

Surface Mount

# Power Splitter/Combiner

2 Way-0° 50Ω 200 to 2500 MHz

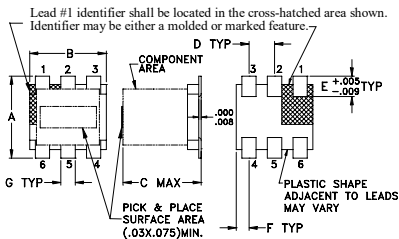
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -40°C to 85°C  |
| Storage Temperature                                             | -55°C to 100°C |
| Power Input (as a splitter)                                     | 0.5W max.      |
| Permanent damage may occur if any of these limits are exceeded. |                |

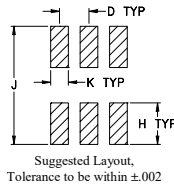
## Pin Connections

|                    |       |
|--------------------|-------|
| SUM PORT           | 2,5,6 |
| PORT 1             | 3     |
| PORT 2             | 4     |
| GROUND             | 1     |
| EXT. RESISTOR 475Ω | 3,4   |

## Outline Drawing



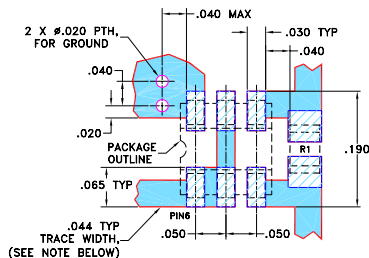
### PCB Land Pattern



## 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-86 Suggested PCB Layout (PL-008)



RESISTOR R1: 475 ± 1% Ohm, 0805 SIZE

- NOTES:
- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  - 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

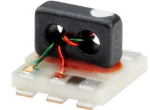
### Notes

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- 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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TCP-2-25+



Generic photo used for illustration purposes only

CASE STYLE: DB714

+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            |

## Features

- low insertion, 0.8 dB typ.
- excellent amplitude unbalance, 0.2 dB typ.
- very good phase unbalance, 1.2 deg. typ.
- external resistor required
- aqueous washable
- leads for excellent solderability
- low cost

## Applications

- cellular
- PCN
- GPS

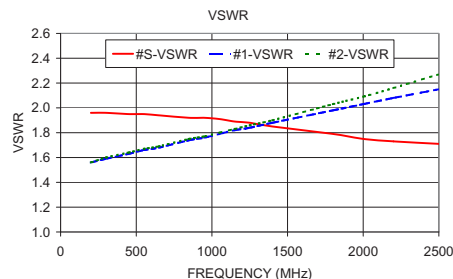
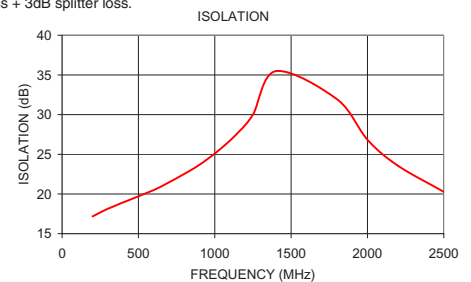
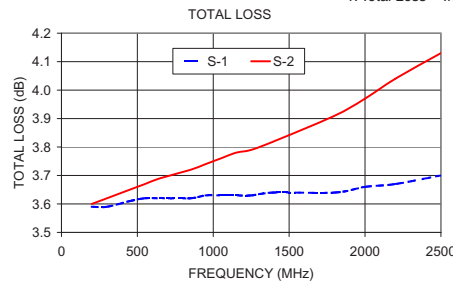
## Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) |     | INSERTION LOSS (dB) ABOVE 3.0 dB |      | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) |
|-------------------|----------------|-----|----------------------------------|------|---------------------------|--------------------------|
| $f_L$ - $f_U$     | Typ.           | Min | Typ.                             | Max. | Max.                      | Max.                     |
| 200-2500          | 18             | 10  | 0.8                              | 1.3  | 6.0                       | 0.8                      |

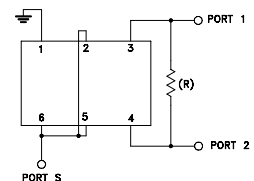
## Typical Performance Data

| 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  |                          |                |                        |        |        |        |
| 200.00          | 3.59                         | 3.60 | 0.01                     | 17.18          | 0.16                   | 1.96   | 1.56   | 1.56   |
| 300.00          | 3.59                         | 3.62 | 0.03                     | 18.14          | 0.19                   | 1.96   | 1.59   | 1.60   |
| 450.00          | 3.61                         | 3.65 | 0.04                     | 19.32          | 0.24                   | 1.95   | 1.63   | 1.64   |
| 550.00          | 3.62                         | 3.67 | 0.05                     | 20.10          | 0.25                   | 1.95   | 1.66   | 1.67   |
| 650.00          | 3.62                         | 3.69 | 0.07                     | 20.96          | 0.31                   | 1.94   | 1.68   | 1.69   |
| 850.00          | 3.62                         | 3.72 | 0.10                     | 23.08          | 0.32                   | 1.92   | 1.74   | 1.75   |
| 950.00          | 3.63                         | 3.74 | 0.11                     | 24.37          | 0.35                   | 1.92   | 1.76   | 1.77   |
| 1050.00         | 3.63                         | 3.76 | 0.13                     | 25.89          | 0.38                   | 1.91   | 1.79   | 1.80   |
| 1150.00         | 3.63                         | 3.78 | 0.15                     | 27.69          | 0.44                   | 1.89   | 1.82   | 1.83   |
| 1250.00         | 3.63                         | 3.79 | 0.16                     | 30.01          | 0.48                   | 1.88   | 1.84   | 1.86   |
| 1400.00         | 3.64                         | 3.82 | 0.18                     | 35.48          | 0.56                   | 1.85   | 1.88   | 1.90   |
| 1800.00         | 3.64                         | 3.91 | 0.27                     | 31.95          | 0.78                   | 1.79   | 1.98   | 2.03   |
| 2000.00         | 3.66                         | 3.97 | 0.31                     | 26.83          | 0.86                   | 1.75   | 2.03   | 2.09   |
| 2200.00         | 3.67                         | 4.04 | 0.37                     | 23.56          | 1.14                   | 1.73   | 2.08   | 2.16   |
| 2500.00         | 3.70                         | 4.13 | 0.43                     | 20.27          | 1.32                   | 1.71   | 2.15   | 2.27   |

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



## electrical schematic



REV. J  
ECO-006516  
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ED-8545  
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