

# Power Splitter/Combiner

2 Way-0° 75Ω 5 to 500 MHz

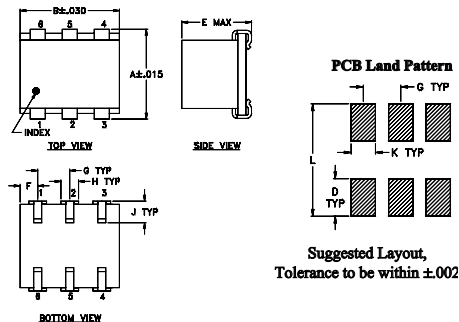
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -40°C to 85°C  |
| Storage Temperature                                             | -55°C to 100°C |
| Power Input (as a splitter)                                     | 1W max.        |
| Internal Dissipation                                            | 0.125W max.    |
| Permanent damage may occur if any of these limits are exceeded. |                |

## Pin Connections

|          |       |
|----------|-------|
| SUM PORT | 1     |
| PORT 1   | 3     |
| PORT 2   | 4     |
| GROUND   | 2,5,6 |

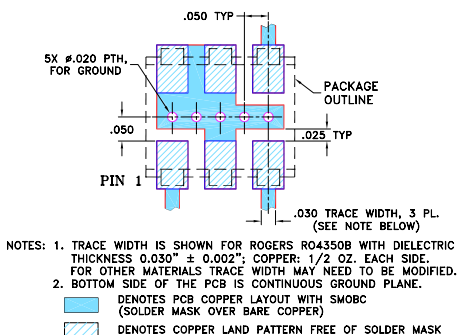
## Outline Drawing



## Outline Dimensions (inch/mm)

| A    | B    | C  | D    | E    | F    | G    | H    | J    | K    | L    | wt    |
|------|------|----|------|------|------|------|------|------|------|------|-------|
| .280 | .310 | -- | .100 | .225 | .055 | .100 | .047 | .065 | .065 | .300 | grams |
| 7.11 | 7.87 | -- | 2.54 | 5.72 | 1.40 | 2.54 | 1.19 | 1.65 | 1.65 | 7.62 | 0.45  |

## Demo Board MCL P/N: TB-169 Suggested PCB Layout (PL-054)



## 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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## Features

- low insertion, 0.15 dB typ.
- excellent insertion loss flatness, 0.2 dB peak to peak
- excellent amplitude unbalance, 0.05 dB typ.
- very good phase unbalance, 0.1 deg. typ.
- excellent VSWR 1.1:1 typ. all ports.
- J-leads for excellent solderability and strain relief

## Applications

- cable tv
- UHF transmitters/receivers

## Electrical Specifications

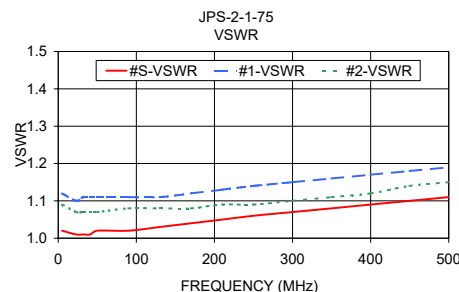
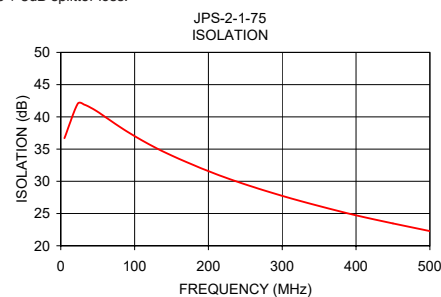
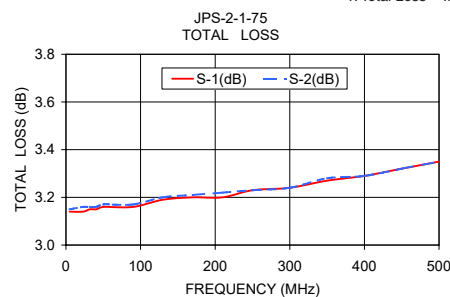
| FREQ. RANGE (MHz)              | ISOLATION (dB) |     |      |     |      |     | INSERTION LOSS (dB) ABOVE 3.0 dB |      |      |      |      |      | PHASE UNBALANCE (Degrees) |      |      | AMPLITUDE UNBALANCE (dB) |      |      |
|--------------------------------|----------------|-----|------|-----|------|-----|----------------------------------|------|------|------|------|------|---------------------------|------|------|--------------------------|------|------|
|                                | L              |     | M    |     | U    |     | L                                |      | M    |      | U    |      | L                         |      | M    |                          | U    |      |
| f <sub>c</sub> -f <sub>u</sub> | Typ.           | Min | Typ. | Min | Typ. | Min | Typ.                             | Max. | Typ. | Max. | Typ. | Max. | Max.                      | Max. | Max. | Max.                     | Max. | Max. |
| 5-500                          | 25             | 18  | 35   | 20  | 20   | 18  | 0.15                             | 0.5  | 0.15 | 0.7  | 0.25 | 0.7  | 1.0                       | 2.0  | 3.0  | 0.1                      | 0.2  | 0.4  |

L = 5-50 MHz M = 50-250 MHz U = 250-500 MHz

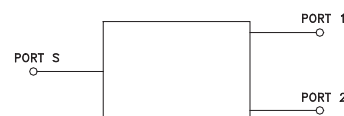
## Typical Performance Data

| 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  |                          |                |                        |        |        |        |
| 5.00            | 3.14                         | 3.15 | 0.01                     | 36.69          | 0.04                   | 1.02   | 1.12   | 1.09   |
| 23.00           | 3.14                         | 3.16 | 0.02                     | 42.03          | 0.06                   | 1.01   | 1.10   | 1.07   |
| 32.00           | 3.15                         | 3.16 | 0.01                     | 41.88          | 0.08                   | 1.01   | 1.11   | 1.07   |
| 41.00           | 3.15                         | 3.16 | 0.01                     | 41.39          | 0.01                   | 1.01   | 1.11   | 1.07   |
| 50.00           | 3.16                         | 3.17 | 0.01                     | 40.78          | 0.01                   | 1.02   | 1.11   | 1.07   |
| 90.00           | 3.16                         | 3.17 | 0.01                     | 37.71          | 0.06                   | 1.02   | 1.11   | 1.08   |
| 130.00          | 3.19                         | 3.20 | 0.01                     | 35.12          | 0.08                   | 1.03   | 1.11   | 1.08   |
| 170.00          | 3.20                         | 3.21 | 0.01                     | 32.99          | 0.18                   | 1.04   | 1.12   | 1.08   |
| 210.00          | 3.20                         | 3.22 | 0.02                     | 31.13          | 0.07                   | 1.05   | 1.13   | 1.09   |
| 250.00          | 3.23                         | 3.23 | 0.01                     | 29.52          | 0.21                   | 1.06   | 1.14   | 1.09   |
| 300.00          | 3.24                         | 3.24 | 0.01                     | 27.74          | 0.20                   | 1.07   | 1.15   | 1.10   |
| 350.00          | 3.27                         | 3.28 | 0.01                     | 26.17          | 0.20                   | 1.08   | 1.16   | 1.11   |
| 400.00          | 3.29                         | 3.29 | 0.00                     | 24.72          | 0.19                   | 1.09   | 1.17   | 1.12   |
| 450.00          | 3.32                         | 3.32 | 0.00                     | 23.46          | 0.12                   | 1.10   | 1.18   | 1.14   |
| 500.00          | 3.35                         | 3.35 | 0.00                     | 22.28          | 0.17                   | 1.11   | 1.19   | 1.15   |

