*Surface Mount*

# Power Splitter/Combiner

## SYPS-3-12W+

3 Way-0° 50Ω 20 to 1200 MHz

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.*

### 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 | 0.15W max. |

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

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

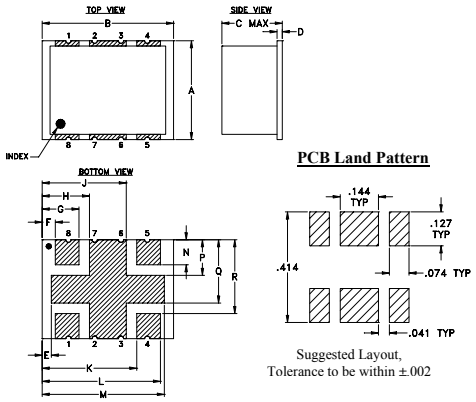
### Features

- low insertion loss 1.0 dB typ.
- wide frequency band, 20 to 1200 MHz, usable 5 to 1250 MHz
- low amplitude unbalance, 0.1 dB typ.

### Applications

- VHF/UHF CATV
- cellular

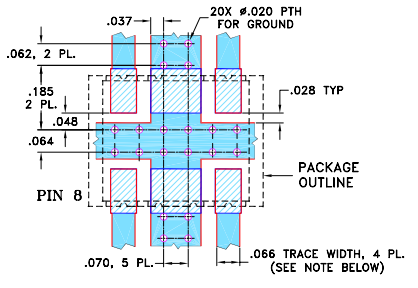
### Outline Drawing




### Outline Dimensions (inch / mm)

| A | B | C | D | E | F | G | H | |
|---|---|---|---|---|---|---|---|---|
| .38 | .50 | .25 | .020 | .035 | .050 | .140 | .180 | |
| 9.65 | 12.70 | 6.35 | 0.51 | 0.89 | 1.27 | 3.56 | 4.57 | |
| J | K | L | M | N | P | Q | R | wt |
| .320 | .360 | .450 | .465 | .095 | .135 | .240 | .280 | grams |
| 8.13 | 9.14 | 11.43 | 11.81 | 2.41 | 3.43 | 6.10 | 7.11 | 0.80 |

***Demo Board MCL P/N: TB-364***
***Suggested PCB Layout (PL-231)***




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.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

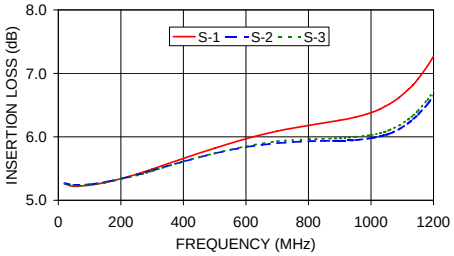
### Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) ABOVE 4.8 dB | | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) |
|---|---|---|---|---|---|---|
| $f_L$-$f_U$ | Typ. | Min. | Typ. | Max. | Max. | Max. |
| 20-500 | 24 | 16 | 0.7 | 1.4 | 2.0 | 0.3 |
| 500-1000 | 20 | 15 | 1.2 | 2.0 | 4.0 | 0.7 |
| 1000-1200 | 24 | 16 | 1.7 | 2.9 | 6.0 | 0.9 |

