

# Surface Mount Power Splitter/Combiner

3 Way-0° 50Ω 100 to 940 MHz

SCA-3-11+  
SCA-3-11



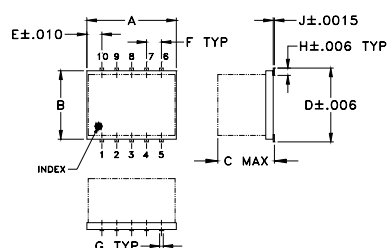
## Maximum Ratings

|                             |                |
|-----------------------------|----------------|
| Operating Temperature       | -45°C to 85°C  |
| Storage Temperature         | -55°C to 100°C |
| Power Input (as a splitter) | 0.5W max.      |
| Internal Dissipation        | 0.25W max.     |

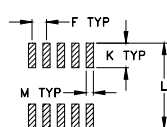
## Pin Connections

|         |             |
|---------|-------------|
| SUMPORT | 3           |
| PORT 1  | 6           |
| PORT 2  | 8           |
| PORT 3  | 10          |
| GROUND  | 1,2,4,5,7,9 |

## Outline Drawing



## PCB Land Pattern

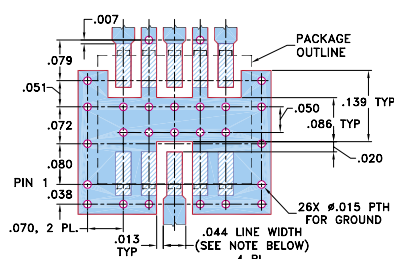


Suggested Layout,  
Tolerance to be within ±.002

## Outline Dimensions (inch mm)

| A    | B    | C    | D    | E    | F    | G     |
|------|------|------|------|------|------|-------|
| .30  | .250 | .190 | .262 | .050 | .050 | .012  |
| 7.62 | 6.35 | 4.83 | 6.66 | 1.27 | 1.27 | 0.30  |
| H    | J    | K    | L    | M    |      | wt    |
| .027 | .004 | .085 | .296 | .030 |      | grams |
| 0.69 | 0.10 | 2.16 | 7.52 | 0.76 |      | 0.5   |

## Demo Board MCL P/N: TB-246 Suggested PCB Layout (PL-144)



NOTE: 1. 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.  
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

## Features

- wideband, 100 to 940 MHz
- good input port matching VSWR, 1.10 typ.
- small surface mount package
- patent pending

## Applications

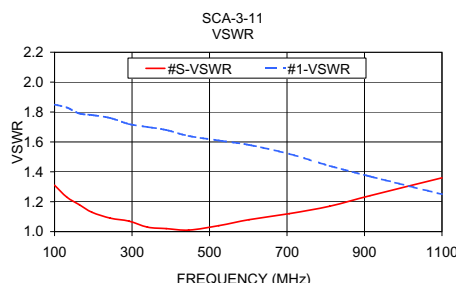
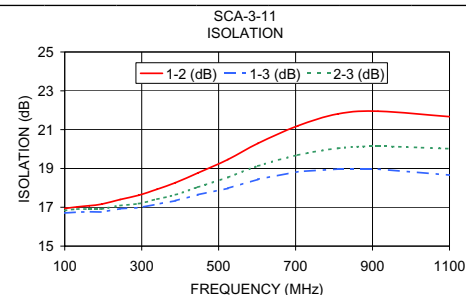
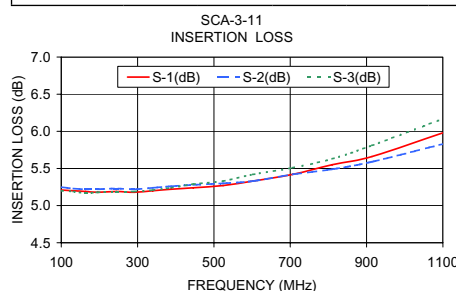
- cellular
- ISM
- PCS
- land mobile

## Splitter 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.                     |
| 100-940           | 20 14          | 0.7 1.5                          | 7.0                       | 0.7                      |

## 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       |                     |        |        |        |        |
| 100.00      | 5.21 5.25 5.20      | 0.05             | 16.94 16.71 16.84 | 0.44                | 1.31   | 1.85   | 1.88   | 1.86   |
| 132.00      | 5.20 5.23 5.19      | 0.04             | 17.02 16.75 16.91 | 0.50                | 1.23   | 1.83   | 1.86   | 1.84   |
| 164.00      | 5.19 5.22 5.17      | 0.05             | 17.08 16.77 16.91 | 0.62                | 1.18   | 1.79   | 1.83   | 1.80   |
| 196.00      | 5.18 5.22 5.18      | 0.04             | 17.16 16.76 16.92 | 0.71                | 1.13   | 1.78   | 1.81   | 1.80   |
| 244.00      | 5.19 5.23 5.19      | 0.04             | 17.40 16.93 17.09 | 0.92                | 1.09   | 1.76   | 1.80   | 1.77   |
| 292.00      | 5.18 5.22 5.19      | 0.04             | 17.62 16.98 17.19 | 1.04                | 1.07   | 1.72   | 1.77   | 1.75   |
| 340.00      | 5.20 5.24 5.21      | 0.04             | 17.93 17.16 17.42 | 1.38                | 1.03   | 1.70   | 1.76   | 1.72   |
| 388.00      | 5.22 5.26 5.24      | 0.04             | 18.27 17.34 17.65 | 1.45                | 1.02   | 1.68   | 1.73   | 1.71   |
| 446.00      | 5.24 5.28 5.29      | 0.05             | 18.77 17.65 18.04 | 1.70                | 1.01   | 1.64   | 1.72   | 1.68   |
| 524.00      | 5.27 5.30 5.33      | 0.06             | 19.46 17.98 18.54 | 1.89                | 1.04   | 1.61   | 1.70   | 1.63   |
| 602.00      | 5.33 5.33 5.42      | 0.09             | 20.29 18.44 19.13 | 2.07                | 1.08   | 1.58   | 1.66   | 1.59   |
| 706.00      | 5.42 5.42 5.51      | 0.09             | 21.20 18.84 19.69 | 2.46                | 1.12   | 1.52   | 1.61   | 1.53   |
| 810.00      | 5.55 5.49 5.63      | 0.14             | 21.81 18.97 20.04 | 3.09                | 1.17   | 1.44   | 1.54   | 1.47   |
| 914.00      | 5.66 5.59 5.81      | 0.22             | 21.95 18.97 20.14 | 3.32                | 1.24   | 1.37   | 1.47   | 1.39   |
| 1100.00     | 5.98 5.83 6.17      | 0.33             | 21.67 18.66 20.02 | 3.83                | 1.36   | 1.25   | 1.32   | 1.24   |



## electrical schematic



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