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



## electrical schematic



# 2 Way-0° Power Splitter/Combiner

**JPS-2-1-75+**

## Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +25°C

| FREQ.<br>(MHz) | TOTAL LOSS <sup>1</sup><br>(dB) |      | AMP.<br>UNBAL.<br>(dB) | PHASE<br>UNBAL.<br>(deg.) | ISOLATION<br>(dB)<br>1-2 | VSWR<br>(:1) |      |      |
|----------------|---------------------------------|------|------------------------|---------------------------|--------------------------|--------------|------|------|
|                | S-1                             | S-2  |                        |                           |                          | S            | 1    | 2    |
| 5              | 3.26                            | 3.27 | 0.01                   | 0.03                      | 33.61                    | 1.03         | 1.12 | 1.12 |
| 10             | 3.25                            | 3.27 | 0.02                   | 0.04                      | 40.02                    | 1.01         | 1.09 | 1.09 |
| 20             | 3.27                            | 3.28 | 0.01                   | 0.04                      | 47.36                    | 1.00         | 1.08 | 1.08 |
| 30             | 3.27                            | 3.29 | 0.02                   | 0.03                      | 49.01                    | 1.00         | 1.08 | 1.08 |
| 40             | 3.28                            | 3.29 | 0.01                   | 0.01                      | 46.56                    | 1.01         | 1.09 | 1.09 |
| 50             | 3.29                            | 3.30 | 0.01                   | 0.02                      | 44.44                    | 1.01         | 1.09 | 1.09 |
| 75             | 3.31                            | 3.31 | 0.00                   | 0.02                      | 40.94                    | 1.03         | 1.09 | 1.09 |
| 100            | 3.32                            | 3.33 | 0.01                   | 0.02                      | 38.33                    | 1.04         | 1.10 | 1.09 |
| 125            | 3.33                            | 3.34 | 0.01                   | 0.07                      | 36.64                    | 1.05         | 1.10 | 1.09 |
| 150            | 3.34                            | 3.35 | 0.01                   | 0.10                      | 34.97                    | 1.07         | 1.11 | 1.10 |
| 175            | 3.35                            | 3.36 | 0.01                   | 0.12                      | 33.92                    | 1.08         | 1.12 | 1.12 |
| 200            | 3.36                            | 3.37 | 0.01                   | 0.11                      | 32.64                    | 1.10         | 1.14 | 1.13 |
| 225            | 3.37                            | 3.38 | 0.01                   | 0.15                      | 31.47                    | 1.11         | 1.15 | 1.14 |
| 250            | 3.38                            | 3.39 | 0.01                   | 0.13                      | 30.38                    | 1.12         | 1.16 | 1.15 |
| 275            | 3.39                            | 3.41 | 0.02                   | 0.20                      | 29.17                    | 1.14         | 1.17 | 1.16 |
| 300            | 3.40                            | 3.42 | 0.02                   | 0.16                      | 28.12                    | 1.15         | 1.18 | 1.17 |
| 325            | 3.42                            | 3.43 | 0.01                   | 0.20                      | 27.27                    | 1.16         | 1.19 | 1.18 |
| 350            | 3.42                            | 3.44 | 0.02                   | 0.17                      | 26.56                    | 1.16         | 1.20 | 1.19 |
| 375            | 3.45                            | 3.45 | 0.00                   | 0.19                      | 25.91                    | 1.17         | 1.22 | 1.20 |
| 400            | 3.45                            | 3.46 | 0.01                   | 0.21                      | 25.34                    | 1.18         | 1.23 | 1.21 |
| 425            | 3.48                            | 3.47 | 0.01                   | 0.17                      | 24.62                    | 1.18         | 1.25 | 1.22 |
| 450            | 3.48                            | 3.49 | 0.01                   | 0.27                      | 23.94                    | 1.18         | 1.26 | 1.22 |
| 475            | 3.50                            | 3.50 | 0.00                   | 0.16                      | 23.12                    | 1.19         | 1.25 | 1.23 |
| 500            | 3.51                            | 3.52 | 0.01                   | 0.31                      | 22.64                    | 1.19         | 1.25 | 1.24 |
| 525            | 3.53                            | 3.53 | 0.00                   | 0.15                      | 21.84                    | 1.19         | 1.25 | 1.25 |
| 550            | 3.54                            | 3.55 | 0.01                   | 0.26                      | 21.54                    | 1.19         | 1.27 | 1.26 |
| 575            | 3.56                            | 3.56 | 0.00                   | 0.05                      | 20.87                    | 1.19         | 1.28 | 1.28 |
| 600            | 3.58                            | 3.57 | 0.01                   | 0.24                      | 20.59                    | 1.19         | 1.30 | 1.28 |
| 625            | 3.59                            | 3.60 | 0.00                   | 0.03                      | 20.02                    | 1.18         | 1.31 | 1.28 |
| 650            | 3.62                            | 3.60 | 0.02                   | 0.18                      | 19.62                    | 1.18         | 1.31 | 1.28 |
| 675            | 3.61                            | 3.63 | 0.02                   | 0.06                      | 18.91                    | 1.18         | 1.33 | 1.29 |
| 700            | 3.67                            | 3.63 | 0.04                   | 0.02                      | 18.50                    | 1.18         | 1.34 | 1.30 |
| 750            | 3.70                            | 3.66 | 0.04                   | 0.14                      | 17.54                    | 1.17         | 1.34 | 1.31 |
| 800            | 3.74                            | 3.70 | 0.04                   | 0.27                      | 16.70                    | 1.16         | 1.34 | 1.31 |
| 850            | 3.76                            | 3.74 | 0.02                   | 0.38                      | 15.78                    | 1.16         | 1.35 | 1.32 |
| 900            | 3.79                            | 3.79 | 0.00                   | 0.45                      | 14.98                    | 1.17         | 1.34 | 1.31 |
| 950            | 3.83                            | 3.84 | 0.01                   | 0.56                      | 14.32                    | 1.19         | 1.34 | 1.34 |
| 1000           | 3.87                            | 3.89 | 0.02                   | 0.74                      | 13.74                    | 1.20         | 1.35 | 1.35 |
| 1100           | 3.99                            | 4.00 | 0.01                   | 1.19                      | 12.68                    | 1.24         | 1.35 | 1.37 |
| 1200           | 4.13                            | 4.16 | 0.03                   | 1.74                      | 11.96                    | 1.29         | 1.35 | 1.39 |
| 1300           | 4.35                            | 4.33 | 0.02                   | 2.41                      | 11.62                    | 1.32         | 1.36 | 1.42 |
| 1400           | 4.64                            | 4.56 | 0.09                   | 3.58                      | 11.27                    | 1.33         | 1.34 | 1.44 |
| 1500           | 4.99                            | 4.92 | 0.07                   | 4.70                      | 10.42                    | 1.32         | 1.28 | 1.42 |
| 1600           | 5.43                            | 5.41 | 0.03                   | 5.72                      | 9.36                     | 1.32         | 1.22 | 1.40 |
| 1700           | 5.90                            | 6.04 | 0.13                   | 6.69                      | 8.32                     | 1.35         | 1.17 | 1.36 |
| 1800           | 6.37                            | 6.70 | 0.34                   | 7.26                      | 7.38                     | 1.45         | 1.18 | 1.34 |
| 1900           | 6.94                            | 7.53 | 0.59                   | 7.88                      | 6.85                     | 1.62         | 1.22 | 1.38 |
| 2000           | 7.60                            | 8.68 | 1.08                   | 9.58                      | 6.68                     | 1.74         | 1.27 | 1.45 |

