	J	K	L	wt
.028	.065	.190	.030	.007	grams
0.71	1.65	4.83	0.76	0.18	0.15

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

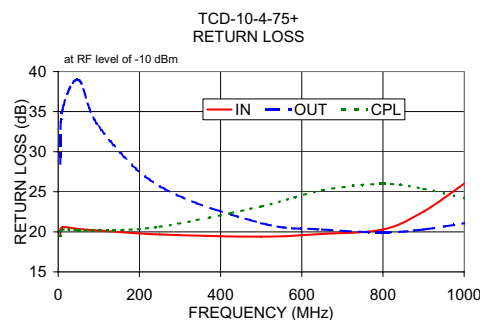
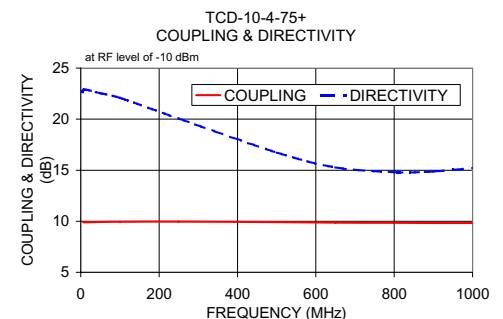
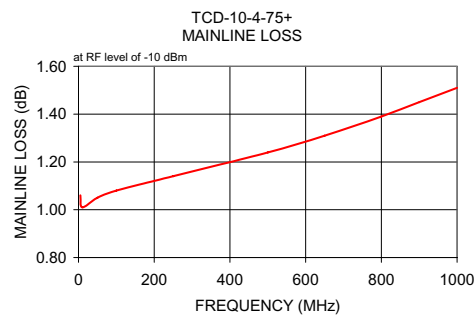


RESISTOR R1: 75 ± 1% Ohm, 0805 SIZE

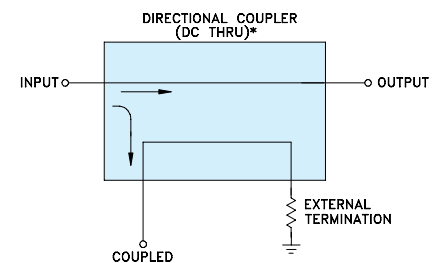
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
▨ 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
5.00	1.06	9.94	22.66	19.73	28.50	19.46
10.00	1.01	9.90	22.91	20.57	35.13	20.26
50.00	1.05	9.93	22.54	20.35	38.95	20.20
100.00	1.08	9.95	22.09	20.17	33.10	20.18
250.00	1.14	9.96	20.05	19.68	25.68	20.63
500.00	1.24	9.92	16.74	19.39	21.07	23.17
650.00	1.31	9.86	15.28	19.74	20.28	25.18
800.00	1.39	9.85	14.81	20.28	19.92	25.99
900.00	1.45	9.82	14.88	22.54	20.29	25.37
1000.00	1.51	9.83	15.23	26.00	21.07	24.19



### Electrical Schematic



\* ELECTRICAL SCHEMATIC FOR DIRECTIONAL COUPLERS REQUIRING EXTERNAL TERMINATION THAT IS DESIGNED WITHOUT INTERNAL TRANSFORMERS.

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