



MMIC SURFACE MOUNT

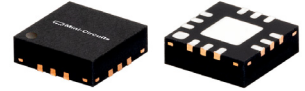
# Power Splitter/Combiner

## WP4P1+

4 Way-0° 50Ω 1525 to 2375 MHz

### FEATURES

- Excellent Isolation, Typ. 26 dB
- Excellent Phase Unbalance, Max. 4 deg.
- Excellent 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 Compliant**

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

### APPLICATIONS

- PCS/DCS
- WCDMA
- GPS
- MMDS

### ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		1525		2375	MHz
Insertion Loss* (Above 6.0 dB)	1525-2375		0.9	2.0	dB
Isolation	1525-2375	15	26		dB
Amplitude Unbalance	1525-2375			0.5	dB
Phase Unbalance	1525-2375			4.0	deg.
VSWR (Port S)	1525-2375		1.5		:1
VSWR (Ports 1,2,3,4)	1525-2375		1.4		:1

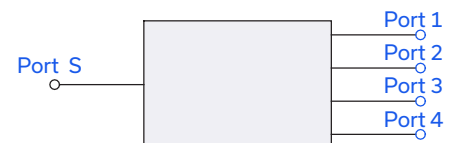
\*Includes fixture loss, 0.17 dB typ.

### 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  
WP4P1+  
MCL NY  
250109





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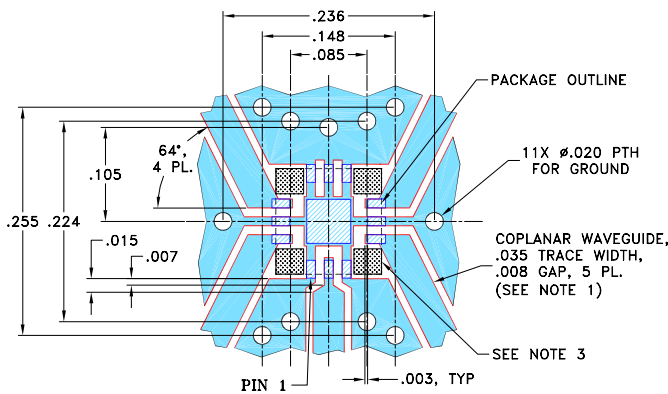
Mini-Circuits

4 Way-0° 50Ω 1525 to 2375 MHz

### 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-WP4P1+ SUGGESTED PCB LAYOUT (PL-259)

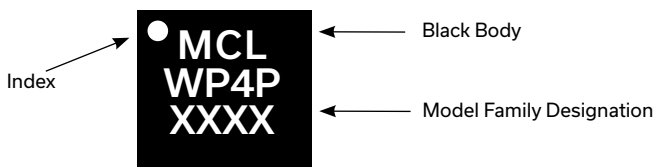


#### NOTES:

- 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.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .030 X .030) AT 4 PLACES AS SHOWN.

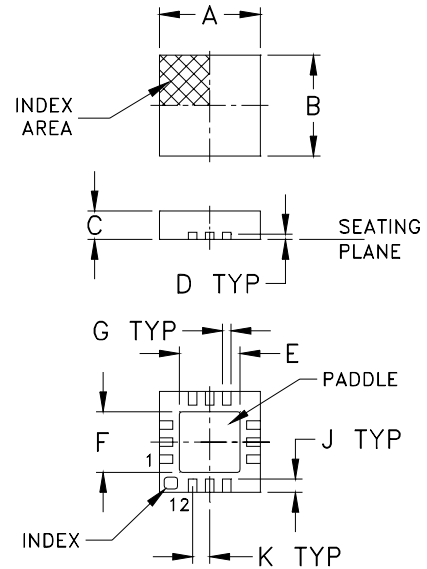
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### PRODUCT MARKING

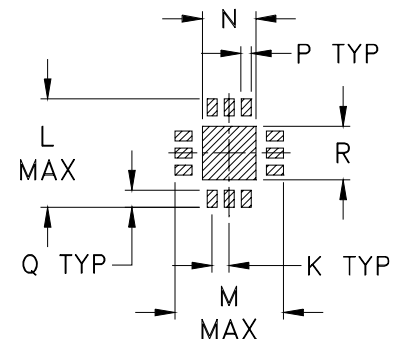


Marking may contain other features or characters for internal lot control.