<sup>1</sup>Total Loss = Insertion Loss + 3dB Splitter Loss

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# 2 Way-0° Power Splitter/Combiner

**JPS-2-1-75+**

## Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = -40°C

| FREQ.<br>(MHz) | TOTAL LOSS <sup>1</sup><br>(dB) |      | AMP.<br>UNBAL.<br>(dB) | PHASE<br>UNBAL.<br>(deg.) | ISOLATION<br>(dB)<br>1-2 | VSWR<br>(:1) |      |      |
|----------------|---------------------------------|------|------------------------|---------------------------|--------------------------|--------------|------|------|
|                | S-1                             | S-2  |                        |                           |                          | S            | 1    | 2    |
| 5              | 3.26                            | 3.27 | 0.01                   | 0.05                      | 25.52                    | 1.05         | 1.21 | 1.21 |
| 10             | 3.20                            | 3.22 | 0.02                   | 0.05                      | 29.63                    | 1.03         | 1.11 | 1.11 |
| 20             | 3.19                            | 3.20 | 0.01                   | 0.02                      | 33.60                    | 1.02         | 1.05 | 1.05 |
| 30             | 3.20                            | 3.21 | 0.01                   | 0.02                      | 35.13                    | 1.02         | 1.03 | 1.02 |
| 40             | 3.20                            | 3.22 | 0.02                   | 0.01                      | 35.74                    | 1.02         | 1.02 | 1.01 |
| 50             | 3.21                            | 3.22 | 0.01                   | 0.03                      | 35.82                    | 1.03         | 1.01 | 1.01 |
| 75             | 3.22                            | 3.23 | 0.01                   | 0.05                      | 35.19                    | 1.04         | 1.02 | 1.01 |
| 100            | 3.22                            | 3.24 | 0.02                   | 0.05                      | 33.97                    | 1.05         | 1.04 | 1.03 |
| 125            | 3.23                            | 3.24 | 0.01                   | 0.09                      | 32.96                    | 1.06         | 1.07 | 1.05 |
| 150            | 3.24                            | 3.25 | 0.01                   | 0.12                      | 31.75                    | 1.07         | 1.08 | 1.07 |
| 175            | 3.25                            | 3.26 | 0.01                   | 0.12                      | 30.98                    | 1.08         | 1.08 | 1.07 |
| 200            | 3.25                            | 3.27 | 0.02                   | 0.13                      | 29.99                    | 1.08         | 1.10 | 1.09 |
| 225            | 3.26                            | 3.27 | 0.01                   | 0.17                      | 29.13                    | 1.09         | 1.12 | 1.12 |
| 250            | 3.27                            | 3.28 | 0.01                   | 0.17                      | 28.23                    | 1.10         | 1.14 | 1.14 |
| 275            | 3.28                            | 3.29 | 0.01                   | 0.23                      | 27.31                    | 1.11         | 1.15 | 1.14 |
| 300            | 3.28                            | 3.30 | 0.02                   | 0.23                      | 26.36                    | 1.12         | 1.17 | 1.15 |
| 325            | 3.30                            | 3.30 | 0.00                   | 0.27                      | 25.63                    | 1.13         | 1.18 | 1.17 |
| 350            | 3.30                            | 3.31 | 0.01                   | 0.24                      | 25.01                    | 1.14         | 1.20 | 1.19 |
| 375            | 3.32                            | 3.32 | 0.00                   | 0.27                      | 24.47                    | 1.15         | 1.21 | 1.21 |
| 400            | 3.32                            | 3.33 | 0.01                   | 0.28                      | 23.96                    | 1.17         | 1.23 | 1.22 |
| 425            | 3.34                            | 3.33 | 0.01                   | 0.28                      | 23.37                    | 1.18         | 1.26 | 1.23 |
| 450            | 3.34                            | 3.35 | 0.01                   | 0.39                      | 22.72                    | 1.19         | 1.29 | 1.25 |
| 475            | 3.36                            | 3.35 | 0.01                   | 0.28                      | 22.02                    | 1.20         | 1.29 | 1.26 |
| 500            | 3.36                            | 3.36 | 0.00                   | 0.44                      | 21.55                    | 1.20         | 1.28 | 1.28 |
| 525            | 3.38                            | 3.37 | 0.01                   | 0.26                      | 20.80                    | 1.21         | 1.28 | 1.29 |
| 550            | 3.39                            | 3.38 | 0.01                   | 0.41                      | 20.51                    | 1.21         | 1.31 | 1.31 |
| 575            | 3.40                            | 3.39 | 0.01                   | 0.19                      | 19.87                    | 1.22         | 1.34 | 1.34 |
| 600            | 3.42                            | 3.39 | 0.02                   | 0.42                      | 19.62                    | 1.22         | 1.36 | 1.35 |
| 625            | 3.42                            | 3.41 | 0.01                   | 0.10                      | 19.08                    | 1.22         | 1.37 | 1.35 |
| 650            | 3.45                            | 3.41 | 0.03                   | 0.37                      | 18.71                    | 1.22         | 1.38 | 1.35 |
| 675            | 3.43                            | 3.44 | 0.01                   | 0.12                      | 18.04                    | 1.22         | 1.39 | 1.36 |
| 700            | 3.49                            | 3.43 | 0.06                   | 0.23                      | 17.66                    | 1.22         | 1.40 | 1.37 |
| 750            | 3.51                            | 3.45 | 0.06                   | 0.09                      | 16.76                    | 1.22         | 1.42 | 1.39 |
| 800            | 3.53                            | 3.48 | 0.06                   | 0.05                      | 15.96                    | 1.21         | 1.41 | 1.39 |
| 850            | 3.54                            | 3.50 | 0.04                   | 0.13                      | 15.07                    | 1.21         | 1.40 | 1.37 |
| 900            | 3.55                            | 3.54 | 0.01                   | 0.16                      | 14.32                    | 1.21         | 1.37 | 1.37 |
| 950            | 3.59                            | 3.59 | 0.00                   | 0.22                      | 13.72                    | 1.22         | 1.36 | 1.37 |
| 1000           | 3.62                            | 3.61 | 0.01                   | 0.40                      | 13.18                    | 1.23         | 1.35 | 1.36 |
| 1100           | 3.71                            | 3.70 | 0.01                   | 0.82                      | 12.22                    | 1.25         | 1.31 | 1.33 |
| 1200           | 3.83                            | 3.83 | 0.00                   | 1.39                      | 11.60                    | 1.27         | 1.27 | 1.31 |
| 1300           | 4.02                            | 3.98 | 0.04                   | 2.01                      | 11.34                    | 1.27         | 1.29 | 1.34 |
| 1400           | 4.29                            | 4.18 | 0.11                   | 3.06                      | 11.03                    | 1.28         | 1.34 | 1.42 |
| 1500           | 4.66                            | 4.53 | 0.14                   | 4.13                      | 10.15                    | 1.33         | 1.40 | 1.49 |
| 1600           | 5.15                            | 5.04 | 0.11                   | 5.14                      | 8.94                     | 1.40         | 1.43 | 1.55 |
| 1700           | 5.61                            | 5.67 | 0.06                   | 6.07                      | 7.76                     | 1.44         | 1.40 | 1.57 |
| 1800           | 6.04                            | 6.33 | 0.29                   | 6.40                      | 6.73                     | 1.48         | 1.32 | 1.57 |
| 1900           | 6.54                            | 7.09 | 0.55                   | 6.48                      | 6.19                     | 1.60         | 1.20 | 1.60 |
| 2000           | 7.17                            | 8.18 | 1.01                   | 8.23                      | 6.23                     | 1.74         | 1.11 | 1.52 |

