





## MMIC SURFACE MOUNT

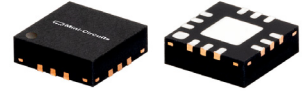
# Power Splitter/Combiner

# WP4R+

4 Way-0° 50Ω 2300 to 2700 MHz

### FEATURES

- Excellent isolation, 26 dB typ.
- Good phase unbalance 2 deg. typ.
- Good amplitude unbalance, 0.1 dB typ.
- Small size, .118" x .118" x .035"
- High ESD level
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: DQ1225

**+RoHS Compliant**

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

### APPLICATIONS

- WLAN
- WIMAX
- ISM

### ELECTRICAL SPECIFICATIONS AT 25°C

| Parameter                      | Frequency (MHz) | Min. | Typ. | Max. | Units |
|--------------------------------|-----------------|------|------|------|-------|
| Frequency Range                |                 | 2300 |      | 2700 | MHz   |
| Insertion Loss* (above 6.0 dB) | 2300-2700       | —    | 0.7  | 1.4  | dB    |
| Isolation                      | 2300-2700       | 18   | 26   | —    | dB    |
| Amplitude Unbalance            | 2300-2700       | —    | —    | 0.4  | dB    |
| Phase Unbalance                | 2300-2700       | —    | —    | 6    | deg.  |
| VSWR (Port S)                  | 2300-2700       | —    | 1.35 | —    | :1    |
| VSWR (Ports 1,2,3,4)           | 2300-2700       | —    | 1.35 | —    | :1    |

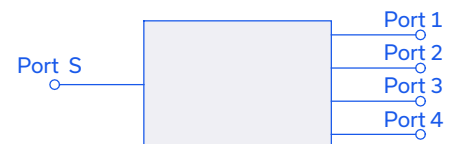
\*Includes fixture loss, 0.2 dB typ.

### MAXIMUM RATINGS

| Parameter                   | Ratings        |
|-----------------------------|----------------|
| Operating temperature       | -40°C to 85°C  |
| Storage temperature         | -65°C to 150°C |
| Power Input (as a splitter) | 1.5W max.      |
| Internal Dissipation        | 0.375W max.    |

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

### ELECTRICAL SCHEMATIC



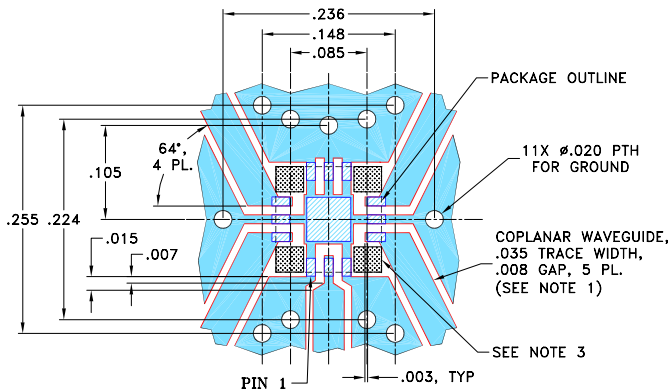
REV. D  
ECO-015507  
WP4R+  
MCL NY  
221025



### PAD CONNECTIONS

|          |                        |
|----------|------------------------|
| SUM PORT | 2                      |
| PORT 1   | 12                     |
| PORT 2   | 10                     |
| PORT 3   | 6                      |
| PORT 4   | 4                      |
| GROUND   | 1,3,5,7,8,9,11, paddle |

### DEMO BOARD MCL P/N: TB-395+ SUGGESTED PCB LAYOUT (PL-259)

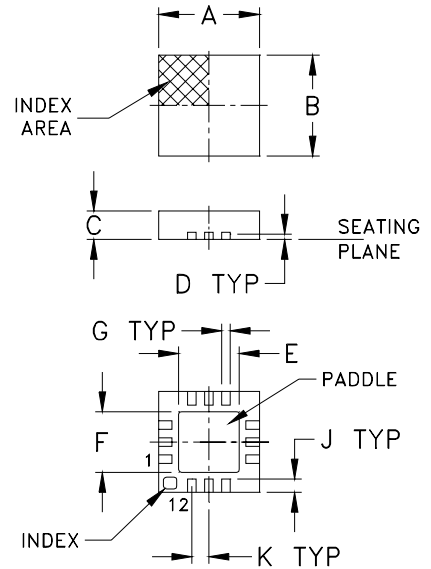


**NOTES:**

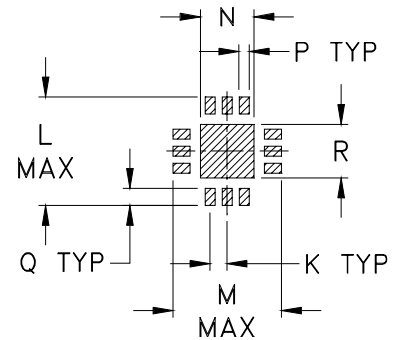
1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .030 X .030) AT 4 PLACES AS SHOWN.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### OUTLINE DRAWING

