

Surface Mount

# Power Splitter/Combiner

**SYPS-3-12W-75+**

3 Way-0° 75Ω

20 to 1200 MHz



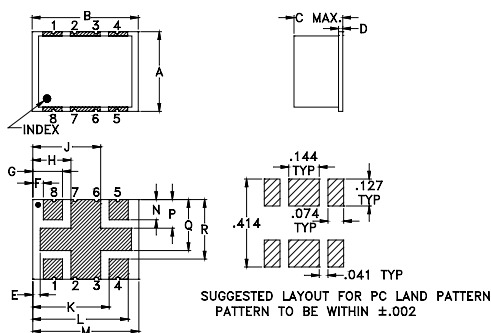
## Maximum Ratings

|                             |                |
|-----------------------------|----------------|
| Operating Temperature       | -40°C to 85°C  |
| Storage Temperature         | -55°C to 100°C |
| Power Input (as a splitter) | 1W max.        |
| Internal Dissipation        | 0.15 W max.    |

## Pin Connections

|          |         |
|----------|---------|
| SUM PORT | 8       |
| PORT 1   | 1       |
| PORT 2   | 4       |
| PORT 3   | 5       |
| GROUND   | 2,3,6,7 |

## Outline Drawing



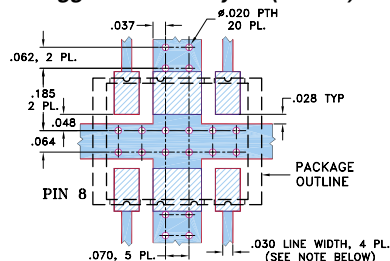
## Outline Dimensions (inch)

| A    | B     | C    | D    | E    | F    | G    | H    |
|------|-------|------|------|------|------|------|------|
| .375 | .500  | .25  | .020 | 0.35 | .050 | .140 | .180 |
| 9.53 | 12.70 | 6.35 | 0.51 | 8.89 | 1.27 | 3.56 | 4.57 |

| J    | K    | L     | M    | N    | P    | Q    | R    | wt    |
|------|------|-------|------|------|------|------|------|-------|
| .320 | .360 | .450  | .320 | .360 | .135 | .240 | .280 | grams |
| 8.13 | 9.14 | 11.43 | 8.13 | 9.14 | 3.43 | 6.10 | 7.11 | 0.80  |

## Demo Board MCL P/N: TB-361 Suggested PCB Layout (PL-229)



### NOTE:

- 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.
  - 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

## Features

- low insertion loss 0.7 dB typ.
- good isolation, 25 dB typ.
- wide frequency band, 20 to 1200 MHz, usable 5-1300 MHz
- low amplitude unbalance, 0.1 dB typ.
- low phase unbalance, 0.5 deg. typ.

CASE STYLE: AH202

PRICE: \$ 9.95 ea. QTY (1-9)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

## Applications

- CATV

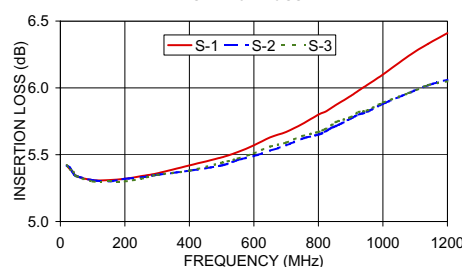
## Splitter Electrical Specifications

| FREQUENCY (MHz) | ISOLATION (dB) |      | INSERTION LOSS (dB) ABOVE 4.8 dB |      | PHASE UNBALANCE (deg.) | AMPLITUDE UNBALANCE (dB) |
|-----------------|----------------|------|----------------------------------|------|------------------------|--------------------------|
|                 | Typ.           | Min. | Typ.                             | Max. | Max.                   | Max.                     |
| 20-860          | 25             | 18   | 0.7                              | 1.5  | 3                      | 0.4                      |
| 860-1200        | 20             | 17   | 1.2                              | 2.2  | 5                      | 0.8                      |

