



Mini-Circuits

SURFACE MOUNT 

Power Splitter/Combiner TCP-2-23-75+

75Ω 2 Way-0° 900 to 2300 MHz

FEATURES

- Low insertion, 0.8 dB typ.
- Excellent amplitude unbalance, 0.2 dB typ.
- Very good phase unbalance, 1.2 deg. typ.
- External resistor & capacitor required
- Aqueous washable
- Leads for excellent solderability
- Low cost

APPLICATIONS

- Cellular
- PCN
- GPS
- Communications systems



Generic photo used for illustration purposes only

CASE STYLE: DB1627

+RoHS Compliant

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

ELECTRICAL SPECIFICATIONS AT 25°C

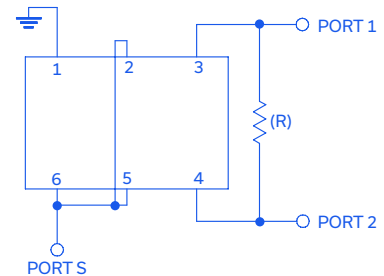
| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|------------------------------|-----------------|------|------|------|--------|
| Frequency Range | | 900 | | 2300 | MHz |
| Insertion Loss, above 3.0 dB | 900 - 1300 | — | 0.7 | 1.2 | dB |
| | 1300 - 2300 | — | 1.0 | 1.8 | |
| Isolation | 900 - 1300 | 13 | 16 | — | dB |
| | 1300 - 2300 | 14 | 18 | — | |
| Phase Unbalance | 900 - 1300 | — | 3.0 | 5.0 | Degree |
| | 1300 - 2300 | — | — | 8.0 | |
| Amplitude Unbalance | 900 - 1300 | — | 0.2 | 0.5 | dB |
| | 1300 - 2300 | — | 0.4 | 0.8 | |
| VSWR (Port S) | 900 - 2300 | — | 1.9 | — | :1 |
| VSWR (Port 1-2) | 900 - 2300 | — | 1.6 | — | :1 |

MAXIMUM RATINGS

| Parameter | Ratings |
|------------------------------|----------------|
| Operating temperature | -40°C to 85°C |
| Storage temperature | -55°C to 100°C |
| RF Power Input (as splitter) | 0.5 W max. |

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

FUNCTIONAL SCHEMATIC



REV. C
ECO-012869
TCP-2-23-75+
JC/TD/CP/AM
220627





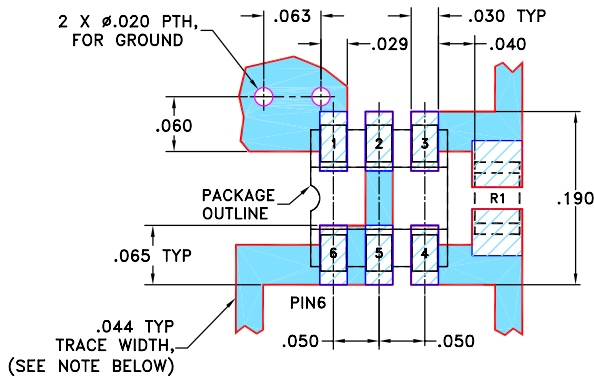
Power Splitter/Combiner **TCP-2-23-75+**

PIN CONNECTIONS

| | |
|--------------------|-------|
| SUM PORT | 2,5,6 |
| PORT 1 | 3 |
| PORT 2 | 4 |
| GROUND | 1 |
| EXT. RESISTOR 681Ω | 3,4 |

PRODUCT MARKING: SK

DEMO BOARD MCL P/N: TB-315 SUGGESTED PCB LAYOUT (PL-396)

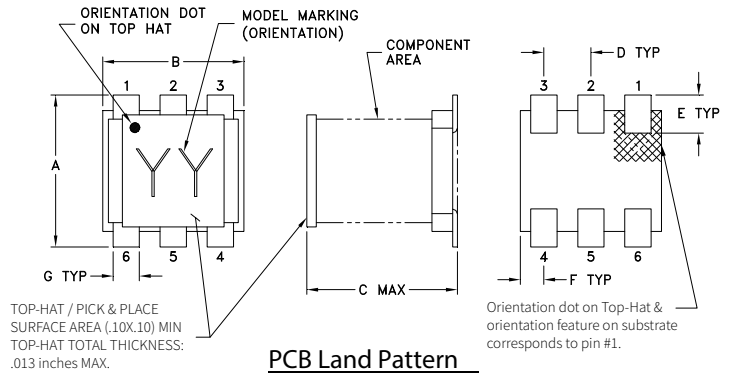


RESISTOR R1: 681 ± 1% Ohm, 0805 SIZE

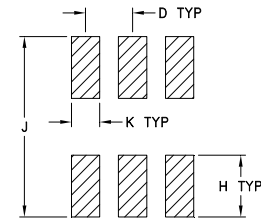
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT 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 | |
| .160 | .150 | .160 | .050 | .040 | .025 | |
| 4.06 | 3.81 | 4.06 | 1.27 | 1.02 | 0.64 | |
| G | H | J | K | | | wt |
| .028 | .065 | .190 | .030 | | | grams |
| 0.71 | 1.65 | 4.83 | 0.76 | | | 0.15 |

