



# Surface Mount Directional Coupler

75Ω

5 to 1000 MHz

## TCD-10-4-75+



Generic photo used for illustration purposes only

CASE STYLE: AT224-1A

**+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, 5-1000 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

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		1000	MHz
Mainline Loss <sup>1</sup>	5 - 50	—	1.0	1.5	dB
	5 - 500	—	1.1	1.5	
	500 - 1000	—	1.3	1.9	
Nominal Coupling	5 - 1000		9.9±0.5		dB
Coupling Flatness(±)	5 - 1000		±0.3		dB
Directivity	5 - 50	19	22	—	dB
	5 - 500	13	20	—	
	500 - 1000	11	15	—	
VSWR	5 - 1000	—	1.25	—	:1
Input Power	5 - 1000	—	—	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

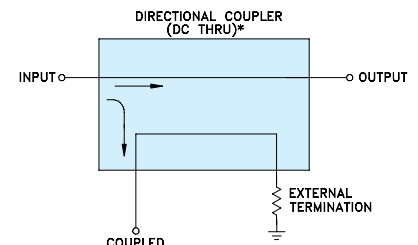
Permanent damage may occur if any of these limits are exceeded.

\* Case temperature is defined as temperature on ground leads.

### Pin Connections

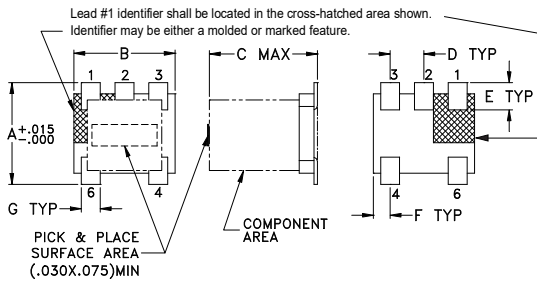
Function	Pin Number
INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
75Ω TERM EXTERNAL	6

### Electrical Schematic

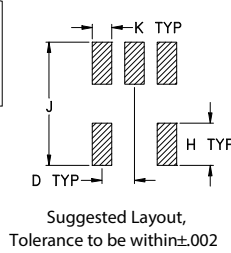


\* ELECTRICAL SCHEMATIC FOR DIRECTIONAL COUPLERS REQUIRING EXTERNAL TERMINATION THAT IS DESIGNED WITHOUT INTERNAL TRANSFORMERS.

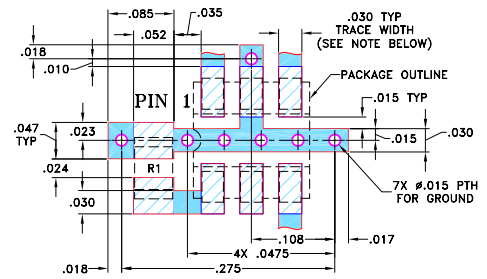
## Outline Drawing



## PCB Land Pattern



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



## 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	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.

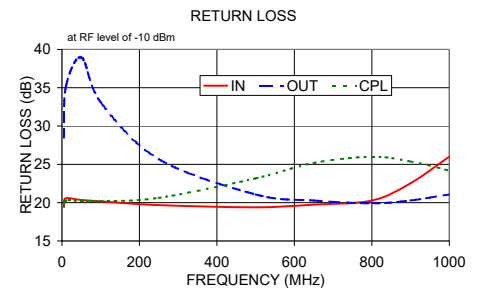
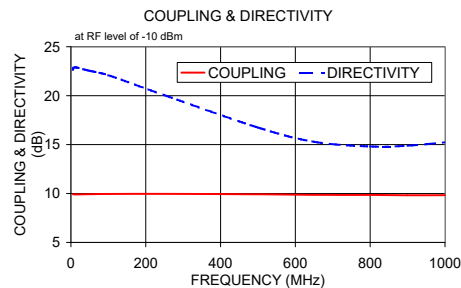
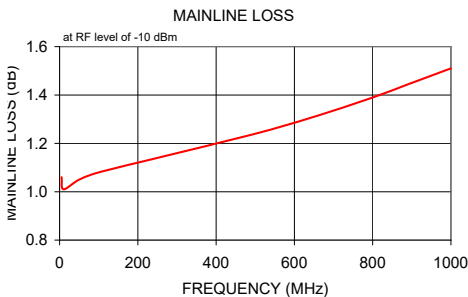
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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
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





## 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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