



Mini-Circuits

MMIC SURFACE MOUNT

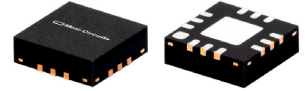
Power Splitter/Combiner

WP4R1+

4 Way-0° 50Ω 2000 to 3000 MHz

FEATURES

- Excellent Isolation, Typ. 24 dB
- Good Phase Unbalance, Max. 7 deg.
- Good Amplitude Unbalance, Max. 0.5 dB
- Small Size, 3x3 mm
- High ESD Level
- Aqueous Washable



Generic photo used for illustration purposes only

CASE STYLE: DQ1225

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

APPLICATIONS

- WLAN
- WIMAX
- ISM
- Radar

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		2000		3000	MHz
Insertion Loss* (Above 6.0 dB)	2000-3000		0.7	2.1	dB
Isolation	2000-3000	16	24		dB
Amplitude Unbalance	2000-3000			0.5	dB
Phase Unbalance	2000-3000			7	deg.
VSWR (Port S)	2000-3000		1.6		:1
VSWR (Ports 1,2,3,4)	2000-3000		1.35		:1

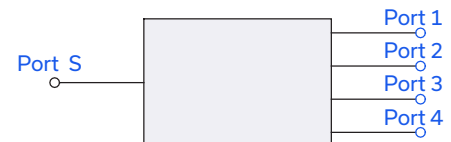
* Includes fixture loss, 0.2 dB typ.

ABSOLUTE MAXIMUM RATINGS

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

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

ELECTRICAL SCHEMATIC



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www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. E
ECO-026468
WP4R1+
MCL NY
250806

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OUTLINE DRAWING

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

Figure 1: Dimensions of the package outline. The drawing shows a top-down view of a square package with a central square pad and four circular pads. Dimensions are given in inches. The overall width and height are .236 inches. The central pad has a width of .148 inches and a height of .085 inches. The circular pads have a diameter of .105 inches. The distance between the centers of the circular pads is .224 inches. The distance from the center of the central pad to the center of a circular pad is .015 inches. The distance from the edge of the central pad to the edge of a circular pad is .007 inches. The package outline is labeled "PACKAGE OUTLINE". The central pad is labeled "64, 4 PL.". The circular pads are labeled "11X Ø.020 PTH FOR GROUND". The central pad is labeled "COPLANAR WAVEGUIDE, .035 TRACE WIDTH, .008 GAP, 5 PL. (SEE NOTE 1)". The circular pads are labeled "SEE NOTE 3". The central pad is labeled "PIN 1". The distance from the center of the central pad to the edge of the package is .003, TYP.

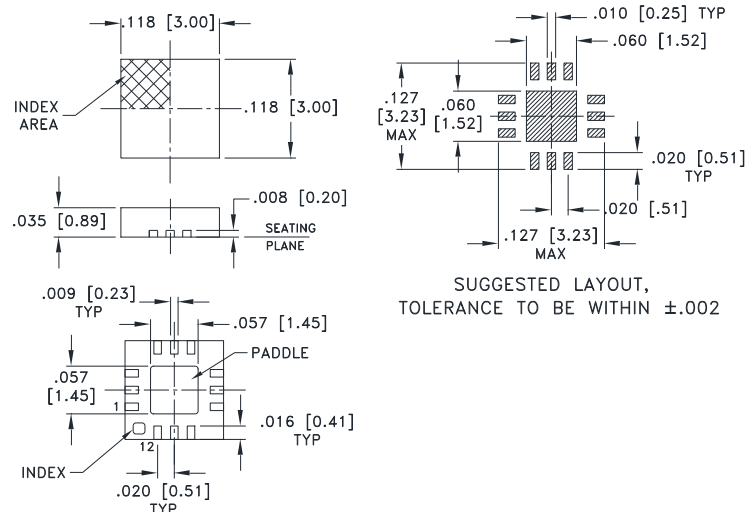
1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" $\pm$.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .030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

The diagram shows a black rectangular label with white text. The text is arranged in four lines: a small white circle, 'MCL', 'WP4R', and 'XXXX'. An arrow points from the word 'Index' to the white circle. Two other arrows point from the text 'Black Body' and 'Model Family Designation' to the 'MCL' and 'XXXX' parts of the label, respectively.

Marking may contain other features or characters for internal lot control.

