



## MMIC SURFACE MOUNT

# Power Splitter/Combiner

## WP4S+

4 Way-0° 50Ω 3400 to 4600 MHz

### FEATURES

- Excellent isolation, 30 dB typ.
- Good phase unbalance, 2 deg. typ.
- Good amplitude unbalance, 0.2 dB typ.
- Small size, 0.118" x 0.118" x 0.035"
- 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

- Line-of-sight links
- Satellite down link
- WIMAX

### ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		3400		4600	MHz
Insertion Loss* (above 6.0 dB)	3400-4600	—	0.8	1.8	dB
	3700-4200	—	0.8	1.4	
Isolation	3400-4600	16	30	—	dB
	3700-4200	20	30	—	
Amplitude Unbalance	3400-4600	—	—	0.6	dB
	3700-4200	—	—	0.6	
Phase Unbalance	3400-4600	—	—	9	deg.
	3700-4200	—	—	8	
VSWR (Port S)	3400-4600	—	1.5	—	:1
	3700-4200	—	1.3	—	
VSWR (Ports 1,2,3,4)	3400-4600	—	1.3	—	:1
	3700-4200	—	1.3	—	

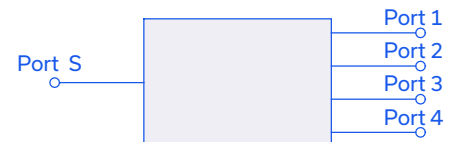
\*Includes test fixture loss, 0.25 dB typ.

### 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

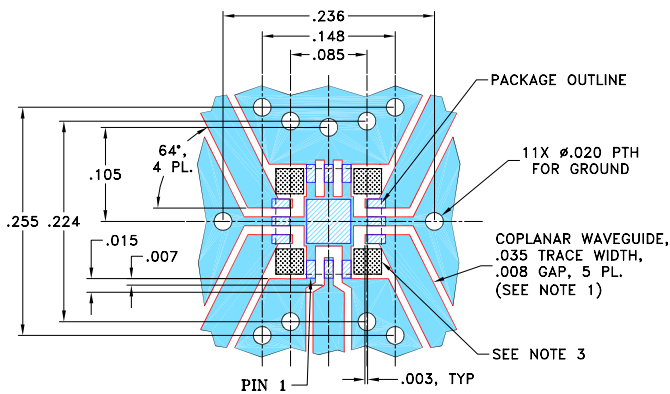




### PAD CONNECTIONS

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)

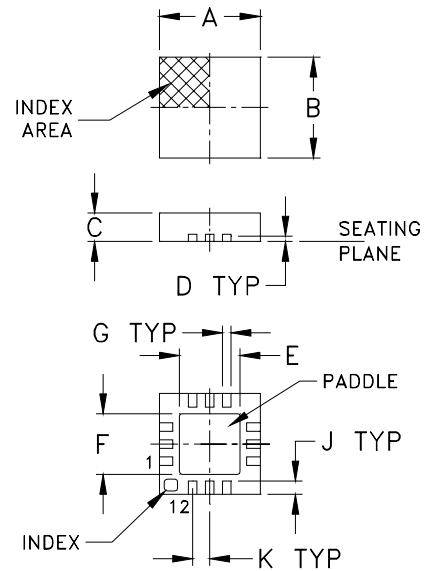


#### NOTES:

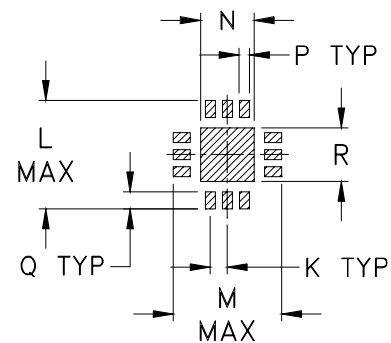
1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .030 X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