<sup>1</sup>Total Loss = Insertion Loss + 3dB Splitter Loss

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# 2 Way-0° Power Splitter/Combiner

**JPS-2-1-75+**

## Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +85°C

| FREQ.<br>(MHz) | TOTAL LOSS <sup>1</sup><br>(dB) |      | AMP.<br>UNBAL.<br>(dB) | PHASE<br>UNBAL.<br>(deg.) | ISOLATION<br>(dB)<br>1-2 | VSWR<br>(:1) |      |      |
|----------------|---------------------------------|------|------------------------|---------------------------|--------------------------|--------------|------|------|
|                | S-1                             | S-2  |                        |                           |                          | S            | 1    | 2    |
| 5              | 3.32                            | 3.34 | 0.02                   | 0.05                      | 35.00                    | 1.03         | 1.14 | 1.14 |
| 10             | 3.31                            | 3.33 | 0.02                   | 0.06                      | 40.96                    | 1.02         | 1.12 | 1.12 |
| 20             | 3.33                            | 3.34 | 0.01                   | 0.04                      | 43.37                    | 1.01         | 1.12 | 1.12 |
| 30             | 3.33                            | 3.35 | 0.02                   | 0.05                      | 42.24                    | 1.01         | 1.13 | 1.13 |
| 40             | 3.20                            | 3.36 | 0.01                   | 0.02                      | 40.95                    | 1.01         | 1.14 | 1.14 |
| 50             | 3.35                            | 3.36 | 0.01                   | 0.01                      | 40.08                    | 1.01         | 1.15 | 1.15 |
| 75             | 3.37                            | 3.38 | 0.01                   | 0.02                      | 38.68                    | 1.03         | 1.15 | 1.15 |
| 100            | 3.39                            | 3.40 | 0.01                   | 0.05                      | 37.63                    | 1.04         | 1.13 | 1.13 |
| 125            | 3.39                            | 3.41 | 0.02                   | 0.09                      | 36.60                    | 1.06         | 1.12 | 1.12 |
| 150            | 3.41                            | 3.42 | 0.01                   | 0.12                      | 35.68                    | 1.07         | 1.13 | 1.12 |
| 175            | 3.42                            | 3.43 | 0.01                   | 0.14                      | 34.83                    | 1.09         | 1.15 | 1.14 |
| 200            | 3.43                            | 3.44 | 0.01                   | 0.14                      | 33.71                    | 1.11         | 1.16 | 1.16 |
| 225            | 3.44                            | 3.46 | 0.02                   | 0.20                      | 32.49                    | 1.12         | 1.16 | 1.16 |
| 250            | 3.45                            | 3.47 | 0.02                   | 0.19                      | 31.47                    | 1.13         | 1.16 | 1.16 |
| 275            | 3.47                            | 3.49 | 0.02                   | 0.25                      | 30.15                    | 1.15         | 1.17 | 1.16 |
| 300            | 3.48                            | 3.51 | 0.03                   | 0.23                      | 29.15                    | 1.16         | 1.18 | 1.17 |
| 325            | 3.49                            | 3.51 | 0.02                   | 0.26                      | 28.25                    | 1.16         | 1.19 | 1.18 |
| 350            | 3.50                            | 3.53 | 0.03                   | 0.24                      | 27.54                    | 1.17         | 1.20 | 1.18 |
| 375            | 3.52                            | 3.54 | 0.02                   | 0.26                      | 26.88                    | 1.17         | 1.20 | 1.19 |
| 400            | 3.53                            | 3.55 | 0.02                   | 0.27                      | 26.27                    | 1.17         | 1.22 | 1.20 |
| 425            | 3.56                            | 3.57 | 0.01                   | 0.26                      | 25.47                    | 1.17         | 1.23 | 1.20 |
| 450            | 3.56                            | 3.59 | 0.03                   | 0.34                      | 24.78                    | 1.18         | 1.24 | 1.20 |
