

Surface Mount Directional Coupler

TCD-13-4-75+ TCD-13-4-75

75Ω

5 to 1000 MHz



Maximum Ratings

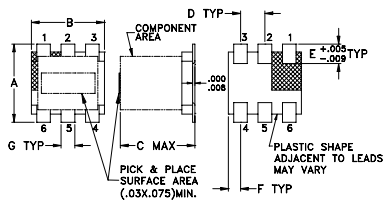
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |

* Case temperature is defined as temperature on ground leads.
Permanent damage may occur if any of these limits are exceeded.

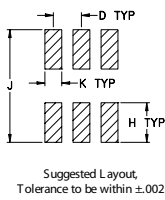
Pin Connections

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

Outline Drawing



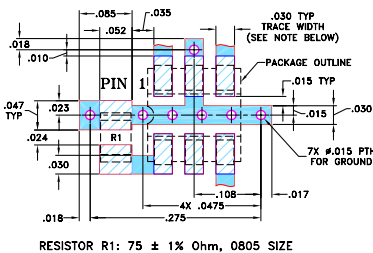
PCB Land Pattern



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)



- NOTES:**
- 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.
 - 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

Features

- wideband, 5 to 1000 MHz
- low mainline loss, 0.8 dB typ.
- aqueous washable
- leads for excellent solderability
- protected by US Patent 6,140,887

Applications

- VHF/UHF
- CATV
- cellular

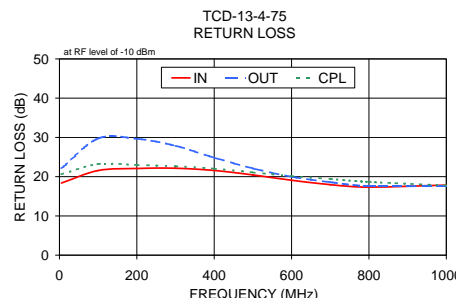
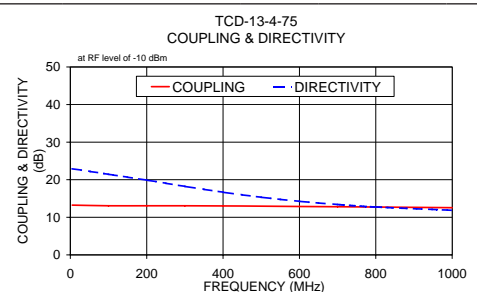
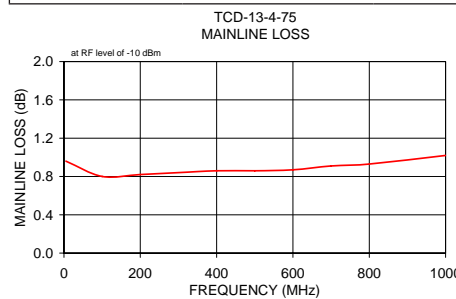
Directional Coupler Electrical Specifications

| FREQ. RANGE (MHz) | COUPLING (dB) | | MAINLINE LOSS ¹ (dB) | | | DIRECTIVITY (dB) | | | VSWR (:1) | POWER INPUT, W | | | | | | | |
|--------------------------------|---------------|----------|---------------------------------|------|------|------------------|------|------|-----------|----------------|------|------|----|---|------|-----|-----|
| | Nom. | Flatness | L | | M | U | L | M | | U | Max. | MU | | | | | |
| f _L -f _U | | | Typ. | Max. | Typ. | Max. | Typ. | Min. | Typ. | Min. | Typ. | Max. | | | | | |
| 5-1000 | 13.0±0.5 | ±0.9 | 1.0 | 1.8 | 0.8 | 1.3 | 1.1 | 1.5 | 22 | 17 | 15 | — | 12 | — | 1.20 | 0.5 | 1.0 |

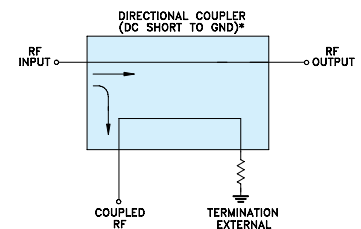
L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U]
1. Mainline loss includes theoretical power loss at coupled port.

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
| | | | | In | Out | Cpl |
| 5.00 | 0.96 | 13.23 | 22.93 | 18.39 | 22.11 | 20.63 |
| 100.00 | 0.80 | 13.07 | 21.46 | 21.56 | 29.75 | 23.23 |
| 200.00 | 0.82 | 13.07 | 19.90 | 22.09 | 29.67 | 22.99 |
| 300.00 | 0.84 | 13.06 | 18.25 | 22.15 | 27.88 | 22.67 |
| 400.00 | 0.86 | 13.03 | 16.68 | 21.58 | 24.86 | 22.04 |
| 500.00 | 0.86 | 12.96 | 15.34 | 20.44 | 22.11 | 21.08 |
| 600.00 | 0.87 | 12.88 | 14.27 | 19.08 | 19.99 | 20.15 |
| 700.00 | 0.91 | 12.82 | 13.42 | 17.97 | 18.61 | 19.42 |
| 800.00 | 0.93 | 12.73 | 12.75 | 17.33 | 17.64 | 18.67 |
| 1000.00 | 1.02 | 12.56 | 11.88 | 17.83 | 17.63 | 17.78 |



Electrical Schematic



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

For detailed performance specs & shopping online see web site



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

IF/RF MICROWAVE COMPONENTS

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