



Mini-Circuits

MMIC SURFACE MOUNT

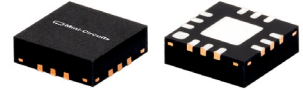
Power Splitter/Combiner

WP4F1+

4 Way-0° 50Ω 4750 to 6200 MHz

FEATURES

- Excellent Isolation, Typ. 28 dB
- Good Phase Unbalance, Max. 9 deg.
- Good Amplitude Unbalance, Max. 0.6 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

- WLAN
- WIMAX
- ISM
- Radar

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		4750		6200	MHz
Insertion Loss* (Above 6.0 dB)	4750-6200		1.0	2.0	dB
Isolation	4750-6200	16	28		dB
Amplitude Unbalance	4750-6200			0.6	dB
Phase Unbalance	4750-6200			9	deg.
VSWR (Port S)	4750-6200		1.5		:1
VSWR (Ports 1,2,3,4)	4750-6200		1.5		:1

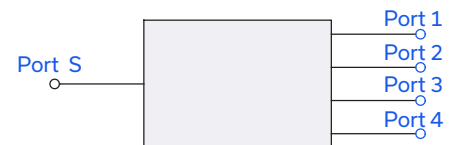
* Includes fixture loss, 0.3 dB typ.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to +95°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. F
ECO-026468
WP4C1+
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 rectangular pads. Dimensions are given in inches. The overall width and height are .255 inches. The central pad has a width of .035 inches and a gap of .008 inches between pads. The package outline is defined by a blue shaded area. Labels include: PACKAGE OUTLINE, 11X Ø.020 PTH FOR GROUND, COPLANAR WAVEGUIDE, .035 TRACE WIDTH, .008 GAP, 5 PL. (SEE NOTE 1), SEE NOTE 3, PIN 1, .003, TYP, .236, .148, .085, .105, .015, .007, .224, 64°, 4 PL.

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.

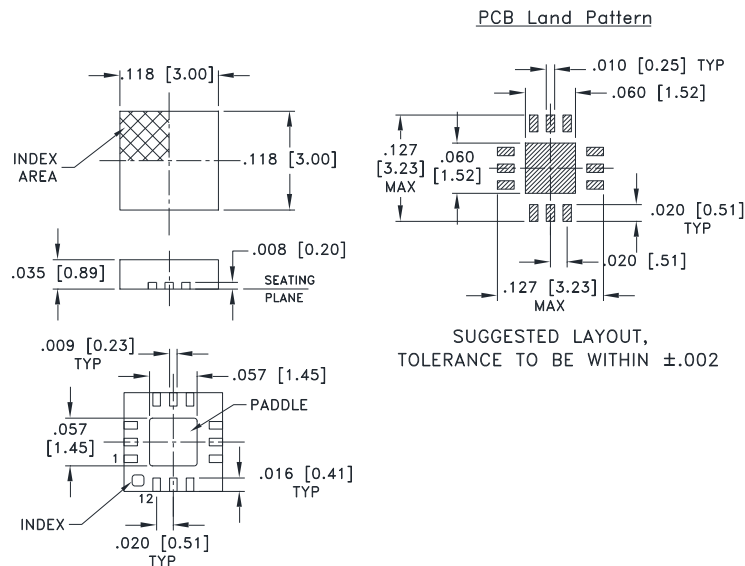
-  DENOTES PCB COPPER LAYOUT WITH SMOBC
 (SOLDER MASK OVER BARE COPPER)
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Diagram illustrating the components of a black body label:

- Index:** Points to the white circle in the top left corner.
- Black Body:** Points to the black rectangular area.
- Model Family Designation:** Points to the text "MCL WP4F XXXX" on the black body.