| 475            | 3.58                            | 3.60 | 0.02                   | 0.25                      | 23.92                    | 1.17         | 1.23 | 1.20 |
| 500            | 3.59                            | 3.62 | 0.03                   | 0.36                      | 23.42                    | 1.17         | 1.23 | 1.21 |
| 525            | 3.62                            | 3.63 | 0.01                   | 0.22                      | 22.58                    | 1.17         | 1.22 | 1.22 |
| 550            | 3.63                            | 3.65 | 0.02                   | 0.32                      | 22.27                    | 1.17         | 1.24 | 1.23 |
| 575            | 3.65                            | 3.67 | 0.02                   | 0.13                      | 21.56                    | 1.17         | 1.26 | 1.24 |
| 600            | 3.67                            | 3.68 | 0.01                   | 0.30                      | 21.26                    | 1.16         | 1.27 | 1.25 |
| 625            | 3.68                            | 3.71 | 0.03                   | 0.03                      | 20.66                    | 1.16         | 1.28 | 1.25 |
| 650            | 3.72                            | 3.72 | 0.00                   | 0.24                      | 20.22                    | 1.16         | 1.28 | 1.25 |
| 675            | 3.71                            | 3.75 | 0.04                   | 0.01                      | 19.48                    | 1.15         | 1.30 | 1.25 |
| 700            | 3.77                            | 3.75 | 0.02                   | 0.09                      | 19.05                    | 1.15         | 1.30 | 1.27 |
| 750            | 3.81                            | 3.79 | 0.02                   | 0.07                      | 18.04                    | 1.15         | 1.31 | 1.28 |
| 800            | 3.85                            | 3.84 | 0.01                   | 0.23                      | 17.17                    | 1.14         | 1.32 | 1.29 |
| 850            | 3.88                            | 3.88 | 0.00                   | 0.35                      | 16.20                    | 1.15         | 1.33 | 1.30 |
| 900            | 3.91                            | 3.93 | 0.02                   | 0.45                      | 15.20                    | 1.16         | 1.32 | 1.30 |
| 950            | 3.96                            | 4.00 | 0.03                   | 0.58                      | 14.67                    | 1.18         | 1.33 | 1.33 |
| 1000           | 4.01                            | 4.04 | 0.03                   | 0.79                      | 14.06                    | 1.20         | 1.35 | 1.35 |
| 1100           | 4.14                            | 4.18 | 0.04                   | 1.28                      | 12.95                    | 1.25         | 1.36 | 1.37 |
| 1200           | 4.30                            | 4.19 | 0.04                   | 1.81                      | 12.18                    | 1.31         | 1.36 | 1.40 |
| 1300           | 4.53                            | 4.53 | 0.00                   | 2.43                      | 11.81                    | 1.36         | 1.37 | 1.43 |
| 1400           | 4.83                            | 4.77 | 0.07                   | 3.62                      | 11.45                    | 1.36         | 1.33 | 1.43 |
| 1500           | 5.18                            | 5.12 | 0.06                   | 4.72                      | 10.64                    | 1.34         | 1.26 | 1.40 |
| 1600           | 5.61                            | 5.61 | 0.01                   | 5.75                      | 9.65                     | 1.31         | 1.19 | 1.37 |
| 1700           | 6.07                            | 6.22 | 0.14                   | 6.76                      | 8.67                     | 1.34         | 1.14 | 1.32 |
| 1800           | 6.53                            | 6.88 | 0.35                   | 7.49                      | 7.75                     | 1.47         | 1.17 | 1.30 |
| 1900           | 7.13                            | 7.71 | 0.58                   | 8.18                      | 7.20                     | 1.67         | 1.25 | 1.36 |
| 2000           | 7.78                            | 8.86 | 1.08                   | 10.00                     | 6.92                     | 1.80         | 1.34 | 1.45 |

<sup>1</sup>Total Loss = Insertion Loss + 3dB Splitter Loss

REV. X2  
JPS-2-1-75+  
100623  
Page 3 of 3



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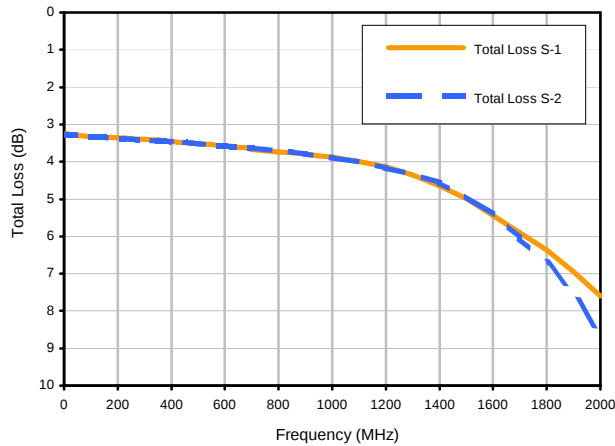


