



Mini-Circuits®

SURFACE MOUNT

Power Splitter/Combiner **SCA-4-10-75+**

4 Way-0° 75Ω 10 to 1000 MHz

## FEATURES

- Wideband, 10-1000 MHz
- High isolation, 25 dB typ.
- Good amplitude unbalance, 0.5 dB typ.



Generic photo used for illustration purposes only

CASE STYLE: DZ943

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## APPLICATIONS

- Cellular
- UHF/VHF receivers/transmitters

## ELECTRICAL SPECIFICATIONS AT 25°C

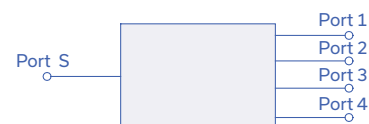
| Parameter                    | Frequency (MHz) | Min. | Typ. | Max. | Unit   |
|------------------------------|-----------------|------|------|------|--------|
| Frequency Range              |                 | 10   |      | 1000 | MHz    |
| Insertion Loss, above 6.0 dB | 10-400          |      | 1.2  | 2.3  | dB     |
|                              | 400-650         |      | 1.5  | 2.2  |        |
|                              | 650-1000        |      | 2.0  | 2.5  |        |
| Isolation                    | 10-400          | 22   | 30   |      | dB     |
|                              | 400-650         | 18   | 25   |      |        |
|                              | 650-1000        | 15   | 20   |      |        |
| Phase Unbalance              | 10-400          |      |      | 6    | Degree |
|                              | 400-650         |      |      | 9    |        |
|                              | 650-1000        |      |      | 10   |        |
| Amplitude Unbalance          | 10-400          |      |      | 1.2  | dB     |
|                              | 400-650         |      |      | 0.9  |        |
|                              | 650-1000        |      |      | 0.9  |        |

## MAXIMUM RATINGS

| Parameter                   | Ratings        |
|-----------------------------|----------------|
| Operating Temperature       | -40°C to 85°C  |
| Storage Temperature         | -55°C to 100°C |
| Power Input (as a splitter) | 0.5W max.      |
| Internal Dissipation        | 0.375W max.    |

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

## ELECTRICAL SCHEMATIC



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REV. F  
ECO-010710  
ED-10856/1  
SCA-4-10-75+  
WZ/TD/CP/AM  
211117  
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## SURFACE MOUNT

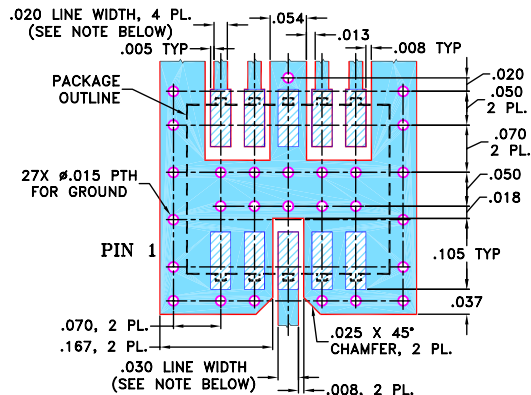
# Power Splitter/Combiner **SCA-4-10-75+**

### PIN CONNECTIONS

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

PRODUCT MARKING: N/A

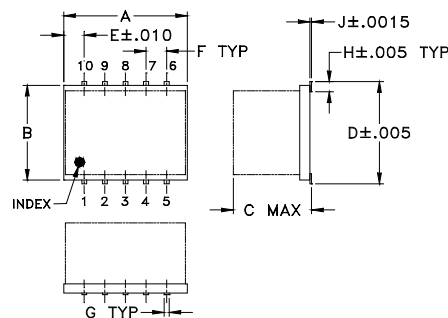
DEMO BOARD MCL P/N: TB-247  
SUGGESTED PCB LAYOUT (PL-133)



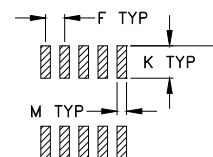
NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350 WITH DIELECTRIC THICKNESS  $0.030 \pm 0.002$ ", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT
- DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

### OUTLINE DRAWING



### PCB Land Pattern



Suggested Layout  
Tolerance to be within  $\pm 0.002$

### OUTLINE DIMENSIONS (Inches/mm)

| A    | B    | C    | D    | E    | F    | G     |
|------|------|------|------|------|------|-------|
| .30  | .250 | .190 | .266 | .050 | .050 | .012  |
| 7.62 | 6.35 | 4.83 | 6.76 | 1.27 | 1.27 | 0.30  |
| H    | J    | K    | L    | M    |      | wt    |
| .029 | .004 | .085 | .296 | .030 |      | grams |
| 0.74 | 0.10 | 2.16 | 7.52 | 0.76 |      | 0.5   |