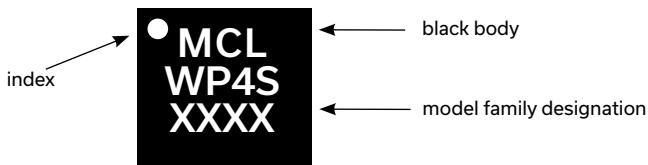


### PCB Land Pattern



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

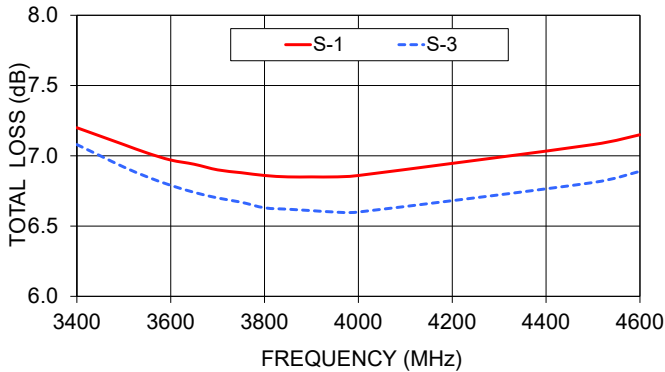


### TYPICAL PERFORMANCE DATA AND CHARTS

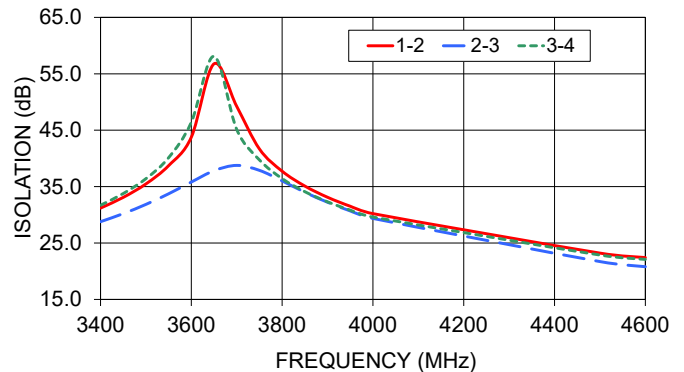
Frequency (MHz)	Total Loss <sup>1</sup> (dB)				Amplitude Unbalance (dB)	Isolation (dB)			Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3	VSWR 4
	S-1	S-2	S-3	S-4		1-2	2-3	3-4						
3400.00	7.20	7.13	7.08	7.17	0.13	31.19	28.78	31.70	1.61	1.72	1.46	1.49	1.50	1.46
3450.00	7.14	7.05	7.00	7.10	0.14	33.09	30.21	33.77	1.41	1.64	1.44	1.47	1.47	1.44
3500.00	7.08	6.98	6.92	7.04	0.16	35.48	31.85	36.41	1.25	1.57	1.43	1.45	1.45	1.43
3550.00	7.02	6.91	6.85	6.98	0.17	38.72	33.73	40.13	1.02	1.50	1.42	1.43	1.43	1.42
3600.00	6.97	6.85	6.79	6.93	0.18	43.77	35.81	46.42	0.87	1.44	1.40	1.41	1.40	1.40
3650.00	6.94	6.80	6.74	6.90	0.19	56.77	37.82	58.11	0.67	1.39	1.39	1.39	1.39	1.39
3700.00	6.90	6.75	6.70	6.86	0.20	49.22	38.76	45.12	0.50	1.34	1.38	1.37	1.37	1.38
3750.00	6.88	6.72	6.67	6.83	0.22	41.67	37.88	39.73	0.31	1.30	1.37	1.36	1.35	1.37
3800.00	6.86	6.69	6.63	6.81	0.22	37.73	36.01	36.42	0.26	1.27	1.36	1.34	1.33	1.36
3850.00	6.85	6.67	6.62	6.80	0.24	35.10	34.00	34.10	0.44	1.26	1.35	1.32	1.31	1.35
3900.00	6.85	6.66	6.61	6.80	0.24	33.11	32.23	32.30	0.63	1.25	1.35	1.31	1.30	1.35
3950.00	6.85	6.65	6.60	6.80	0.26	31.52	30.69	30.83	0.77	1.25	1.34	1.29	1.28	1.34
4000.00	6.86	6.65	6.60	6.80	0.26	30.21	29.36	29.60	0.95	1.27	1.33	1.28	1.27	1.33
4500.00	7.08	6.86	6.81	7.05	0.27	23.21	21.71	22.87	2.37	1.64	1.28	1.17	1.16	1.29
4600.00	7.15	6.94	6.89	7.12	0.26	22.42	20.80	22.10	2.67	1.75	1.28	1.16	1.15	1.29

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

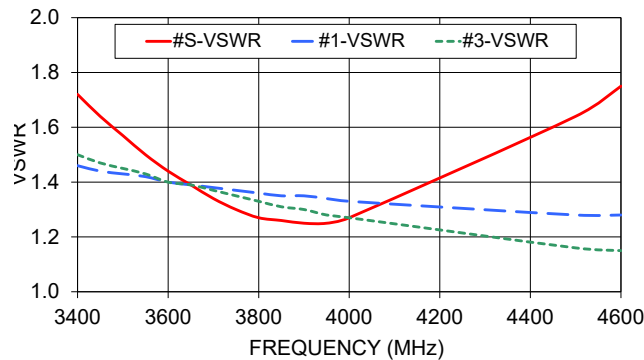
WP4S+ TOTAL LOSS



WP4S+ ISOLATION



WP4S+ VSWR



#### 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.
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