# 2 Way-0° Power Splitter/Combiner

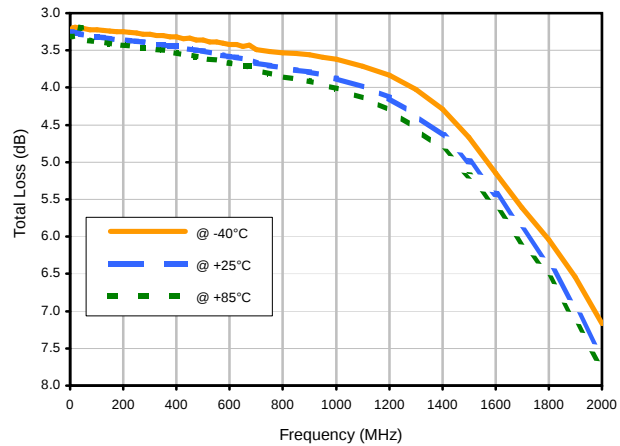
JPS-2-1-75+

## Typical Performance Curves

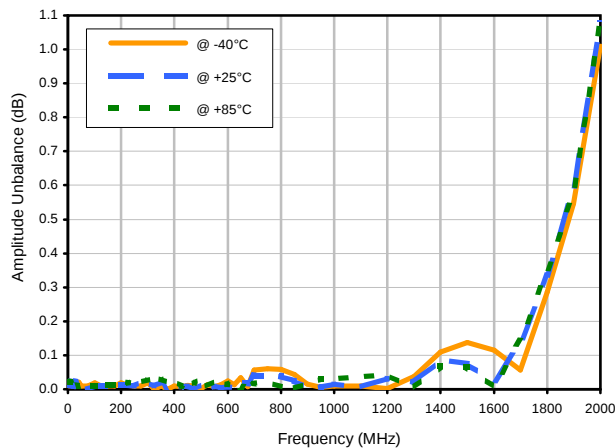
Total Loss



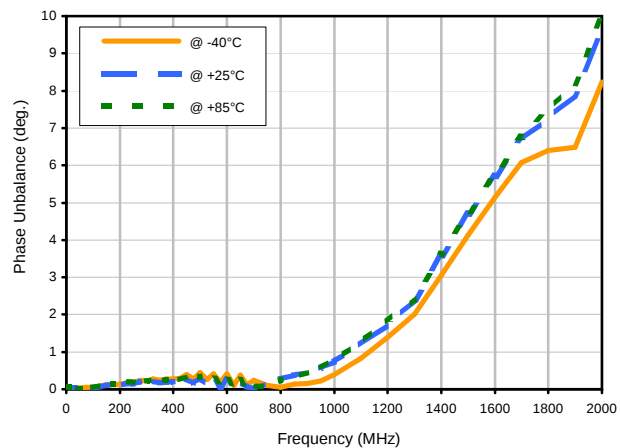
Total Loss S-1 vs. TEMPERATURE



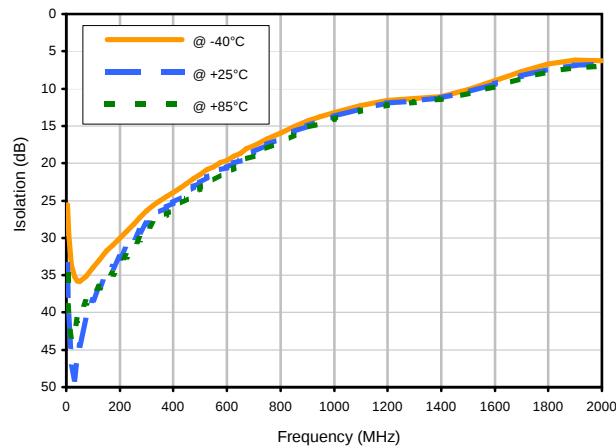
Amplitude Unbalance vs. TEMPERATURE



Phase Unbalance vs. TEMPERATURE



Isolation 1-2 vs. TEMPERATURE



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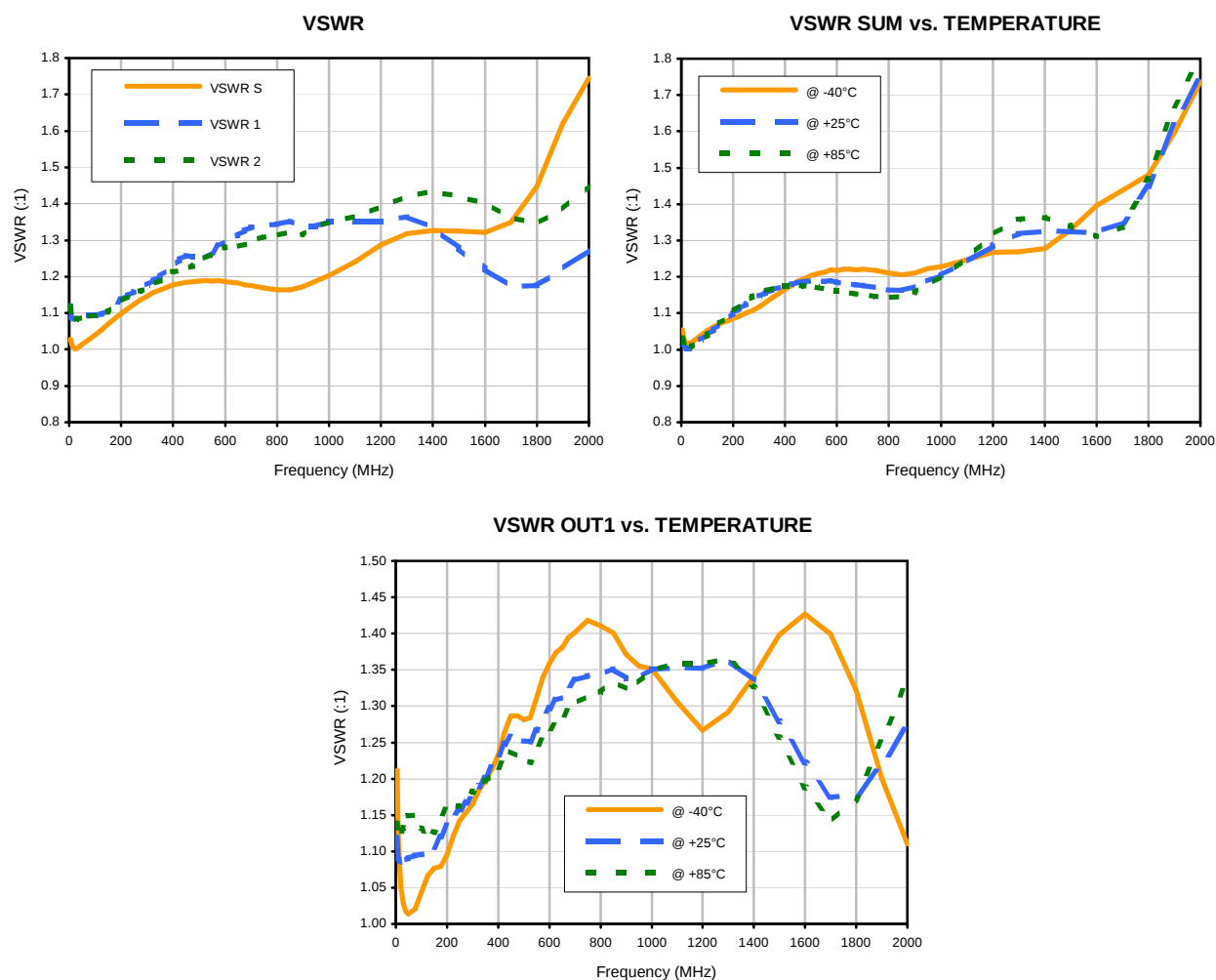
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# 2 Way-0° Power Splitter/Combiner