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

OUTLINE DRAWING



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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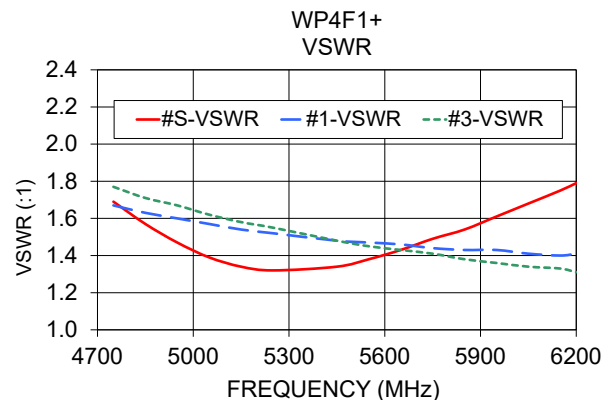
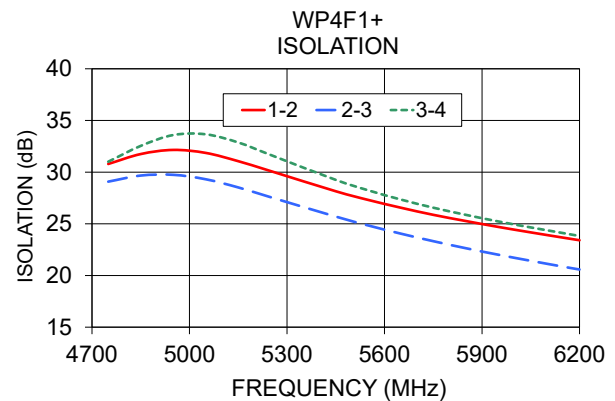
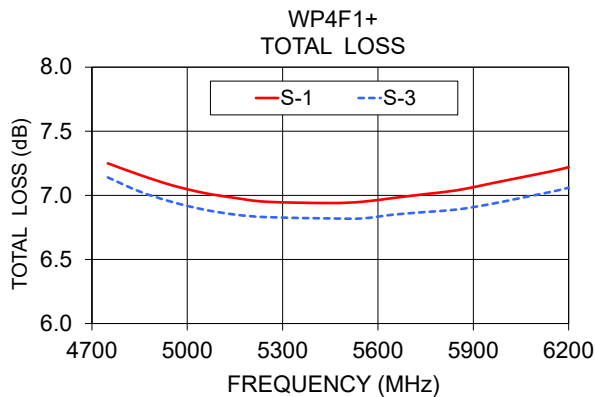
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TYPICAL PERFORMANCE DATA AND CHARTS

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						
4750.00	7.25	7.16	7.14	7.23	0.11	30.79	29.08	31.01	2.02	1.69	1.67	1.73	1.77	1.62
4850.00	7.16	7.05	7.03	7.13	0.12	31.75	29.67	32.54	1.76	1.57	1.63	1.68	1.71	1.59
4950.00	7.08	6.97	6.95	7.06	0.13	32.15	29.74	33.59	1.77	1.47	1.60	1.64	1.67	1.56
5050.00	7.02	6.90	6.89	7.00	0.13	31.86	29.31	33.66	1.83	1.39	1.57	1.59	1.62	1.53
5150.00	6.98	6.86	6.85	6.96	0.13	31.06	28.52	32.87	1.87	1.34	1.54	1.55	1.58	1.51
5250.00	6.95	6.83	6.83	6.93	0.12	30.10	27.57	31.66	1.92	1.32	1.52	1.52	1.55	1.49
5450.00	6.94	6.81	6.82	6.91	0.13	28.15	25.70	29.25	2.02	1.34	1.48	1.47	1.48	1.45
5550.00	6.95	6.82	6.82	6.93	0.13	27.31	24.84	28.24	2.04	1.38	1.47	1.44	1.45	1.45
5650.00	6.98	6.84	6.85	6.95	0.13	26.56	24.05	27.35	2.14	1.43	1.46	1.42	1.43	1.44
5750.00	7.01	6.88	6.87	6.98	0.13	25.87	23.32	26.56	2.28	1.49	1.44	1.40	1.41	1.42
5850.00	7.04	6.92	6.89	7.02	0.15	25.27	22.64	25.87	2.54	1.54	1.43	1.37	1.38	1.42
5950.00	7.09	6.97	6.93	7.07	0.16	24.70	22.01	25.23	2.84	1.61	1.43	1.36	1.36	1.42
6050.00	7.14	7.03	6.98	7.12	0.16	24.17	21.42	24.65	3.08	1.68	1.41	1.33	1.34	1.41
6150.00	7.19	7.10	7.03	7.18	0.16	23.66	20.85	24.10	3.34	1.75	1.40	1.32	1.33	1.40
6200.00	7.22	7.12	7.06	7.20	0.16	23.41	20.58	23.82	3.43	1.79	1.41	1.31	1.31	1.40

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