TAPE & REEL INFORMATION: F47

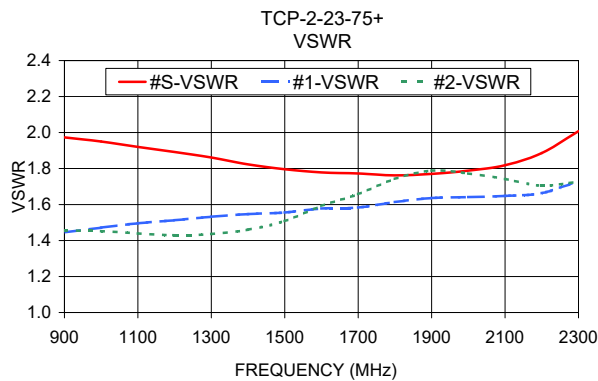
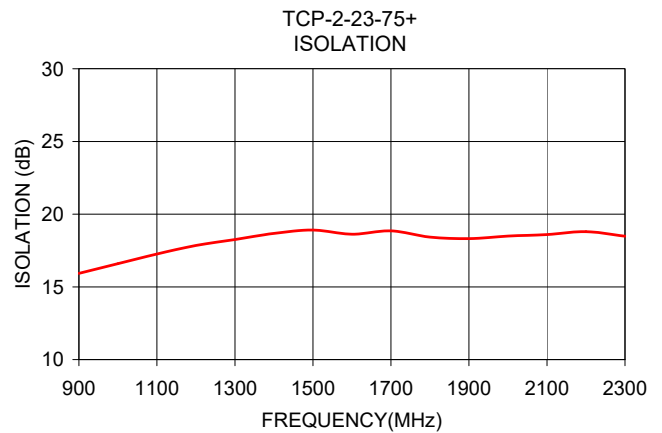
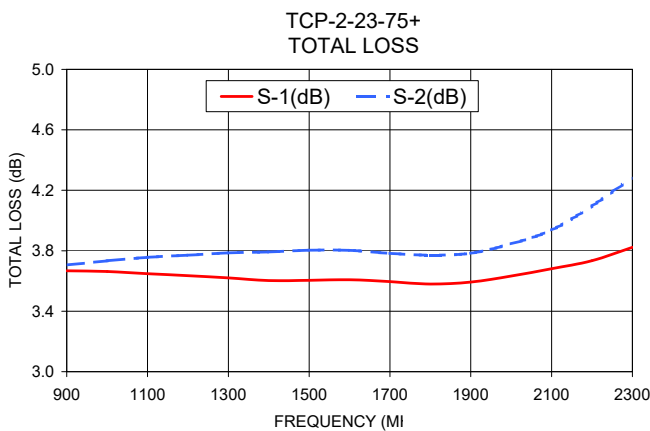


Power Splitter/Combiner **TCP-2-23-75+**

TYPICAL PERFORMANCE DATA AT 25°C

| Frequency (MHz) | Total Loss ¹ (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR (:1) | | |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|-----------|------|------|
| | S-1 | S-2 | | | | S | 1 | 2 |
| 900.00 | 3.67 | 3.71 | 0.04 | 15.93 | 0.39 | 1.97 | 1.45 | 1.46 |
| 1000.00 | 3.66 | 3.73 | 0.07 | 16.59 | 0.58 | 1.95 | 1.47 | 1.45 |
| 1100.00 | 3.65 | 3.76 | 0.11 | 17.26 | 0.77 | 1.92 | 1.50 | 1.44 |
| 1200.00 | 3.64 | 3.77 | 0.13 | 17.85 | 1.05 | 1.89 | 1.51 | 1.43 |
| 1300.00 | 3.62 | 3.79 | 0.17 | 18.26 | 1.35 | 1.86 | 1.53 | 1.44 |
| 1400.00 | 3.60 | 3.79 | 0.19 | 18.68 | 1.78 | 1.82 | 1.55 | 1.46 |
| 1500.00 | 3.60 | 3.80 | 0.20 | 18.91 | 2.16 | 1.80 | 1.56 | 1.51 |
| 1600.00 | 3.61 | 3.80 | 0.19 | 18.62 | 2.57 | 1.78 | 1.58 | 1.59 |
| 1700.00 | 3.60 | 3.78 | 0.19 | 18.85 | 2.90 | 1.77 | 1.58 | 1.66 |
| 1800.00 | 3.58 | 3.77 | 0.19 | 18.42 | 3.25 | 1.76 | 1.61 | 1.74 |
| 1900.00 | 3.59 | 3.78 | 0.19 | 18.32 | 3.36 | 1.77 | 1.64 | 1.79 |
| 2000.00 | 3.63 | 3.85 | 0.21 | 18.49 | 3.33 | 1.79 | 1.64 | 1.77 |
| 2100.00 | 3.68 | 3.94 | 0.26 | 18.60 | 3.67 | 1.82 | 1.65 | 1.74 |
| 2200.00 | 3.73 | 4.10 | 0.36 | 18.79 | 3.70 | 1.89 | 1.66 | 1.71 |
| 2300.00 | 3.82 | 4.29 | 0.46 | 18.48 | 4.27 | 2.01 | 1.73 | 1.73 |

1. Total Loss = Insertion Loss + 3dB 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.
 - C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html

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