

# Surface Mount Power Splitter/Combiner

## ADQ-180+

2 Way-90° 50Ω 120 to 180 MHz



Generic photo used for illustration purposes only

CASE STYLE: CJ725

+RoHS Compliant

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

| Available Tape and Reel at no extra cost |                      |
|--|----------------------|
| Reel Size                                | Devices/Reel         |
| 7"                                       | 10, 20, 50, 100, 200 |
| 13"                                      | 500                  |

### Maximum Ratings

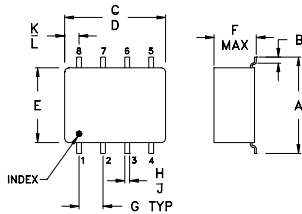
|                             |                |
|-----------------------------|----------------|
| Operating Temperature       | -40°C to 85°C  |
| Storage Temperature         | -55°C to 100°C |
| Power Input (as a splitter) | 1W max.        |

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

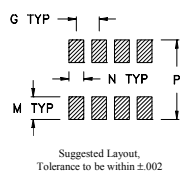
### Pin Connections

|                      |         |
|----------------------|---------|
| SUM PORT             | 1       |
| PORT 1 (+90°)        | 8       |
| PORT 2 (0°)          | 4       |
| GROUND               | 2,3,6,7 |
| 50 OHM TERM EXTERNAL | 5       |

### Outline Drawing



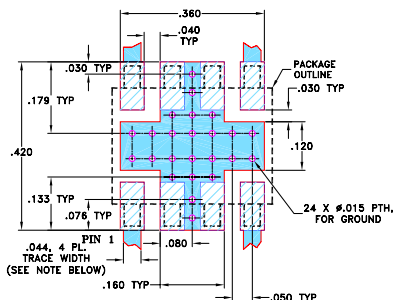
### PCB Land Pattern



### Outline Dimensions (inch/mm)

|       |      |      |       |      |      |       |       |
|-------|------|------|-------|------|------|-------|-------|
| A     | B    | C    | D     | E    | F    | G     |       |
| .397  | .032 | .385 | .435  | .310 | .215 | .100  |       |
| 10.08 | 0.81 | 9.78 | 11.05 | 7.87 | 5.46 | 2.54  |       |
| H     | J    | K    | L     | M    | N    | P     | wt    |
| .015  | .025 | .035 | .075  | .120 | .060 | .420  | grams |
| 0.38  | 0.64 | 0.89 | 1.91  | 3.05 | 1.52 | 10.67 | 0.45  |

### Demo Board MCL P/N: TB-83 Suggested PCB Layout (PL-063)



- NOTES:
- 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.
  - 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

### 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.
- 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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### Features

- excellent amplitude unbalance, 0.6 dB typ. and phase unbalance, 0.7 deg. typ.
- very low insertion loss, 0.2 dB typ.
- small surface mount package
- protected under U.S. Patent 6,133,525

### Applications

- VHF TV

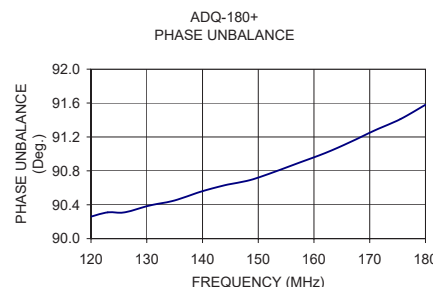
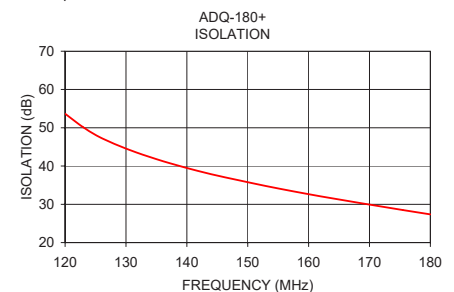
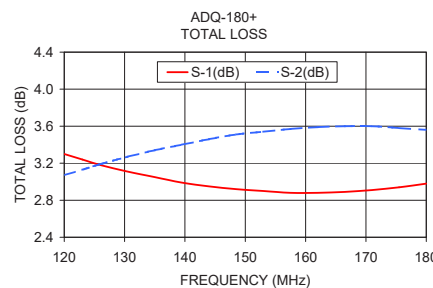
### Electrical Specifications

| FREQ. RANGE (MHz)              | ISOLATION (dB) |      | INSERTION LOSS (dB)<br>Avg. of Coupled Outputs ABOVE 3 dB |      | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) |
|--------------------------------|----------------|------|---|------|---------------------------|--------------------------|
|                                | Typ.           | Min. | Typ.  | Max. |                           |                          |
| f <sub>L</sub> -f <sub>U</sub> |                |      |   |      | Max.                      | Max.                     |
| 120-180                        | 35             | 20   | 0.2   | 0.7  | 6                         | 1.5                      |

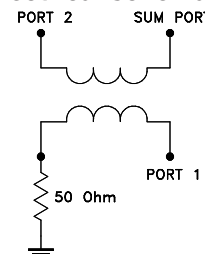
### Typical Performance Data

| Frequency (MHz) | Total Loss <sup>1</sup> (dB) |      | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|--------|--------|--------|
|                 | S-1                          | S-2  |                          |                |                        |        |        |        |
| 120.00          | 3.30                         | 3.07 | 0.23                     | 53.66          | 90.26                  | 1.04   | 1.03   | 1.05   |
| 123.00          | 3.24                         | 3.13 | 0.11                     | 50.12          | 90.31                  | 1.04   | 1.03   | 1.05   |
| 126.00          | 3.18                         | 3.19 | 0.01                     | 47.30          | 90.31                  | 1.04   | 1.03   | 1.05   |
| 130.50          | 3.11                         | 3.27 | 0.16                     | 44.27          | 90.39                  | 1.03   | 1.03   | 1.05   |
| 135.00          | 3.05                         | 3.34 | 0.30                     | 41.81          | 90.45                  | 1.03   | 1.03   | 1.06   |
| 139.50          | 2.99                         | 3.40 | 0.41                     | 39.71          | 90.55                  | 1.03   | 1.03   | 1.06   |
| 144.00          | 2.95                         | 3.46 | 0.51                     | 37.87          | 90.63                  | 1.03   | 1.03   | 1.06   |
| 148.50          | 2.92                         | 3.51 | 0.59                     | 36.28          | 90.69                  | 1.03   | 1.03   | 1.06   |
| 153.00          | 2.90                         | 3.54 | 0.65                     | 34.78          | 90.79                  | 1.03   | 1.03   | 1.06   |
| 157.50          | 2.88                         | 3.57 | 0.69                     | 33.39          | 90.90                  | 1.03   | 1.03   | 1.06   |
| 162.00          | 2.88                         | 3.59 | 0.71                     | 32.08          | 91.01                  | 1.04   | 1.04   | 1.07   |
| 166.50          | 2.89                         | 3.60 | 0.71                     | 30.85          | 91.14                  | 1.04   | 1.04   | 1.07   |
| 171.00          | 2.91                         | 3.60 | 0.69                     | 29.66          | 91.28                  | 1.05   | 1.05   | 1.08   |
| 175.50          | 2.94                         | 3.58 | 0.64                     | 28.50          | 91.41                  | 1.05   | 1.06   | 1.08   |
| 180.00          | 2.98                         | 3.56 | 0.57                     | 27.36          | 91.58                  | 1.06   | 1.06   | 1.09   |

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



### electrical schematic



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