### TAPE & REEL INFORMATION: F34





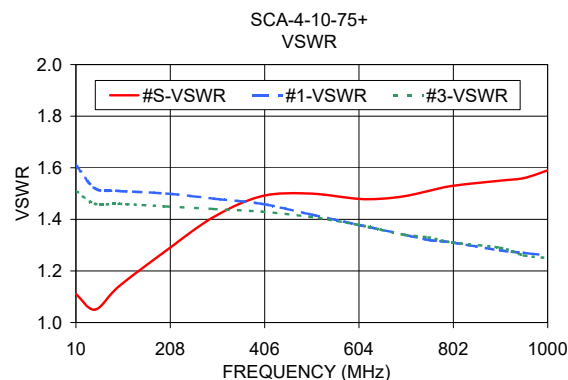
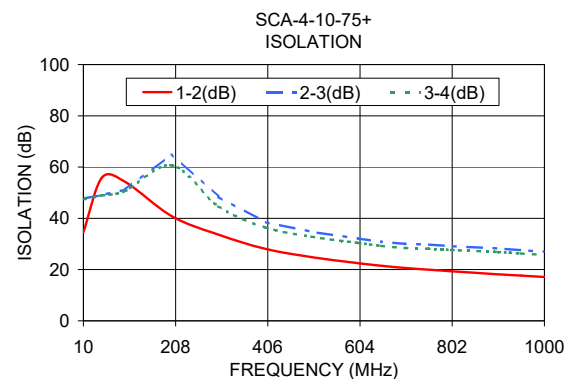
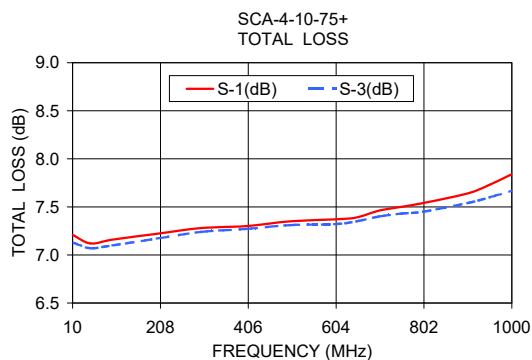
## SURFACE MOUNT

# Power Splitter/Combiner **SCA-4-10-75+**

### TYPICAL PERFORMANCE DATA

| Frequency<br>(MHz) | Total Loss <sup>1</sup><br>(dB) |      |      |      | Amplitude<br>Unbalance<br>(dB) | Isolation<br>(dB) |       |       | Phase<br>Unbalance<br>(deg.) | VSWR<br>(:1) |      |      |      |      |
|--------------------|---------------------------------|------|------|------|--------------------------------|-------------------|-------|-------|------------------------------|--------------|------|------|------|------|
|                    | S-1                             | S-2  | S-3  | S-4  |                                | 1-2               | 1-3   | 2-3   |                              | S            | 1    | 2    | 3    | 4    |
| 10.00              | 7.21                            | 6.78 | 7.13 | 7.53 | 0.74                           | 34.55             | 47.68 | 47.34 | 1.86                         | 1.11         | 1.61 | 1.48 | 1.51 | 1.64 |
| 50.00              | 7.12                            | 6.75 | 7.07 | 7.43 | 0.68                           | 55.90             | 49.10 | 48.97 | 0.85                         | 1.05         | 1.52 | 1.42 | 1.46 | 1.57 |
| 100.00             | 7.16                            | 6.77 | 7.10 | 7.48 | 0.71                           | 54.20             | 51.26 | 50.69 | 0.94                         | 1.14         | 1.51 | 1.43 | 1.46 | 1.55 |
| 200.00             | 7.22                            | 6.87 | 7.17 | 7.53 | 0.66                           | 40.79             | 65.07 | 60.68 | 1.45                         | 1.28         | 1.50 | 1.44 | 1.45 | 1.52 |
| 300.00             | 7.28                            | 6.95 | 7.24 | 7.56 | 0.61                           | 33.63             | 48.42 | 44.66 | 2.13                         | 1.41         | 1.48 | 1.45 | 1.44 | 1.49 |
| 400.00             | 7.30                            | 7.01 | 7.27 | 7.56 | 0.55                           | 28.11             | 38.54 | 36.47 | 2.40                         | 1.49         | 1.46 | 1.46 | 1.43 | 1.45 |
| 500.00             | 7.35                            | 7.03 | 7.31 | 7.59 | 0.56                           | 24.85             | 34.71 | 32.80 | 2.83                         | 1.50         | 1.42 | 1.44 | 1.41 | 1.41 |
| 600.00             | 7.37                            | 7.02 | 7.32 | 7.60 | 0.58                           | 22.50             | 32.13 | 30.41 | 2.98                         | 1.48         | 1.38 | 1.40 | 1.38 | 1.36 |
| 650.00             | 7.39                            | 7.04 | 7.35 | 7.63 | 0.59                           | 21.50             | 30.85 | 29.23 | 3.11                         | 1.48         | 1.36 | 1.39 | 1.36 | 1.34 |
| 700.00             | 7.46                            | 7.11 | 7.40 | 7.67 | 0.56                           | 20.63             | 30.04 | 28.44 | 3.53                         | 1.49         | 1.34 | 1.37 | 1.34 | 1.33 |
| 750.00             | 7.50                            | 7.14 | 7.43 | 7.70 | 0.56                           | 19.98             | 29.78 | 28.11 | 3.53                         | 1.51         | 1.32 | 1.34 | 1.33 | 1.31 |
| 800.00             | 7.54                            | 7.15 | 7.45 | 7.75 | 0.59                           | 19.37             | 29.15 | 27.66 | 3.59                         | 1.53         | 1.31 | 1.32 | 1.31 | 1.30 |
| 900.00             | 7.64                            | 7.26 | 7.54 | 7.82 | 0.56                           | 18.17             | 28.23 | 26.83 | 4.14                         | 1.55         | 1.28 | 1.27 | 1.29 | 1.29 |
| 950.00             | 7.73                            | 7.31 | 7.60 | 7.88 | 0.57                           | 17.63             | 27.54 | 26.25 | 4.30                         | 1.56         | 1.27 | 1.25 | 1.26 | 1.29 |
| 1000.00            | 7.84                            | 7.40 | 7.67 | 7.98 | 0.57                           | 17.09             | 26.99 | 25.74 | 4.59                         | 1.59         | 1.26 | 1.24 | 1.25 | 1.29 |

1. Total Loss = Insertion Loss + 6.0 dB splitter loss.



#### NOTES

- 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.
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