

# Surface Mount Directional Coupler

TCD-18-4+

50Ω

5 to 1000 MHz

## Maximum Ratings

Operating Temperature -40°C to 85°C

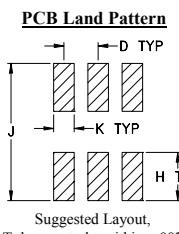
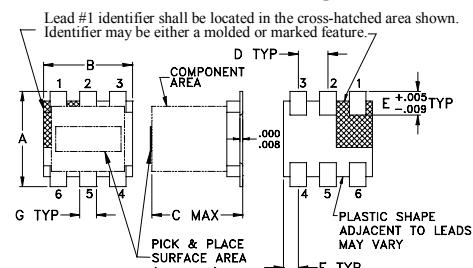
Storage Temperature -55°C to 100°C

\* 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 |
| 50Ω TERM EXTERNAL | 6 |
| NOT USED          | 5 |

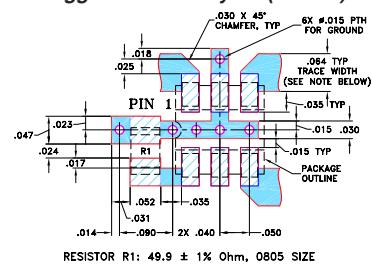
## Outline Drawing



## 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-71 Suggested PCB Layout (PL-009)



## Features

- wideband, 5 to 1000 MHz
- low mainline loss, 0.7 dB typ.
- aqueous washable
- leads for excellent solderability
- protected by US Patent 6,140,887



CASE STYLE: DB714  
PRICE: \$1.49 ea. QTY (20)

### +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            |

## Directional Coupler Electrical Specifications

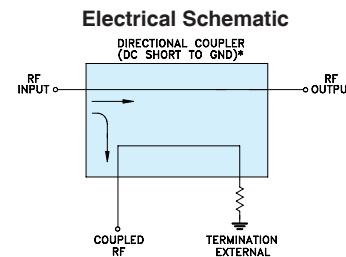
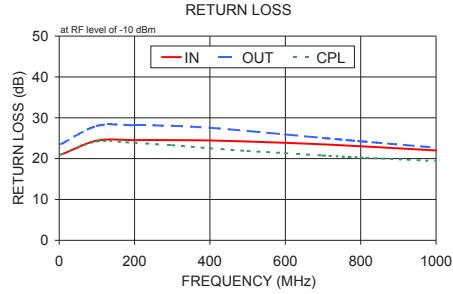
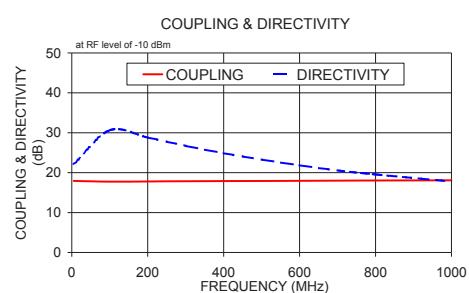
| FREQ.<br>RANGE<br>(MHz) | COUPLING<br>(dB) | MAINLINE LOSS <sup>1</sup><br>(dB)  |                |                | DIRECTIVITY<br>(dB) |                |                | VSWR<br>(:1) | POWER<br>INPUT, W |    |    |    |    |   |      |     |     |
|-------------------------|------------------|-------------------------------------|----------------|----------------|---------------------|----------------|----------------|--------------|-------------------|----|----|----|----|---|------|-----|-----|
|                         |                  | L<br>f <sub>L</sub> -f <sub>U</sub> | M<br>Typ. Max. | U<br>Typ. Max. | L<br>Typ. Min.      | M<br>Typ. Min. | U<br>Typ. Min. |              |                   |    |    |    |    |   |      |     |     |
| 5-1000                  | 17.9 $\pm$ 0.5   | $\pm$ 0.6                           | 0.7            | 1.3            | 0.7                 | 1.1            | 1.0            | 1.4          | 22                | 11 | 20 | 15 | 18 | — | 1.20 | 1.0 | 1.0 |

L = low range [f<sub>L</sub> to 10 f<sub>U</sub>] M = mid range [10 f<sub>L</sub> to f<sub>U</sub>/2] U = upper range [f<sub>U</sub>/2 to f<sub>U</sub>]

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

## Typical Performance Data

| Frequency<br>(MHz) | Mainline Loss<br>(dB)<br>In-Out | Coupling<br>(dB)<br>In-Cpl | Directivity<br>(dB) |       | Return Loss<br>(dB)<br>Out | Cpl   |
|--------------------|---------------------------------|----------------------------|---------------------|-------|----------------------------|-------|
|                    |                                 |                            | In                  | Out   |                            |       |
| 5.00               | 0.71                            | 17.93                      | 22.13               | 20.96 | 23.54                      | 21.00 |
| 100.00             | 0.62                            | 17.76                      | 30.64               | 24.40 | 28.02                      | 24.20 |
| 200.00             | 0.64                            | 17.80                      | 28.81               | 24.53 | 28.17                      | 23.85 |
| 300.00             | 0.67                            | 17.85                      | 26.73               | 24.53 | 28.03                      | 23.28 |
| 400.00             | 0.64                            | 17.89                      | 24.88               | 24.44 | 27.55                      | 22.54 |
| 500.00             | 0.73                            | 17.92                      | 23.27               | 24.18 | 26.78                      | 21.86 |
| 600.00             | 0.80                            | 17.96                      | 21.85               | 23.87 | 25.93                      | 21.34 |
| 700.00             | 0.80                            | 18.00                      | 20.56               | 23.48 | 25.07                      | 20.77 |
| 800.00             | 0.84                            | 18.03                      | 19.55               | 23.03 | 24.24                      | 20.27 |
| 1000.00            | 0.92                            | 18.08                      | 17.79               | 22.00 | 22.68                      | 19.42 |



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

## Notes

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