

# Surface Mount Power Splitter/Combiner

## SC4PS-13-1+

4 Way-0° 50Ω 30 to 750 MHz

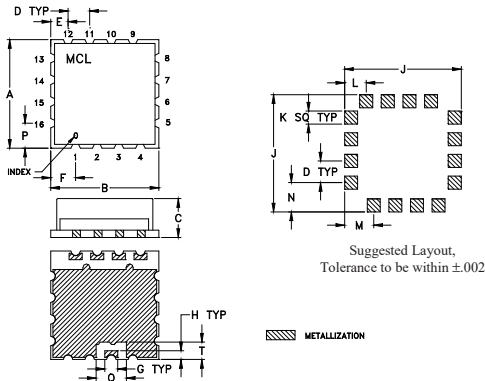
### Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -40°C to 85°C  |
| Storage Temperature                                             | -55°C to 100°C |
| Power Input* (as a splitter)                                    | 3W max.        |
| Internal Dissipation                                            | 0.20W max.     |
| Permanent damage may occur if any of these limits are exceeded. |                |
| *Outputs termination load must be VSWR 2:1 /max                 |                |

### Pin Connections

|          |           |
|----------|-----------|
| SUM PORT | 10        |
| PORT 1   | 1         |
| PORT 2   | 2         |
| PORT 3   | 3         |
| PORT 4   | 4         |
| GROUND   | ALL OTHER |

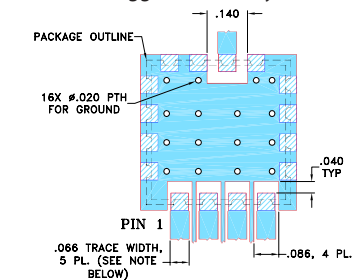
### Outline Drawing



### Outline Dimensions (inch/mm)

| A     | B     | C    | D    | E    | F    | G    | H     | J     |
|-------|-------|------|------|------|------|------|-------|-------|
| .500  | .500  | .180 | .100 | .080 | .115 | .060 | .040  | .540  |
| 12.70 | 12.70 | 4.57 | 2.54 | 2.03 | 2.92 | 1.52 | 1.02  | 13.72 |
| K     | L     | M    | N    | P    | Q    | T    | wt.   |       |
| .060  | .100  | .135 | .135 | .115 | .140 | .080 | grams |       |
| 1.52  | 2.54  | 3.43 | 3.43 | 2.92 | 3.56 | 2.03 | grams | 1.0   |

### Demo Board MCL P/N: TB-652+ Suggested PCB Layout (PL-368)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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

#### 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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### Features

- wideband, 30 to 750 MHz,
- low insertion loss, 0.8 dB typ.
- good isolation, 25 dB typ.
- good amplitude unbalance, 0.4 dB typ.

### Applications

- communication systems
- CATV
- cellular, GPS, PCS
- VHF/UHF/receivers/transmitters

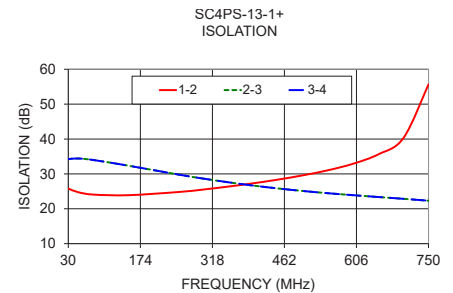
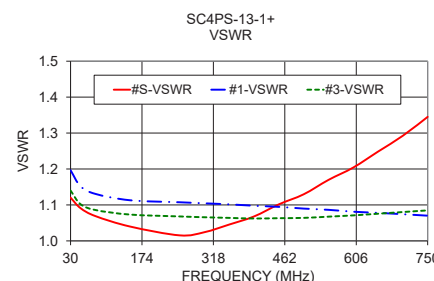
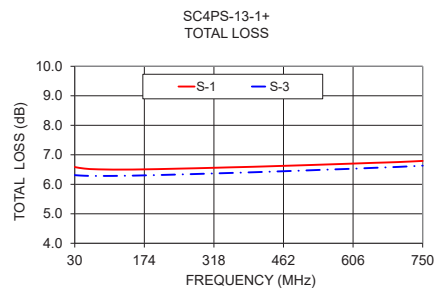
### Electrical Specifications at 25°C

| Parameter           | Frequency (MHz) | Min. | Typ. | Max. | Unit   |
|---------------------|-----------------|------|------|------|--------|
| Frequency Range     |                 | 30   | —    | 750  | MHz    |
| Insertion Loss      | 30 - 750        | —    | 0.8  | 1.2  | dB     |
| Isolation           | 30 - 750        | 15   | 25   | —    | dB     |
| Phase Unbalance     | 30 - 750        | —    | 2    | 5    | Degree |
| Amplitude Unbalance | 30 - 750        | —    | 0.4  | 0.8  | dB     |
| VSWR Input          | 30 - 750        | —    | 1.2  | —    | :1     |
| VSWR Output         | 30 - 750        | —    | 1.15 | —    | :1     |

