

TCD-10-1W-75X+

 75Ω 10 to 750 MHz

Features

- wideband, 10 to 750 MHz
- low mainline loss, 1.4 dB typ.
- aqueous washable
- · leads for excellent solderability
- protected by US Patent 6,140,887

Applications

- VHF/UHF
- CATV
- communications



Generic photo used for illustration purposes only

CASE STYLE: DB1627

+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 | | | | | |

Electrical Specifications at 25°C

| Parameter | Frequency (MHz) | Min. | Тур. | Max. | Unit |
|----------------------------|-----------------|------|----------|------|------|
| Frequency Range | | 10 | | 750 | MHz |
| Mainline Loss ¹ | 10 - 100 | _ | 1.6 | 2.1 | |
| | 100 - 350 | _ | 1.4 | 1.9 | dB |
| | 350 - 750 | _ | 1.5 | 2.0 | |
| Nominal Coupling | | _ | 10.5±0.5 | _ | dB |
| Coupling Flatness(±) | | _ | 0±0.7 | _ | dB |
| Directivity | 10 - 100 | 17 | 22 | _ | |
| | 100 - 350 | 14 | 18 | _ | dB |
| | 350 - 750 | _ | 14 | _ | |
| VSWR | 10 - 750 | | 1.3 | | :1 |
| land Barrer | 10 - 100 | _ | _ | 0.5 | W |
| Input Power | 100 - 750 | _ | _ | 1.0 | |

^{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.

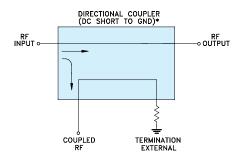
Pin Connections

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

Product Marking



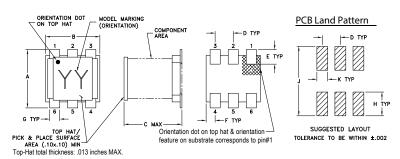
Electrical Schematic



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

^{*} Case temperature is defined as temperature on ground leads.

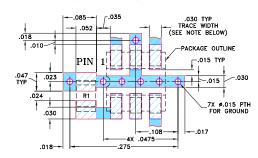
Outline Drawing



Outline Dimensions (inch)

| 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 .028 0.71 | H .065 1.65 | J .190 4.83 | .030 0.76 | | wt grams 0.15 |

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



RESISTOR R1: 75 \pm 1% Ohm, 0805 SIZE

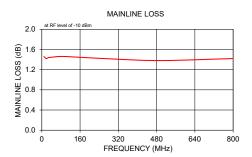
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 0Z. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

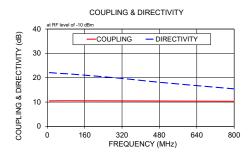
 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

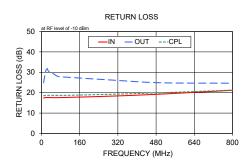
 - DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) | Coupling (dB) | Directivity (dB) | Return Loss (dB) | | |
|--------------------|-----------------------|------------------|---------------------|---------------------|-------|-------|
| , | In-Out | In-Cpl | () | In | Ouť | Cpl |
| 9.00 | 1.46 | 10.50 | 22.09 | 17.37 | 24.83 | 18.42 |
| 18.00 | 1.42 | 10.49 | 22.05 | 17.64 | 30.73 | 18.75 |
| 24.00 | 1.43 | 10.50 | 22.01 | 17.64 | 31.76 | 18.75 |
| 30.00 | 1.44 | 10.51 | 21.95 | 17.61 | 30.54 | 18.73 |
| 50.00 | 1.45 | 10.53 | 21.81 | 17.56 | 29.29 | 18.70 |
| 70.00 | 1.46 | 10.53 | 21.69 | 17.57 | 27.94 | 18.68 |
| 100.00 | 1.46 | 10.54 | 21.52 | 17.64 | 27.64 | 18.69 |
| 300.00 | 1.41 | 10.49 | 19.89 | 18.33 | 26.14 | 19.24 |
| 500.00 | 1.38 | 10.43 | 17.95 | 19.30 | 24.85 | 19.95 |
| 800.00 | 1.42 | 10.31 | 15.43 | 21.16 | 24.64 | 21.29 |







Additional 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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