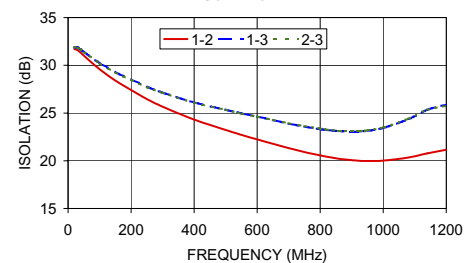
## Typical Performance Data

| FREQ.<br>(MHz) | INSERTION<br>LOSS<br>(dB) |      |      | AMPLITUDE<br>UNBALANCE<br>(dB) | ISOLATION<br>(dB) |       |       | PHASE<br>UNBALANCE<br>(deg.) | VSWR |      |      |      |
|----------------|---------------------------|------|------|--------------------------------|-------------------|-------|-------|------------------------------|------|------|------|------|
|                | S-1                       | S-2  | S-3  |                                | 1-2               | 1-3   | 2-3   |                              | S    | 1    | 2    | 3    |
| 20.00          | 5.42                      | 5.42 | 5.42 | 0.01                           | 31.70             | 31.86 | 31.88 | 0.11                         | 1.18 | 1.25 | 1.24 | 1.25 |
| 50.00          | 5.34                      | 5.34 | 5.34 | 0.00                           | 31.00             | 31.40 | 31.37 | 0.04                         | 1.12 | 1.23 | 1.22 | 1.22 |
| 100.00         | 5.31                      | 5.31 | 5.30 | 0.01                           | 29.59             | 30.25 | 30.23 | 0.12                         | 1.09 | 1.21 | 1.20 | 1.20 |
| 200.00         | 5.32                      | 5.32 | 5.30 | 0.02                           | 27.42             | 28.52 | 28.48 | 0.23                         | 1.06 | 1.18 | 1.17 | 1.18 |
| 300.00         | 5.36                      | 5.35 | 5.35 | 0.02                           | 25.66             | 27.13 | 27.11 | 0.22                         | 1.03 | 1.16 | 1.15 | 1.16 |
| 400.00         | 5.42                      | 5.38 | 5.38 | 0.04                           | 24.31             | 26.11 | 26.09 | 0.36                         | 1.03 | 1.13 | 1.13 | 1.14 |
| 500.00         | 5.48                      | 5.42 | 5.44 | 0.06                           | 23.23             | 25.33 | 25.33 | 0.27                         | 1.03 | 1.11 | 1.12 | 1.13 |
| 600.00         | 5.57                      | 5.49 | 5.51 | 0.07                           | 22.24             | 24.62 | 24.63 | 0.34                         | 1.03 | 1.10 | 1.11 | 1.12 |
| 700.00         | 5.67                      | 5.57 | 5.59 | 0.10                           | 21.32             | 23.89 | 23.93 | 0.23                         | 1.05 | 1.12 | 1.11 | 1.11 |
| 800.00         | 5.80                      | 5.65 | 5.67 | 0.14                           | 20.56             | 23.31 | 23.36 | 0.17                         | 1.09 | 1.14 | 1.13 | 1.11 |
| 900.00         | 5.94                      | 5.77 | 5.78 | 0.17                           | 20.07             | 23.04 | 23.12 | 0.12                         | 1.13 | 1.19 | 1.15 | 1.12 |
| 1000.00        | 6.10                      | 5.88 | 5.89 | 0.22                           | 20.01             | 23.44 | 23.49 | 0.38                         | 1.16 | 1.24 | 1.20 | 1.14 |
| 1080.00        | 6.24                      | 5.96 | 5.96 | 0.28                           | 20.34             | 24.35 | 24.41 | 0.72                         | 1.17 | 1.27 | 1.24 | 1.16 |
| 1140.00        | 6.33                      | 6.02 | 6.02 | 0.31                           | 20.77             | 25.33 | 25.33 | 1.01                         | 1.17 | 1.30 | 1.27 | 1.18 |
| 1200.00        | 6.41                      | 6.06 | 6.05 | 0.36                           | 21.16             | 25.88 | 25.76 | 1.60                         | 1.17 | 1.32 | 1.29 | 1.19 |

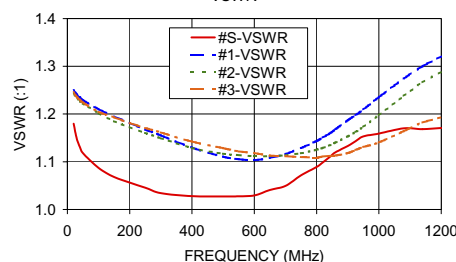
SYPS-3-12W-75  
INSERTION LOSS



SYPS-3-12W-75  
ISOLATION



SYPS-3-12W-75  
VSWR



## electrical schematic



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REV. A  
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