SURFACE MOUNT

# Power Splitter/Combiner SCA-4-20+

4 Way-0° 50Ω 1000 to 2000 MHz

## FEATURES

- Wideband, 1000 to 2000 MHz
- High isolation, 20 dB typ.
- Small surface mount package (0.25"x0.3")
- Low profile (0.045")
- Welded leads



*Generic photo used for illustration purposes only*

CASE STYLE: DZ944

**+RoHS Compliant**
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

## APPLICATIONS

- PCS
- GPS

## ELECTRICAL SPECIFICATIONS AT 25°C[1]

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Frequency Range | | 1000 | | 2000 | MHz |
| Insertion Loss, above 6.0 dB | 1000-2000<br>1500-1700<br>1700-2000 | | 1.0<br>1.0<br>1.5 | 1.8<br>1.2<br>1.8 | dB |
| Isolation | 1000-2000<br>1500-1700<br>1700-2000 | 8<br>17<br>17 | 15<br>20<br>20 | | dB |
| Phase Unbalance | 1000-2000<br>1500-1700<br>1700-2000 | | | 5<br>5<br>5 | Degree |
| Amplitude Unbalance | 1000-2000<br>1500-1700<br>1700-2000 | | | 0.9<br>0.8<br>0.9 | dB |

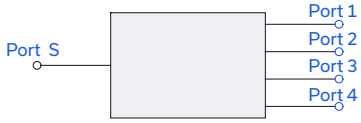
1.Tested on Evaluation Board TB-SCA-4-20+

## MAXIMUM RATINGS

| Parameter | Ratings |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 5W max. |
| Internal Dissipation | 0.25W max. |

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

## ELECTRICAL SCHEMATIC



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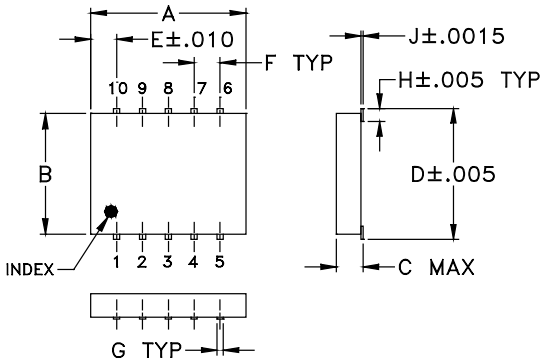
# Power Splitter/Combiner SCA-4-20+

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## PIN CONNECTIONS

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

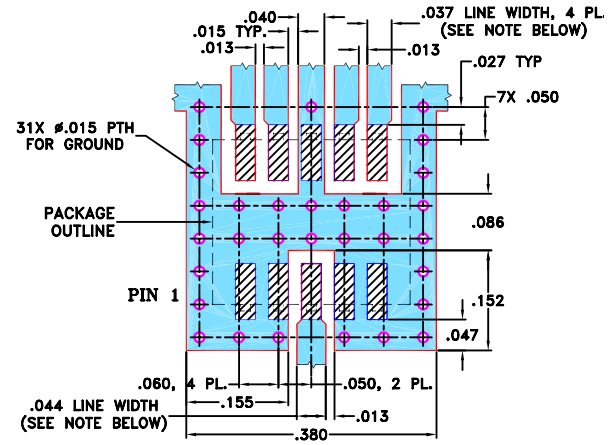
## OUTLINE DRAWING




## *PRODUCT MARKING: SCA-4-20

*Marking may contain other features or characters for internal lot control

## EVALUATION BOARD MCL P/N: TB-SCA-4-20+
## SUGGESTED PCB LAYOUT (PL-125)

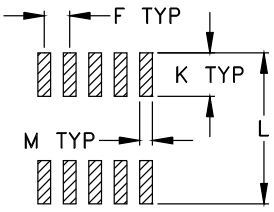



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS 0.020" ± 0.0015", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

## PCB Land Pattern




Suggested Layout,
Tolerance to be within ±.002

## OUTLINE DIMENSIONS (Inches / mm)

| A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| .30 | .250 | .052 | .266 | .050 | .050 | .012 |
| 7.62 | 6.35 | 1.32 | 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 | | 0.25 |

## TAPE & REEL INFORMATION: F34

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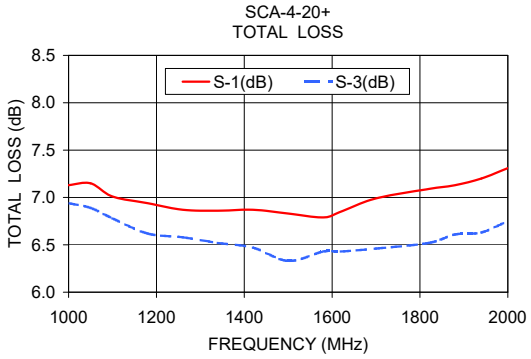
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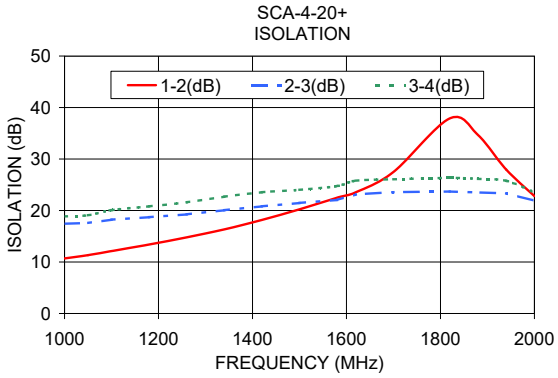
4 Way-0° 50Ω 1000 to 2000 MHz