### OUTLINE DRAWING



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

### 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



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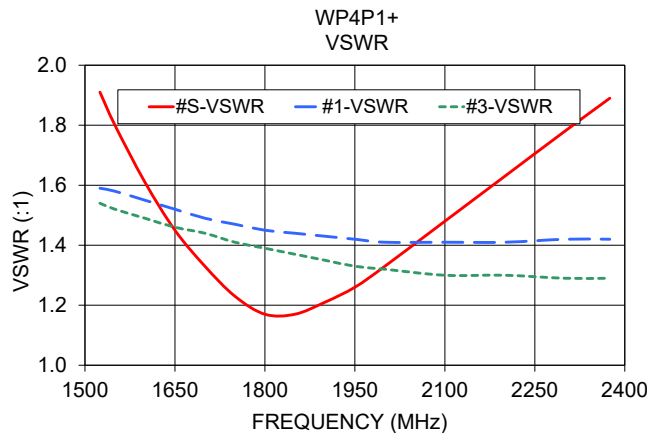
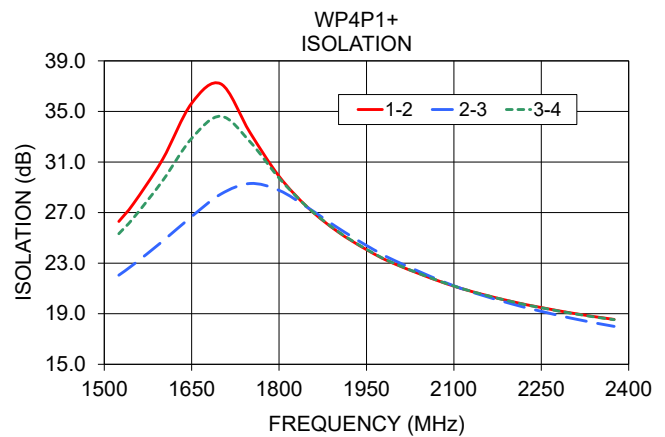
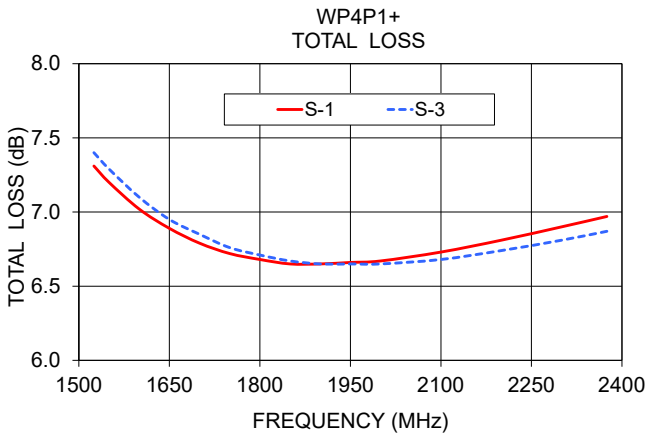
## WP4P1+

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### 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						
1525.00	7.31	7.46	7.40	7.27	0.19	26.30	22.05	25.33	1.42	1.91	1.59	1.53	1.54	1.55
1550.00	7.20	7.35	7.29	7.17	0.18	27.70	22.89	26.57	1.30	1.80	1.58	1.52	1.52	1.53
1600.00	7.02	7.16	7.10	6.99	0.17	31.20	24.73	29.51	1.08	1.61	1.55	1.48	1.49	1.50
1650.00	6.89	7.01	6.95	6.85	0.16	35.65	26.69	32.87	0.86	1.45	1.52	1.45	1.46	1.47
1700.00	6.79	6.90	6.85	6.75	0.15	37.18	28.46	34.62	0.65	1.33	1.49	1.42	1.44	1.45
1750.00	6.72	6.82	6.76	6.68	0.14	33.34	29.30	32.61	0.45	1.23	1.47	1.40	1.41	1.43
1800.00	6.68	6.76	6.71	6.63	0.13	29.87	28.76	29.73	0.25	1.17	1.45	1.37	1.39	1.41
1850.00	6.65	6.72	6.67	6.61	0.12	27.37	27.37	27.37	0.22	1.17	1.44	1.35	1.37	1.40
1900.00	6.65	6.70	6.65	6.59	0.11	25.51	25.82	25.54	0.40	1.21	1.43	1.34	1.35	1.38
1950.00	6.66	6.69	6.65	6.60	0.09	24.07	24.40	24.10	0.57	1.26	1.42	1.32	1.33	1.38
2000.00	6.67	6.69	6.65	6.61	0.08	22.91	23.17	22.93	0.71	1.33	1.41	1.31	1.32	1.37
2100.00	6.73	6.73	6.68	6.67	0.07	21.18	21.21	21.19	1.04	1.48	1.41	1.29	1.30	1.36
2200.00	6.81	6.78	6.74	6.74	0.07	19.96	19.77	19.95	1.31	1.63	1.41	1.28	1.30	1.37
2300.00	6.90	6.85	6.81	6.84	0.09	19.07	18.66	19.05	1.57	1.78	1.42	1.28	1.29	1.37
2375.00	6.97	6.92	6.87	6.91	0.10	18.55	18.00	18.53	1.80	1.89	1.42	1.28	1.29	1.38

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

