CERAMIC

# Power Splitter/Combiner SCW-2-482+

2 Way-0° 50Ω 3300 to 4800 MHz

## THE BIG DEAL

- Isolation Resistor, External 100Ω
- Small Size, 1.6x0.8 mm
- ESD Non-Sensitive
- Temperature Stable LTCC Technology
- Wrap-Around Terminations for Excellent Solderability
- Low Cost

*Generic photo used for illustration purposes only*

CASE STYLE: JC0603C

**+RoHS Compliant**

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

## APPLICATIONS

- LTE
- 5G Sub 6 GHz

## PRODUCT OVERVIEW

Mini-Circuits' new LTCC 0° Power Splitter SCW-2-482+, offers industry leading combination of operating performance and size. The outstanding phase and amplitude unbalance make this component a versatile building block for use in a variety of systems and sub-system designs.

## KEY FEATURES

| Feature | Advantages |
|---|---|
| Small Size | Offered in the package size, SCW-2-482+ offers an industry leading combination of size, power handling, and frequency. The small footprint allows for reduced parasitics in systems with improved performance and simplified layout. |
| Wrap-Around Terminations | Provides excellent solderability and easy visual inspection. |
| LTCC Construction | Provides repeatable performance in the rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes. |

REV. OR
ECO-012339
SCW-2-482+
MCL NY
250627

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## ELECTRICAL SPECIFICATIONS AT +25°C

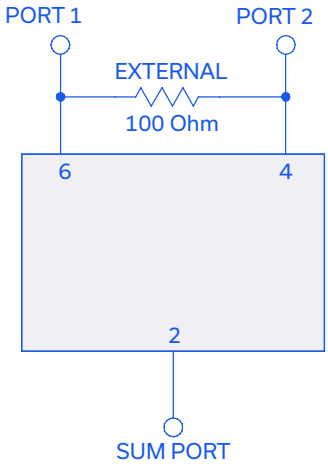
| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Frequency Range | | 3300 | | 4800 | MHz |
| Insertion Loss, Above 3.0 dB | 3300-4800 | | 0.7 | 1 | dB |
| Isolation | 3300-4800 | 12 | 15 | | dB |
| Phase Unbalance | 3300-4800 | | 2 | 6 | Degree |
| Amplitude Unbalance | 3300-4800 | | 0.2 | 0.5 | dB |
| Return Loss (Input) | 3300-4800 | | 13 | | dB |
| Return Loss (Output) | 3300-4800 | | 16 | | dB |

## ABSOLUTE MAXIMUM RATINGS

| Parameter | Ratings |
|---|---|
| Operating Temperature | -55°C to +125°C |
| Storage Temperature | -55°C to +125°C |
| Power Input (as a Splitter) | 2 W[1] max. |

1. Power input as combiner is limited by rating of external resistor 100Ω resistor. Permanent damage may occur if any of these limits are exceeded.

## ELECTRICAL SCHEMATIC



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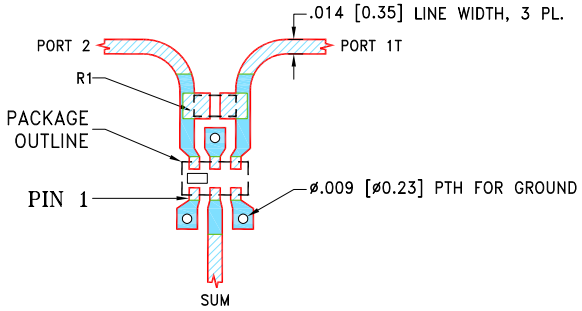
## PAD CONNECTIONS

| | |
|---|---|
| SUM PORT | 2 |
| PORT 1 | 6 |
| PORT 2 | 4 |
| GROUND | 1,3,5 |
| PORT 1-2 | Resistor external 100Ω |

## PRODUCT MARKING: 1

## DEMO BOARD MCL P/N: TB-SCW-2-482+
## SUGGESTED PCB LAYOUT (PL-727)



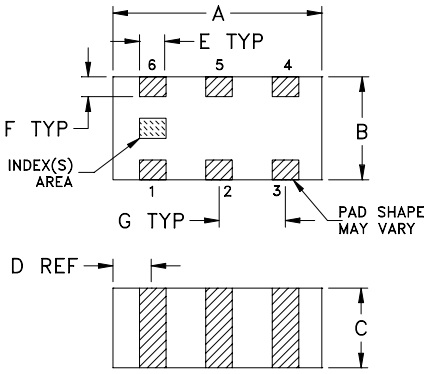

| COMPONENT | SIZE |
|---|---|
| R1 | 0402 |

NOTES:
1. LINE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0066±.0007"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS LINE WIDTH MAY NEED TO BE MODIFIED.
2. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-1224+.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

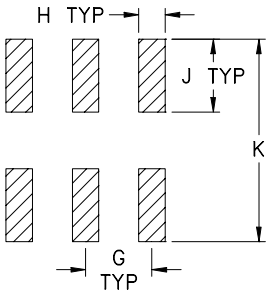
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

