

Surface Mount

# Directional Coupler

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-34970699  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## ADC-10-1R+ ADC-10-1R

### 50Ω 5 to 900 MHz

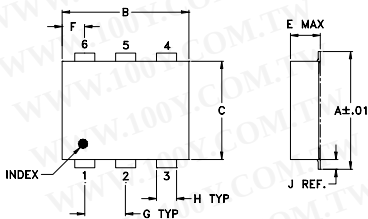
#### Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| 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. |                |

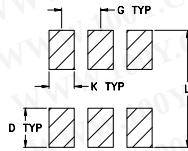
#### Pin Connections

|                      |     |
|----------------------|-----|
| INPUT                | 1   |
| OUTPUT               | 6   |
| COUPLED              | 3   |
| GROUND               | 2,5 |
| ISOLATE (DO NOT USE) | 4   |

#### Outline Drawing



#### PCB Land Pattern

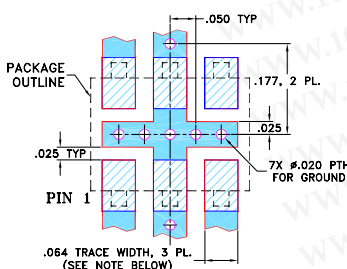


Suggested Layout,  
Tolerance to be within ±0.02

#### Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E     | F    | G    |
|------|------|------|------|-------|------|------|
| .272 | .310 | .220 | .100 | .112  | .055 | .100 |
| 6.91 | 7.87 | 5.59 | 2.54 | 2.84  | 1.40 | 2.54 |
| H    | J    | K    | L    | wt    |      |      |
| .030 | .026 | .065 | .300 | grams |      |      |
| 0.76 | 0.66 | 1.65 | 7.62 | 0.20  |      |      |

#### Demo Board MCL P/N: TB-32 Suggested PCB Layout (PL-094)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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, 5-900 MHz
- low mainline loss, 0.8 db typ.
- excellent coupling flatness, ±0.2 typ.
- aqueous washable
- protected by U.S. Patents 6,133,525 & 6,140,887

#### Applications

- communications
- cable tv

CASE STYLE: CD542

#### +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"        | 10, 20, 50, 100, 200, 500 |
| 13"       | 500, 1000                 |

#### Directional Coupler Electrical Specifications

| FREQ.<br>(MHz) | COUPLING<br>(dB)               |                    | MAINLINE LOSS <sup>1</sup><br>(dB) |                   |                   | DIRECTIVITY<br>(dB) |                   |                   | VSWR<br>(:1) | POWER<br>INPUT, W |                           |
|----------------|--------------------------------|--------------------|------------------------------------|-------------------|-------------------|---------------------|-------------------|-------------------|--------------|-------------------|---------------------------|
|                | f <sub>L</sub> -f <sub>U</sub> | Nom.      Flatness | L<br>Typ.    Max.                  | M<br>Typ.    Max. | U<br>Typ.    Max. | L<br>Typ.    Min.   | M<br>Typ.    Min. | U<br>Typ.    Min. |              | Typ.              | L      MU<br>Max.    Max. |
| 5-900          | 10.5±0.5                       | ±0.5               | 0.7    1.2                         | 0.8    1.2        | 0.9    1.5        | 40    25            | 30    20          | 18    12          | 1.3          | 1.0    1.0        |                           |

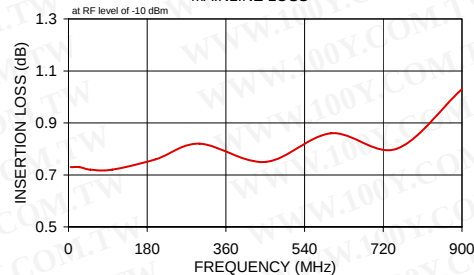
L= 5-50 MHz M= 50-450 MHz U= 450-900 MHz

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

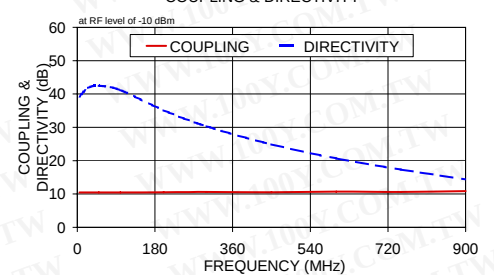
#### Typical Performance Data

| Frequency<br>(MHz) | Mainline Loss<br>(dB)<br>In-Out | Coupling<br>(dB)<br>In-Cpl | Directivity<br>(dB) | Return Loss<br>(dB) |       |       |
|--------------------|---------------------------------|----------------------------|---------------------|---------------------|-------|-------|
|                    |                                 |                            |                     | In                  | Out   | Cpl   |
| 5.00               | 0.73                            | 10.46                      | 39.26               | 23.33               | 32.99 | 20.92 |
| 25.00              | 0.73                            | 10.47                      | 41.83               | 23.80               | 33.86 | 21.15 |
| 50.00              | 0.72                            | 10.46                      | 42.49               | 23.65               | 33.70 | 20.95 |
| 100.00             | 0.72                            | 10.46                      | 41.16               | 23.19               | 31.77 | 20.42 |
| 200.00             | 0.76                            | 10.54                      | 35.13               | 21.89               | 27.73 | 18.85 |
| 300.00             | 0.82                            | 10.62                      | 30.28               | 20.41               | 24.77 | 17.13 |
| 450.00             | 0.75                            | 10.54                      | 24.90               | 18.54               | 21.73 | 14.98 |
| 600.00             | 0.86                            | 10.71                      | 20.67               | 17.18               | 19.54 | 13.38 |
| 750.00             | 0.80                            | 10.63                      | 17.31               | 16.29               | 17.92 | 12.21 |
| 900.00             | 1.03                            | 10.88                      | 14.39               | 15.79               | 16.77 | 11.46 |

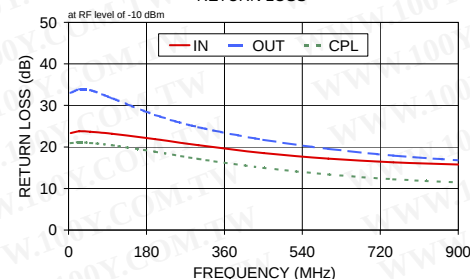
#### ADC-10-1R MAINLINE LOSS



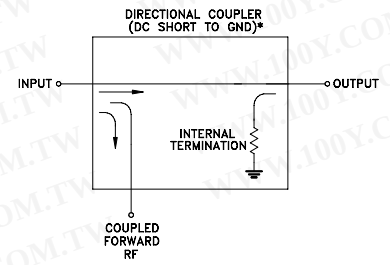
#### ADC-10-1R COUPLING & DIRECTIVITY



#### ADC-10-1R RETURN LOSS



#### Electrical Schematic



#### Notes

- A. 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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