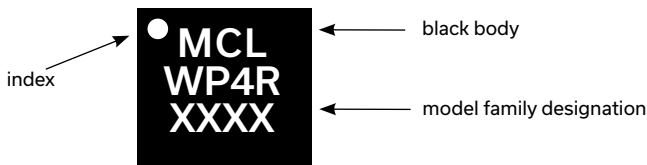


### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

### PRODUCT MARKING



Marking may contain other features or characters for internal lot control

### OUTLINE DIMENSIONS (Inch/mm)

| A    | B    | C    | D    | E    | F    | G    | H     | J    |
|------|------|------|------|------|------|------|-------|------|
| .118 | .118 | .035 | .008 | .057 | .057 | .009 | ---   | .016 |
| 3.00 | 3.00 | 0.89 | 0.20 | 1.45 | 1.45 | 0.23 | ---   | 0.41 |
| K    | L    | M    | N    | P    | Q    | R    | wt    |      |
| .020 | .127 | .127 | .049 | .010 | .020 | .049 | grams |      |
| 0.51 | 3.23 | 3.23 | 1.24 | 0.25 | 0.51 | 1.24 | 0.02  |      |

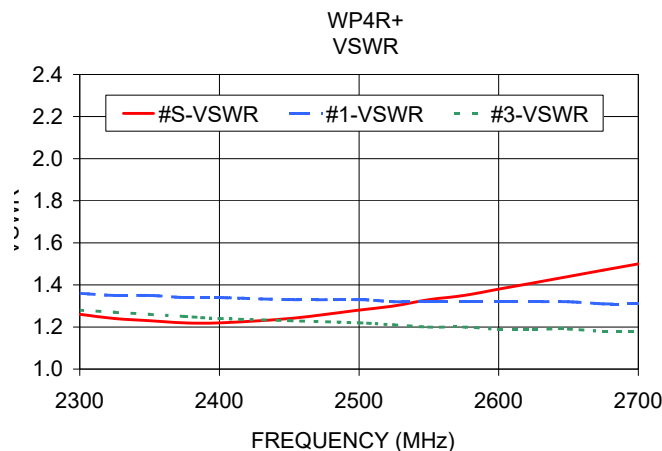
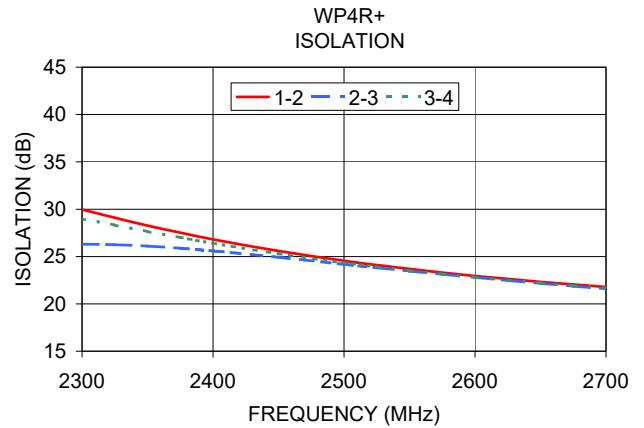
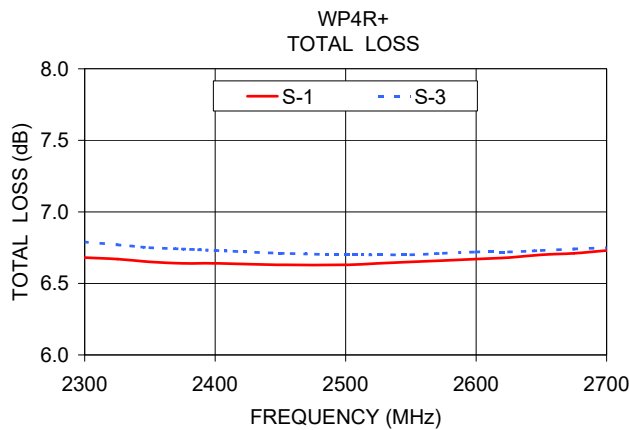
### TAPE & REEL INFORMATION: F66



### TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency (MHz) | Total Loss <sup>1</sup> (dB) |      |      |      | Amplitude Unbalance (dB) | Isolation (dB) |       |       | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 | VSWR 3 | VSWR 4 |
|-----------------|------------------------------|------|------|------|--------------------------|----------------|-------|-------|------------------------|--------|--------|--------|--------|--------|
|                 | S-1                          | S-2  | S-3  | S-4  |                          | 1-2            | 2-3   | 3-4   |                        |        |        |        |        |        |
| 2300.00         | 6.68                         | 6.81 | 6.79 | 6.69 | 0.13                     | 29.97          | 26.31 | 28.98 | 0.68                   | 1.26   | 1.36   | 1.26   | 1.28   | 1.31   |
| 2325.00         | 6.67                         | 6.79 | 6.77 | 6.67 | 0.12                     | 29.10          | 26.25 | 28.32 | 0.65                   | 1.24   | 1.35   | 1.25   | 1.27   | 1.30   |
| 2350.00         | 6.65                         | 6.77 | 6.75 | 6.66 | 0.12                     | 28.27          | 26.10 | 27.65 | 0.67                   | 1.23   | 1.35   | 1.25   | 1.26   | 1.30   |
| 2375.00         | 6.64                         | 6.76 | 6.74 | 6.65 | 0.12                     | 27.52          | 25.88 | 27.01 | 0.70                   | 1.22   | 1.34   | 1.24   | 1.25   | 1.30   |
| 2400.00         | 6.64                         | 6.74 | 6.73 | 6.64 | 0.11                     | 26.81          | 25.59 | 26.40 | 0.79                   | 1.22   | 1.34   | 1.23   | 1.24   | 1.29   |
| 2450.00         | 6.63                         | 6.73 | 6.71 | 6.64 | 0.10                     | 25.59          | 24.92 | 25.29 | 0.96                   | 1.24   | 1.33   | 1.21   | 1.23   | 1.28   |
| 2500.00         | 6.63                         | 6.72 | 6.70 | 6.64 | 0.09                     | 24.56          | 24.19 | 24.33 | 1.19                   | 1.28   | 1.33   | 1.20   | 1.22   | 1.28   |
| 2525.00         | 6.64                         | 6.73 | 6.70 | 6.65 | 0.08                     | 24.10          | 23.82 | 23.91 | 1.30                   | 1.30   | 1.32   | 1.20   | 1.21   | 1.28   |
| 2550.00         | 6.65                         | 6.73 | 6.70 | 6.65 | 0.08                     | 23.69          | 23.46 | 23.51 | 1.39                   | 1.33   | 1.32   | 1.19   | 1.20   | 1.27   |
| 2575.00         | 6.66                         | 6.73 | 6.71 | 6.66 | 0.07                     | 23.30          | 23.13 | 23.14 | 1.47                   | 1.35   | 1.32   | 1.19   | 1.20   | 1.27   |
| 2600.00         | 6.67                         | 6.74 | 6.72 | 6.68 | 0.07                     | 22.95          | 22.80 | 22.80 | 1.57                   | 1.38   | 1.32   | 1.18   | 1.19   | 1.27   |
| 2625.00         | 6.68                         | 6.75 | 6.72 | 6.69 | 0.06                     | 22.63          | 22.47 | 22.49 | 1.67                   | 1.41   | 1.32   | 1.18   | 1.19   | 1.27   |
| 2650.00         | 6.70                         | 6.76 | 6.73 | 6.70 | 0.06                     | 22.33          | 22.17 | 22.20 | 1.75                   | 1.44   | 1.32   | 1.17   | 1.19   | 1.27   |
| 2675.00         | 6.71                         | 6.77 | 6.74 | 6.72 | 0.05                     | 22.05          | 21.87 | 21.92 | 1.85                   | 1.47   | 1.31   | 1.17   | 1.18   | 1.27   |
| 2700.00         | 6.73                         | 6.78 | 6.75 | 6.73 | 0.05                     | 21.79          | 21.60 | 21.67 | 1.94                   | 1.50   | 1.31   | 1.17   | 1.18   | 1.27   |

\* Includes fixture loss, 0.2 dB typ.





#### 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](http://www.minicircuits.com/terms/viewterm.html)



## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View WP4R+ on WIN SOURCE](#)
-  [Mini-Circuits Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management