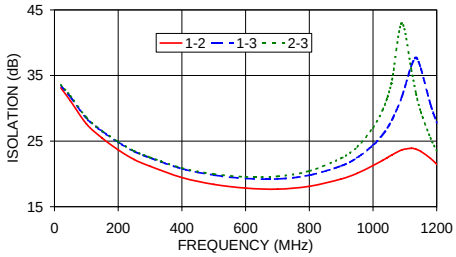
### Typical Performance Data

| Freq. (MHz) | Insertion Loss (dB) | | | Amp. Unbal. (dB) | Isolation (dB) | | | Phase Unbal. (deg.) | VSWR S | VSWR 1 | VSWR 2 | VSWR 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S-1 | S-2 | S-3 | | 1-2 | 1-3 | 2-3 | | | | | |
| 20.00 | 5.26 | 5.27 | 5.26 | 0.01 | 33.11 | 33.43 | 33.56 | 0.08 | 1.14 | 1.18 | 1.17 | 1.17 |
| 50.00 | 5.22 | 5.24 | 5.23 | 0.01 | 31.13 | 31.72 | 31.88 | 0.10 | 1.13 | 1.17 | 1.16 | 1.16 |
| 100.00 | 5.24 | 5.25 | 5.24 | 0.01 | 27.63 | 28.50 | 28.60 | 0.18 | 1.16 | 1.16 | 1.15 | 1.16 |
| 200.00 | 5.34 | 5.34 | 5.33 | 0.01 | 23.67 | 24.84 | 24.91 | 0.32 | 1.25 | 1.15 | 1.15 | 1.16 |
| 300.00 | 5.49 | 5.47 | 5.46 | 0.03 | 21.17 | 22.46 | 22.54 | 0.44 | 1.35 | 1.14 | 1.15 | 1.16 |
| 400.00 | 5.66 | 5.61 | 5.61 | 0.05 | 19.44 | 20.80 | 20.90 | 0.52 | 1.44 | 1.13 | 1.14 | 1.17 |
| 500.00 | 5.82 | 5.74 | 5.74 | 0.09 | 18.40 | 19.82 | 19.98 | 0.56 | 1.51 | 1.12 | 1.14 | 1.16 |
| 600.00 | 5.97 | 5.84 | 5.85 | 0.13 | 17.84 | 19.31 | 19.56 | 0.52 | 1.54 | 1.11 | 1.12 | 1.15 |
| 700.00 | 6.09 | 5.90 | 5.93 | 0.18 | 17.68 | 19.24 | 19.63 | 0.40 | 1.54 | 1.11 | 1.11 | 1.14 |
| 800.00 | 6.18 | 5.93 | 5.96 | 0.25 | 18.11 | 19.80 | 20.45 | 0.19 | 1.47 | 1.10 | 1.08 | 1.11 |
| 900.00 | 6.26 | 5.94 | 5.98 | 0.32 | 19.22 | 21.23 | 22.40 | 0.19 | 1.36 | 1.09 | 1.05 | 1.06 |
| 1000.00 | 6.38 | 5.98 | 6.03 | 0.41 | 21.28 | 24.38 | 27.02 | 0.71 | 1.18 | 1.09 | 1.04 | 1.04 |
| 1090.00 | 6.62 | 6.12 | 6.18 | 0.50 | 23.65 | 31.70 | 42.96 | 1.40 | 1.04 | 1.08 | 1.08 | 1.11 |
| 1150.00 | 6.91 | 6.35 | 6.41 | 0.56 | 23.44 | 36.09 | 29.45 | 1.96 | 1.20 | 1.08 | 1.13 | 1.18 |
| 1200.00 | 7.27 | 6.65 | 6.72 | 0.62 | 21.47 | 27.81 | 23.54 | 2.56 | 1.39 | 1.08 | 1.17 | 1.25 |

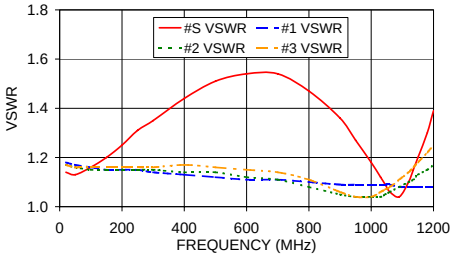
SYPS-3-12W+
INSERTION LOSS



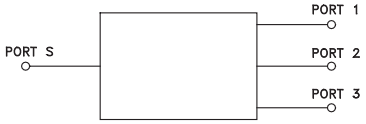

SYPS-3-12W+
ISOLATION




SYPS-3-12W+
VSWR




### electrical schematic




*For detailed performance specs & shopping online see web site*

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REV. A
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