



Mini-Circuits

MMIC SURFACE MOUNT

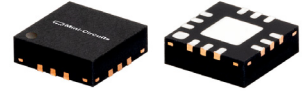
Power Splitter/Combiner

WP4R+

4 Way-0° 50Ω 2300 to 2700 MHz

FEATURES

- Excellent Isolation, Typ. 26 dB
- Good Phase Unbalance, Max. 6 deg.
- Good Amplitude Unbalance, Max. 0.4 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

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

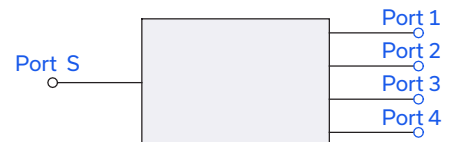
*Includes fixture loss, 0.2 dB typ.

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

REV. D
ECO-015507
WP4R+
MCL NY
250109

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PAGE 1 OF 3



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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 trapezoidal leads. The package outline is 0.236 inches wide and 0.255 inches high. The central pad is 0.148 inches wide and 0.105 inches high. The leads are 0.085 inches wide at the base and 0.015 inches wide at the tip. The distance between the centers of the leads is 0.224 inches. The package has 11 through-hole pads, each 0.020 inches in diameter. The coplanar waveguide has a trace width of 0.035 inches and a gap of 0.008 inches. The package is made of 64 mil thick material with 4 layers. The package is labeled 'PIN 1' and 'SEE NOTE 3'.

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.

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

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



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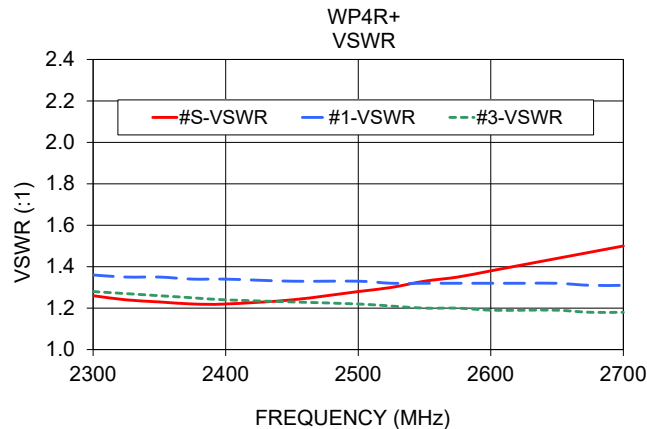
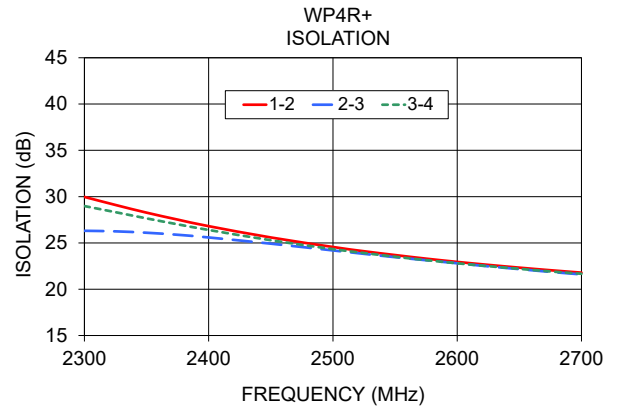
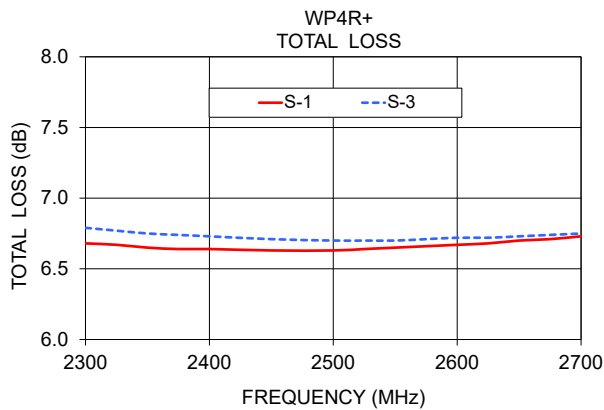
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TYPICAL PERFORMANCE DATA AND CHARTS

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						
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

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



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.
- 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