### Typical Performance Data

| Freq. (MHz) | Total Loss <sup>1</sup> (dB) |      |      |      | Amp. Unbal. (dB) | Isolation (dB) |       |       | Phase Unbal. (deg.) | VSWR S | VSWR 1 | VSWR 2 | VSWR 3 | VSWR 4 |
|-------------|------------------------------|------|------|------|------------------|----------------|-------|-------|---------------------|--------|--------|--------|--------|--------|
|             | S-1                          | S-2  | S-3  | S-4  |                  | 1-2            | 2-3   | 2-4   |                     |        |        |        |        |        |
| 30.0        | 6.58                         | 6.58 | 6.31 | 6.31 | 0.27             | 25.79          | 34.25 | 34.25 | 1.29                | 1.12   | 1.20   | 1.20   | 1.14   | 1.14   |
| 50.0        | 6.53                         | 6.53 | 6.29 | 6.29 | 0.24             | 24.74          | 34.42 | 34.42 | 0.96                | 1.09   | 1.15   | 1.16   | 1.10   | 1.10   |
| 80.0        | 6.51                         | 6.51 | 6.28 | 6.29 | 0.22             | 24.07          | 33.99 | 33.99 | 0.78                | 1.07   | 1.13   | 1.14   | 1.09   | 1.08   |
| 150.0       | 6.50                         | 6.50 | 6.29 | 6.30 | 0.21             | 23.90          | 32.36 | 32.36 | 0.67                | 1.04   | 1.11   | 1.12   | 1.07   | 1.07   |
| 250.0       | 6.53                         | 6.54 | 6.33 | 6.34 | 0.21             | 24.80          | 29.82 | 29.82 | 0.88                | 1.02   | 1.11   | 1.12   | 1.07   | 1.07   |
| 300.0       | 6.55                         | 6.57 | 6.36 | 6.36 | 0.21             | 25.52          | 28.65 | 28.65 | 1.03                | 1.02   | 1.10   | 1.12   | 1.07   | 1.07   |
| 350.0       | 6.57                         | 6.60 | 6.38 | 6.39 | 0.21             | 26.37          | 27.60 | 27.60 | 1.17                | 1.05   | 1.10   | 1.11   | 1.06   | 1.07   |
| 400.0       | 6.59                         | 6.62 | 6.41 | 6.41 | 0.21             | 27.32          | 26.65 | 26.65 | 1.33                | 1.07   | 1.10   | 1.11   | 1.06   | 1.06   |
| 450.0       | 6.62                         | 6.65 | 6.44 | 6.44 | 0.21             | 28.39          | 25.82 | 25.82 | 1.47                | 1.10   | 1.09   | 1.11   | 1.06   | 1.06   |
| 500.0       | 6.64                         | 6.68 | 6.46 | 6.47 | 0.22             | 29.62          | 25.09 | 25.09 | 1.63                | 1.13   | 1.09   | 1.11   | 1.06   | 1.06   |
| 550.0       | 6.67                         | 6.71 | 6.50 | 6.50 | 0.21             | 31.08          | 24.45 | 24.45 | 1.74                | 1.17   | 1.09   | 1.11   | 1.07   | 1.06   |
| 600.0       | 6.70                         | 6.74 | 6.52 | 6.53 | 0.21             | 32.95          | 23.89 | 23.89 | 1.89                | 1.20   | 1.08   | 1.11   | 1.07   | 1.06   |
| 650.0       | 6.73                         | 6.77 | 6.56 | 6.56 | 0.21             | 35.63          | 23.37 | 23.37 | 2.01                | 1.25   | 1.08   | 1.11   | 1.08   | 1.06   |
| 700.0       | 6.75                         | 6.80 | 6.59 | 6.60 | 0.21             | 40.30          | 22.86 | 22.86 | 2.12                | 1.29   | 1.07   | 1.11   | 1.08   | 1.06   |
| 750.0       | 6.79                         | 6.84 | 6.63 | 6.64 | 0.21             | 55.69          | 22.31 | 22.31 | 2.25                | 1.35   | 1.07   | 1.11   | 1.08   | 1.07   |

1. Total Loss = Insertion Loss + 6dB splitter loss.



### electrical schematic