JPS-2-1-75+

## Typical Performance Curves



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JPS-2-1-75+  
100623  
Page 2 of 2



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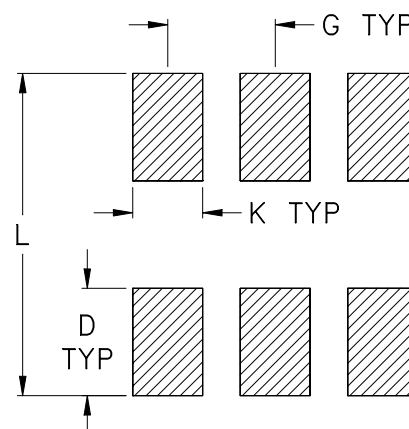
The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



### Outline Dimensions



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within  $\pm .002$

| CASE # | A              | B              | C      | D              | E              | F              | G              | H              | J              | K              | L              | WT. GRAM |
|--------|----------------|----------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|
| BH292  | .280<br>(7.11) | .310<br>(7.87) | -<br>- | .100<br>(2.54) | .225<br>(5.72) | .055<br>(1.40) | .100<br>(2.54) | .047<br>(1.19) | .065<br>(1.65) | .065<br>(1.65) | .300<br>(7.62) | .45      |

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .01$ ; 3Pl.  $\pm .005$

#### Notes:

- Case material: Ceramic.
- Termination finish:  
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.  
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

# Tape & Reel Packaging TR-F24



| Tape Width,<br>mm | Device Cavity<br>Pitch, mm | Reel Size,<br>inches | Devices per Reel |
|-------------------|----------------------------|----------------------|------------------|
| 16                | 12                         | 13                   | 500              |

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: [www.minicircuits.com/pages/pdfs/tape.pdf](http://www.minicircuits.com/pages/pdfs/tape.pdf)



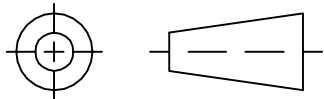
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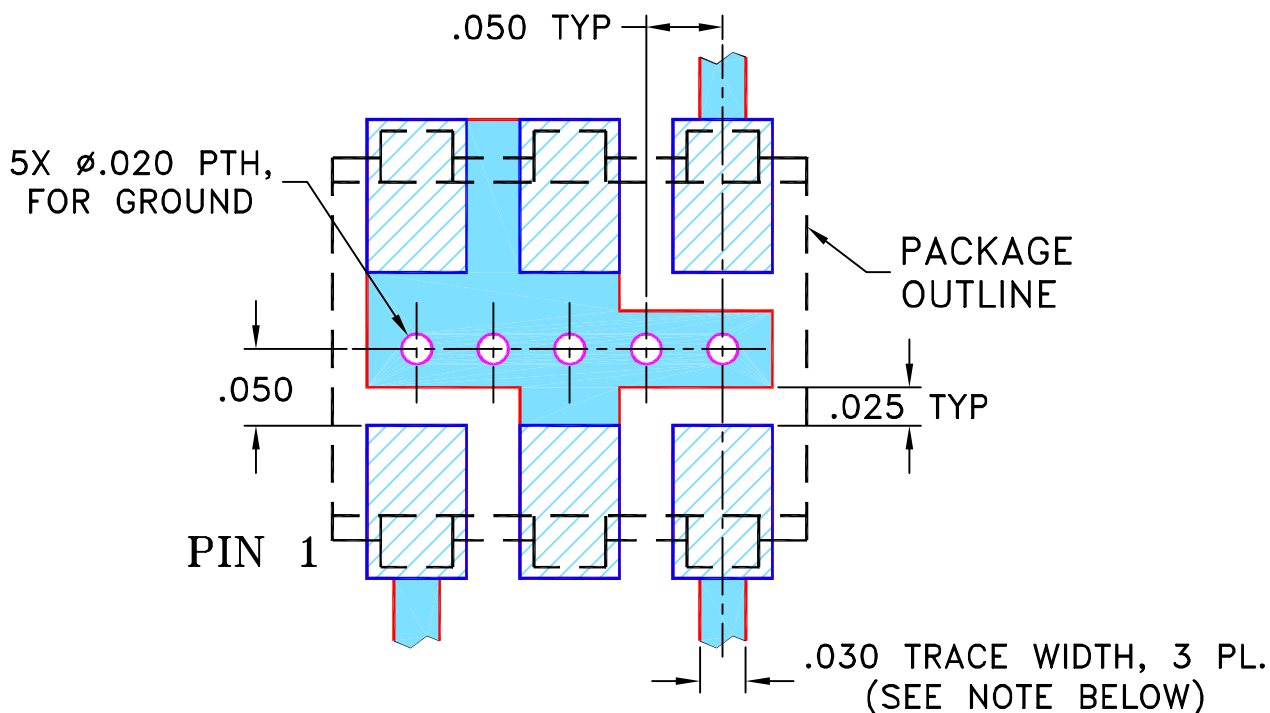
## THIRD ANGLE PROJECTION



## REVISIONS

| REV | ECN No. | DESCRIPTION           | DATE     | DR  | AUTH |
|-----|---------|-----------------------|----------|-----|------|
| OR  | M82272  | NEW RELEASE           | 08/05/02 | GF  | DJ   |
| A   | M101117 | UPDATED DWG.          | 11/21/05 | MMG | HY   |
| B   | M102713 | ADDED "...WITH SMOBC" | 01/17/06 | MMG | IL   |

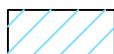
SUGGESTED MOUNTING CONFIGURATION  
FOR BH292 CASE STYLE, "me" PIN CONNECTION



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030"  $\pm$  0.002"; 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.