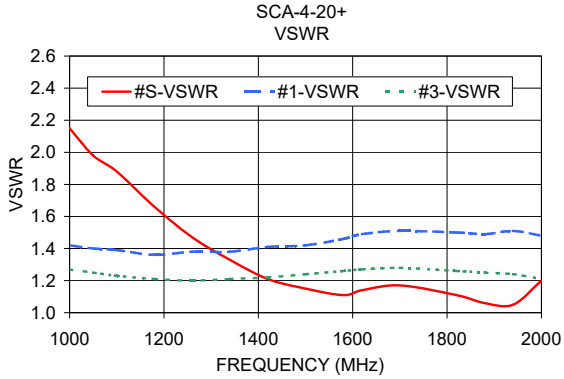
## TYPICAL PERFORMANCE DATA

| Frequency (MHz) | Total Loss[1] (dB) | | | | Amplitude Unbalance (dB) | Isolation (dB) | | | Phase Unbalance (deg.) | VSWR (:1) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S-1 | S-2 | S-3 | S-4 | | 1-2 | 1-3 | 2-3 | | S | 1 | 2 | 3 | 4 |
| 1000.00 | 7.13 | 6.97 | 6.94 | 7.29 | 0.35 | 10.70 | 17.43 | 18.86 | 0.86 | 2.15 | 1.42 | 1.29 | 1.27 | 1.44 |
| 1050.00 | 7.15 | 6.96 | 6.89 | 7.25 | 0.36 | 11.34 | 17.57 | 19.08 | 0.31 | 1.98 | 1.40 | 1.27 | 1.25 | 1.41 |
| 1100.00 | 7.01 | 6.85 | 6.78 | 7.11 | 0.33 | 12.12 | 18.22 | 20.08 | 0.48 | 1.88 | 1.39 | 1.25 | 1.23 | 1.39 |
| 1180.00 | 6.94 | 6.73 | 6.62 | 7.00 | 0.38 | 13.40 | 18.71 | 20.81 | 0.93 | 1.66 | 1.36 | 1.25 | 1.21 | 1.37 |
| 1260.00 | 6.87 | 6.68 | 6.58 | 6.94 | 0.36 | 14.79 | 19.24 | 21.60 | 1.09 | 1.47 | 1.38 | 1.25 | 1.20 | 1.35 |
| 1340.00 | 6.86 | 6.63 | 6.52 | 6.92 | 0.39 | 16.34 | 20.06 | 22.68 | 0.82 | 1.33 | 1.38 | 1.25 | 1.21 | 1.36 |
| 1420.00 | 6.87 | 6.58 | 6.47 | 6.91 | 0.44 | 18.17 | 20.82 | 23.55 | 1.04 | 1.21 | 1.41 | 1.27 | 1.22 | 1.37 |
| 1500.00 | 6.83 | 6.44 | 6.33 | 6.84 | 0.51 | 20.24 | 21.46 | 24.01 | 0.89 | 1.15 | 1.42 | 1.29 | 1.24 | 1.38 |
| 1580.00 | 6.79 | 6.45 | 6.43 | 6.86 | 0.43 | 22.50 | 22.05 | 24.74 | 0.95 | 1.11 | 1.46 | 1.29 | 1.26 | 1.39 |
| 1620.00 | 6.85 | 6.49 | 6.43 | 6.88 | 0.45 | 23.56 | 23.13 | 25.80 | 1.38 | 1.14 | 1.49 | 1.31 | 1.27 | 1.42 |
| 1700.00 | 6.99 | 6.52 | 6.46 | 7.06 | 0.60 | 27.50 | 23.57 | 26.06 | 2.23 | 1.17 | 1.51 | 1.30 | 1.28 | 1.42 |
| 1820.00 | 7.09 | 6.56 | 6.52 | 7.14 | 0.62 | 37.89 | 23.68 | 26.33 | 1.50 | 1.11 | 1.50 | 1.28 | 1.26 | 1.42 |
| 1880.00 | 7.13 | 6.61 | 6.61 | 7.23 | 0.62 | 34.66 | 23.52 | 26.14 | 2.04 | 1.06 | 1.49 | 1.27 | 1.25 | 1.42 |
| 1940.00 | 7.20 | 6.67 | 6.63 | 7.27 | 0.64 | 27.96 | 23.34 | 25.78 | 1.94 | 1.05 | 1.51 | 1.24 | 1.24 | 1.42 |
| 2000.00 | 7.31 | 6.76 | 6.75 | 7.38 | 0.63 | 22.79 | 21.89 | 23.53 | 1.31 | 1.20 | 1.48 | 1.21 | 1.21 | 1.41 |

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




NOTES

A. 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.
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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