PCB Land Pattern



Weight: .02 Grams
Dimensions are in inches [mm]. Tolerances in inches: 2 Pl. $\pm .01$; 3 Pl. $\pm .004$ inches

TAPE & REEL INFORMATION: F66



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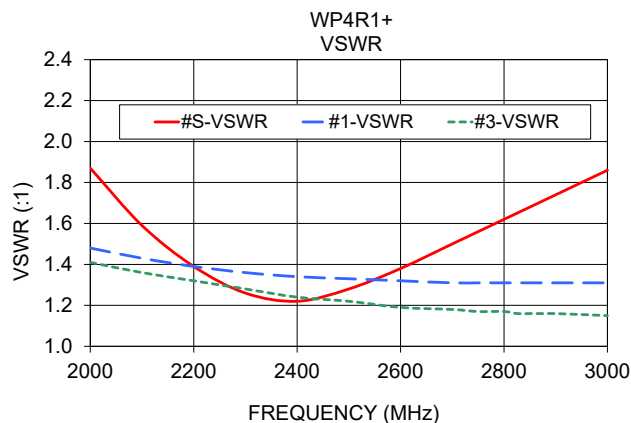
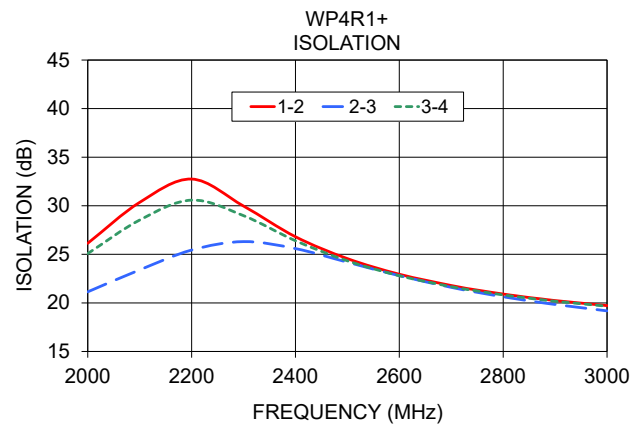
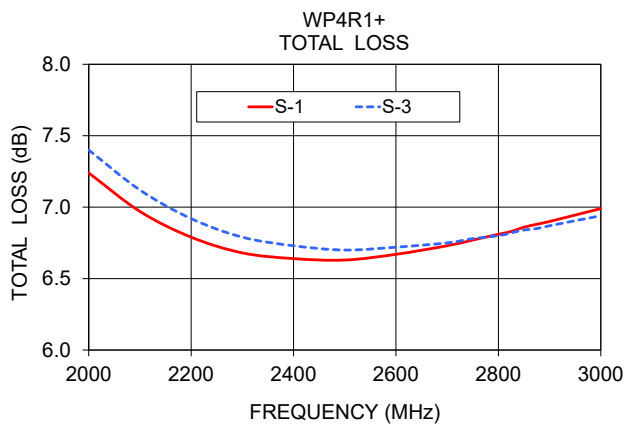
WP4R1+

4 Way-0° 50Ω 2000 to 3000 MHz

TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Total Loss ¹ (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						
2000.00	7.24	7.42	7.40	7.23	0.19	26.14	21.14	25.08	1.94	1.87	1.48	1.40	1.41	1.42
2100.00	6.97	7.14	7.12	6.97	0.17	30.35	23.40	28.53	1.49	1.59	1.43	1.35	1.36	1.38
2200.00	6.79	6.94	6.92	6.79	0.15	32.75	25.44	30.58	1.06	1.39	1.39	1.31	1.32	1.34
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
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
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
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
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
2750.00	6.77	6.81	6.78	6.77	0.04	21.32	21.09	21.23	2.12	1.56	1.31	1.16	1.17	1.27
2800.00	6.81	6.83	6.80	6.81	0.03	20.91	20.63	20.82	2.30	1.62	1.31	1.15	1.17	1.27
2825.00	6.83	6.85	6.82	6.83	0.03	20.73	20.42	20.65	2.39	1.65	1.31	1.15	1.16	1.27
2850.00	6.86	6.87	6.84	6.85	0.03	20.55	20.21	20.48	2.46	1.68	1.31	1.15	1.16	1.27
2875.00	6.88	6.89	6.85	6.87	0.04	20.40	20.02	20.32	2.56	1.71	1.31	1.15	1.16	1.27
2900.00	6.90	6.91	6.87	6.89	0.04	20.24	19.84	20.17	2.64	1.74	1.31	1.14	1.16	1.27
3000.00	6.99	6.99	6.94	6.98	0.05	19.72	19.18	19.66	2.96	1.86	1.31	1.14	1.15	1.27

1. Total Loss = Insertion Loss + 6 dB 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