DENOTES PCB COPPER LAYOUT WITH SMOBC  
 (SOLDER MASK OVER BARE COPPER)



DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED

INITIALS

DATE

DIMENSIONS ARE IN INCHES

DRAWN

GF

07/18/02

TOLERANCES ON:

CHECKED

HY

08/01/02

2 PL DECIMALS  $\pm$ 

APPROVED

DJ

08/05/02

3 PL DECIMALS  $\pm$  .005ANGLES  $\pm$ FRACTIONS  $\pm$ 

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ASHEETA1.DWG REV:A DATE:01/12/95



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 Brooklyn NY 11235

PL, me, 75, BH292, JPS, TB-169

SIZE  
A

CODE IDENT  
15542

DRAWING NO:  
98-PL-054

REV:  
B

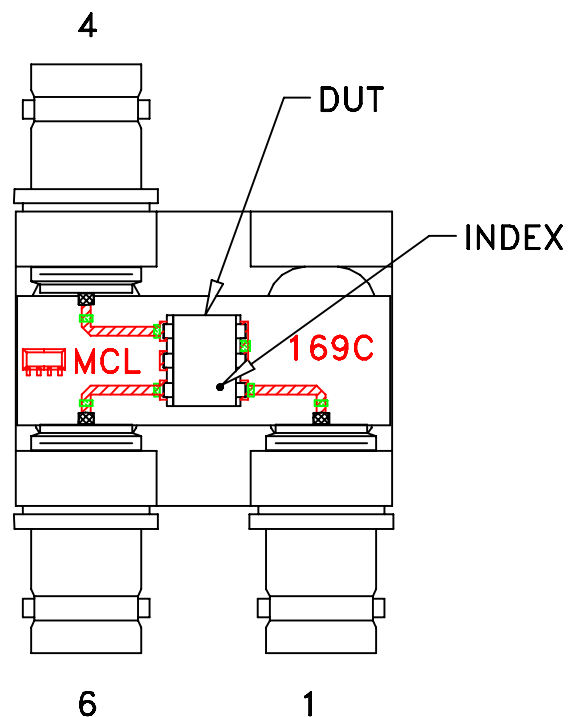
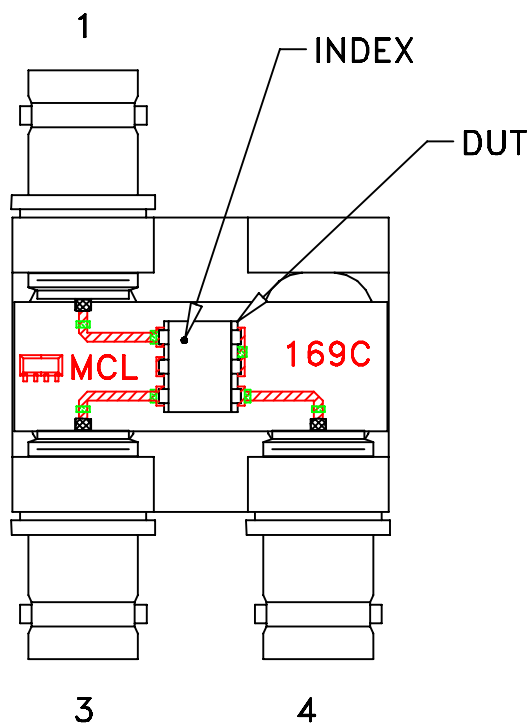
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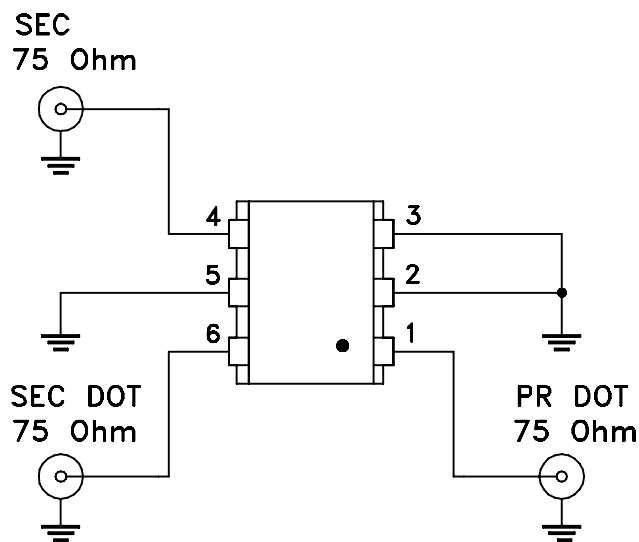
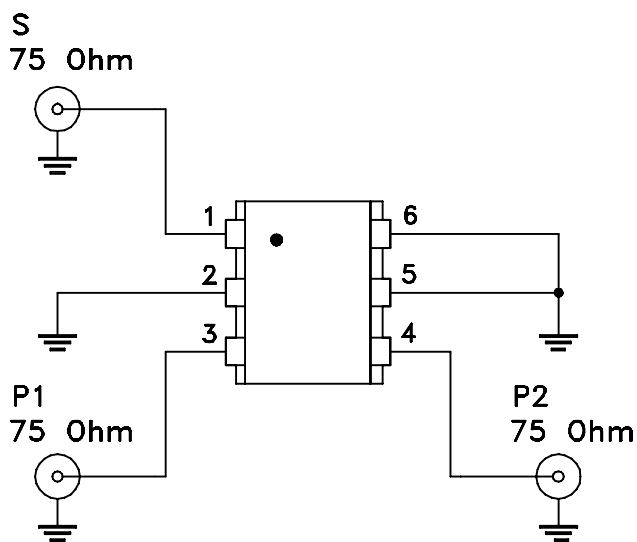
SHEET: 1 OF 1

# Evaluation Board and Circuit

For Pin Connections and DUT Orientation Refer to  
Data Sheet of the DUT



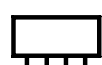
TB-169



Schematic Diagram

## Notes:

1. BNC Female connectors.
2. PCB Material: Rogers R04350 or equivalent,  
Dielectric Constant=3.5, Thickness=.030 inch.

 Mini-Circuits®



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification                  | Test/Inspection Condition                                                                                                                                       | Reference/Spec                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Operating Temperature          | -40° to 85°C<br>Ambient Environment                                                                                                                             | Individual Model Data Sheet                                                                          |
| Storage Temperature            | -55° to 100° C<br>Ambient Environment                                                                                                                           | Individual Model Data Sheet                                                                          |
| Humidity                       | 90 to 95% RH, 240 hours, 50°C                                                                                                                                   | MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours |
| Thermal Shock                  | -55° to 100°C, 100 cycles                                                                                                                                       | MIL-STD-202, Method 107, Condition A-3, except +100°C                                                |
| Solder Reflow Heat             | Sn-Pb Eutetic Process: 225°C peak<br>Pb-Free Process 245° - 250°C peak                                                                                          | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1                                                        |
| Solderability                  | 10X Magnification                                                                                                                                               | J-STD-002, 95% Coverage                                                                              |
| Vibration (High Frequency)     | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)                                                                             | MIL-STD-202, Method 204, Condition D                                                                 |
| Mechanical Shock               | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes                                                                                               | MIL-STD-202, Method 213, Condition A                                                                 |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215                                                                              |