

2 Way-90° 50Ω 55 to 90 MHz

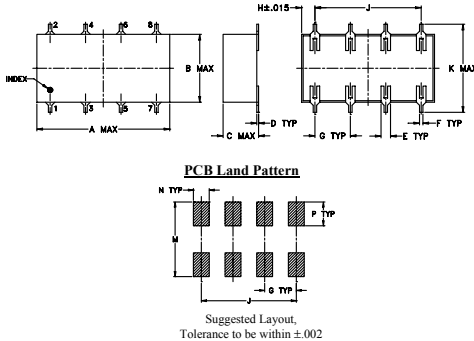
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -40°C to 85°C  |
| Storage Temperature                                             | -55°C to 100°C |
| Power Input (as a splitter)                                     | 1W max.        |
| Permanent damage may occur if any of these limits are exceeded. |                |

## Pin Connections

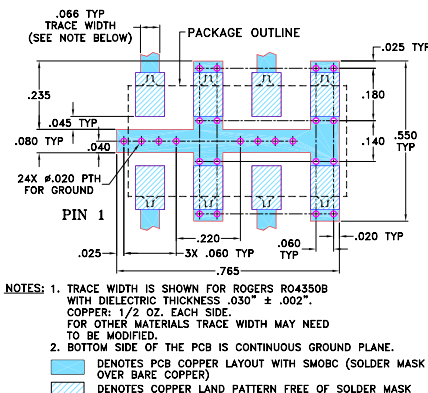
|                      |         |
|----------------------|---------|
| SUM PORT             | 1       |
| PORT 1 (+90°)        | 2       |
| PORT 2 (0°)          | 5       |
| GROUND               | 3,4,7,8 |
| 50 OHM TERM EXTERNAL | 6       |

## Outline Drawing



## Outline Dimensions (inch/mm)

| A     | B     | C     | D     | E    | F    | G     |
|-------|-------|-------|-------|------|------|-------|
| .75   | .38   | .20   | .010  | .050 | .020 | .200  |
| 19.05 | 9.65  | 5.08  | 0.25  | 1.27 | 0.51 | 5.08  |
| H     | J     | K     | M     | N    | P    | wt    |
| .075  | .600  | .450  | .470  | .100 | .150 | grams |
| 1.91  | 15.24 | 11.43 | 11.94 | 2.54 | 3.81 | 1.6   |

Demo Board MCL P/N: TB-51  
Suggested PCB Layout (PL-062)

- 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

## 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.
- C. The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

## Features

- low insertion loss, 0.2 dB typ.
- high isolation, 26 dB typ.
- excellent phase unbalance, 1 deg typ.
- excellent, VSWR 1.15:1 typ.

## Applications

- VHF
- signal processing
- image rejection mixer



## +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

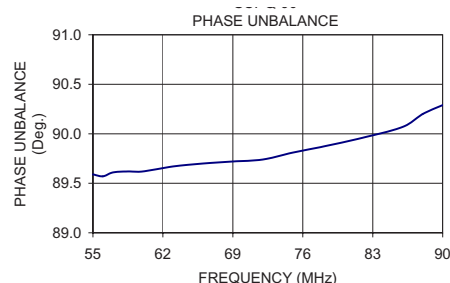
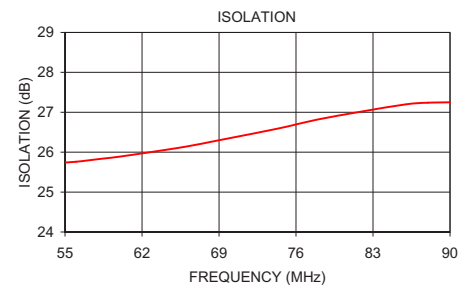
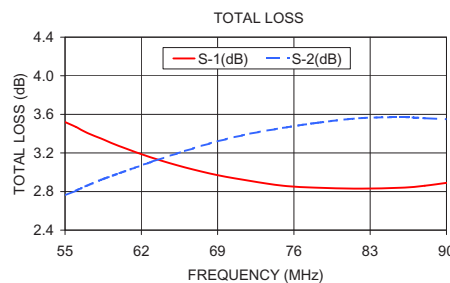
## Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) | INSERTION LOSS (dB)<br>Avg. of Coupled Outputs<br>ABOVE 3 dB | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) |
|-------------------|----------------|--------------------------------------------------------------|---------------------------|--------------------------|
| $f_L - f_U$       | Typ. Min.      | Typ. Max.                                                    | Max.                      | Max.                     |
| 55-90             | 26 20          | 0.2 0.7                                                      | 3                         | 1.2                      |

## Typical Performance Data

| Frequency (MHz) | Total Loss <sup>1</sup> (dB) | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|------------------------------|--------------------------|----------------|------------------------|--------|--------|--------|
|                 | S-1                          | S-2                      |                |                        |        |        |        |
| 55.00           | 3.52                         | 2.76                     | 0.76           | 25.74                  | 89.59  | 1.12   | 1.13   |
| 56.00           | 3.47                         | 2.81                     | 0.66           | 25.76                  | 89.57  | 1.12   | 1.13   |
| 57.00           | 3.41                         | 2.86                     | 0.55           | 25.79                  | 89.61  | 1.12   | 1.13   |
| 58.50           | 3.34                         | 2.93                     | 0.41           | 25.84                  | 89.62  | 1.12   | 1.13   |
| 60.00           | 3.27                         | 2.99                     | 0.28           | 25.89                  | 89.62  | 1.12   | 1.13   |
| 63.00           | 3.15                         | 3.11                     | 0.04           | 26.01                  | 89.67  | 1.12   | 1.13   |
| 66.00           | 3.05                         | 3.22                     | 0.17           | 26.14                  | 89.70  | 1.12   | 1.13   |
| 69.00           | 2.97                         | 3.32                     | 0.34           | 26.30                  | 89.72  | 1.12   | 1.13   |
| 72.00           | 2.91                         | 3.40                     | 0.49           | 26.46                  | 89.74  | 1.12   | 1.13   |
| 75.00           | 2.86                         | 3.46                     | 0.60           | 26.63                  | 89.81  | 1.11   | 1.12   |
| 78.00           | 2.84                         | 3.51                     | 0.68           | 26.82                  | 89.87  | 1.11   | 1.12   |
| 82.00           | 2.83                         | 3.56                     | 0.73           | 27.02                  | 89.96  | 1.10   | 1.11   |
| 86.00           | 2.84                         | 3.57                     | 0.73           | 27.20                  | 90.07  | 1.09   | 1.11   |
| 88.00           | 2.86                         | 3.56                     | 0.70           | 27.24                  | 90.20  | 1.08   | 1.11   |
| 90.00           | 2.89                         | 3.55                     | 0.66           | 27.25                  | 90.29  | 1.08   | 1.11   |

1. Total Loss = Insertion Loss + 3dB splitter loss.



## electrical schematic