## OUTLINE DRAWING




**PCB Land Pattern**




Suggested Layout,
Tolerance to be within ±.002

## OUTLINE DIMENSIONS (Inches / mm)

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| .063 | .031 | .024 | .012 | .008 | .006 |
| 1.60 | 0.79 | 0.61 | 0.30 | 0.20 | 0.15 |

| G | H | J | K | wt |
|---|---|---|---|---|
| .020 | .010 | .022 | .053 | grams |
| 0.51 | 0.25 | 0.56 | 1.35 | 0.005 |

## TAPE & REEL INFORMATION: F114

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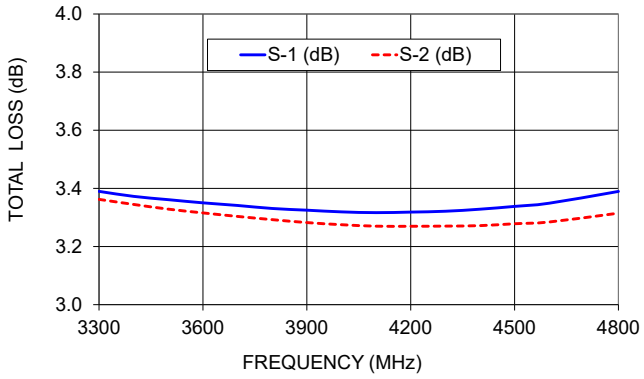
## TYPICAL PERFORMANCE DATA

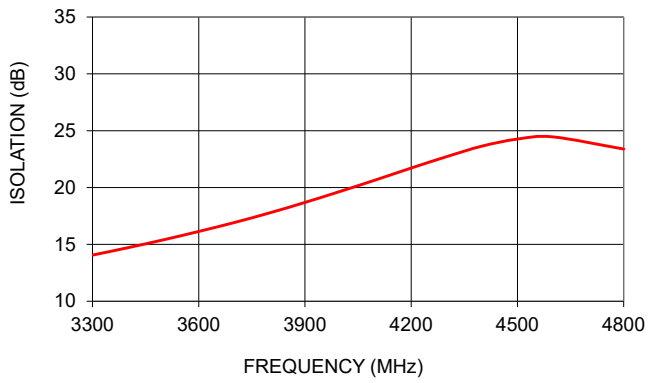
| Frequency (MHz) | Total Loss[2] (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | Return Loss (dB) | | |
|---|---|---|---|---|---|---|---|---|
| | S-1 | S-2 | | | | S | 1 | 2 |
| 3300 | 3.39 | 3.36 | 0.03 | 14.06 | 2.73 | 14.49 | 33.56 | 33.80 |
| 3400 | 3.37 | 3.34 | 0.03 | 14.71 | 2.83 | 14.99 | 34.75 | 34.83 |
| 3500 | 3.36 | 3.33 | 0.03 | 15.40 | 2.92 | 15.49 | 36.07 | 37.99 |
| 3600 | 3.35 | 3.32 | 0.03 | 16.14 | 3.03 | 16.01 | 37.85 | 39.77 |
| 3700 | 3.34 | 3.30 | 0.04 | 16.92 | 3.12 | 16.51 | 38.73 | 45.93 |
| 3800 | 3.33 | 3.29 | 0.04 | 17.77 | 3.21 | 17.09 | 37.47 | 45.07 |
| 3900 | 3.33 | 3.28 | 0.04 | 18.69 | 3.29 | 17.59 | 35.63 | 42.75 |
| 4000 | 3.32 | 3.28 | 0.04 | 19.67 | 3.37 | 18.14 | 33.38 | 39.02 |
| 4100 | 3.32 | 3.27 | 0.05 | 20.68 | 3.45 | 18.57 | 31.39 | 35.69 |
| 4200 | 3.32 | 3.27 | 0.05 | 21.72 | 3.53 | 18.94 | 29.40 | 33.39 |
| 4300 | 3.32 | 3.27 | 0.05 | 22.72 | 3.61 | 19.13 | 27.66 | 31.06 |
| 4400 | 3.33 | 3.27 | 0.06 | 23.65 | 3.69 | 19.21 | 26.03 | 29.27 |
| 4500 | 3.34 | 3.28 | 0.06 | 24.27 | 3.76 | 19.09 | 24.54 | 27.50 |
| 4600 | 3.35 | 3.28 | 0.06 | 24.46 | 3.83 | 18.78 | 23.20 | 25.80 |
| 4800 | 3.39 | 3.31 | 0.07 | 23.39 | 3.98 | 17.54 | 20.82 | 22.84 |

2. Total Loss = Insertion Loss + 3 dB splitter loss.

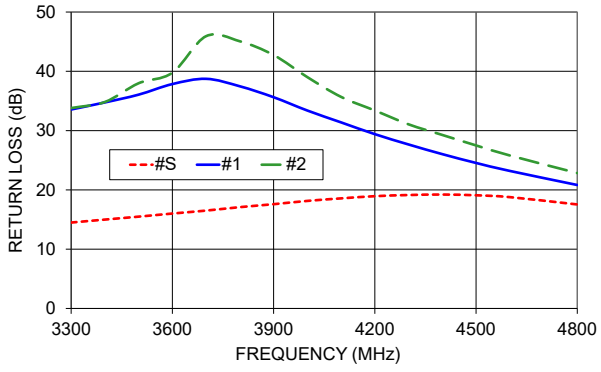
TOTAL LOSS




ISOLATION




RETURN 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.
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