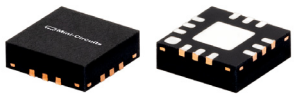
MMIC SURFACE MOUNT

Power Splitter/Combiner WP4W1+

4 Way-0° 50Ω 3000 to 4200 MHz

FEATURES

- Excellent Isolation, Typ. 26 dB
- Good Phase Unbalance, Max. 9 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 Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Line-of-Sight Links
- Satellite Down Link
- WIMAX
- Radar

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		3000		4200	MHz
Insertion Loss* (Above 6.0 dB)	3000-4200		0.9	1.9	dB
Isolation	3000-4200	17	26		dB
Amplitude Unbalance	3000-4200			0.5	dB
Phase Unbalance	3000-4200			9	deg.
VSWR (Port S)	3000-4200		1.7		:1
VSWR (Ports 1,2,3,4)	3000-4200		1.3		:1

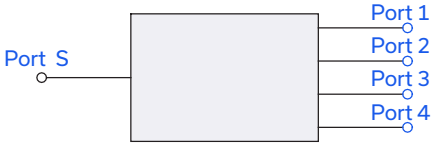
*Includes test fixture loss, 0.3 dB typ.

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. E
ECO-026468
WP4W1+
MCL NY
250806

MMIC SURFACE MOUNT

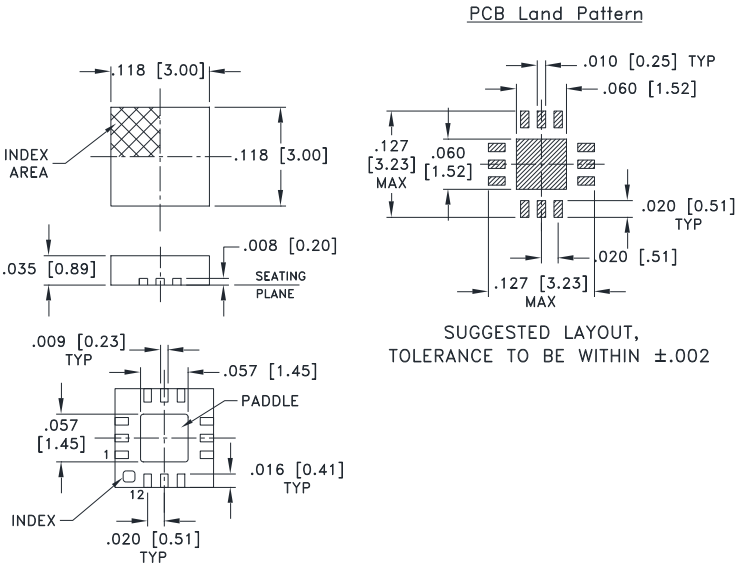
Power Splitter/Combiner WP4W1+

4 Way-0° 50Ω 3000 to 4200 MHz

PAD CONNECTIONS

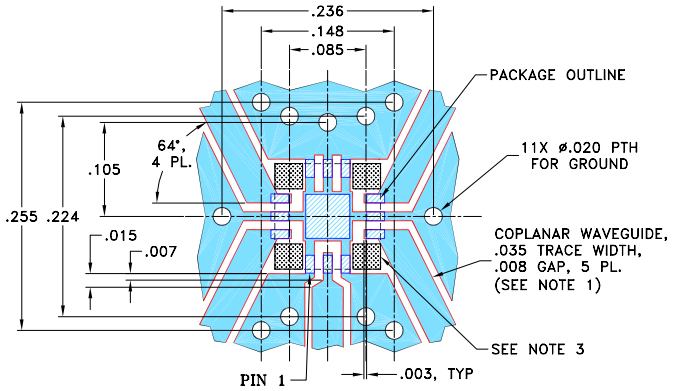
SUM PORT	2
PORT 1	12
PORT 2	10
PORT 3	6
PORT 4	4
GROUND	1,3,5,7,8,9,11, Paddle

OUTLINE DRAWING



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

DEMO BOARD MCL P/N: TB-WP4W1+
SUGGESTED PCB LAYOUT (PL-259)



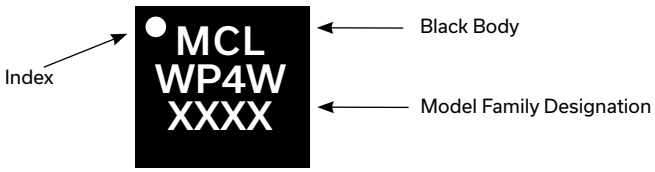
NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .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

TAPE & REEL INFORMATION: F66

PRODUCT MARKING



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

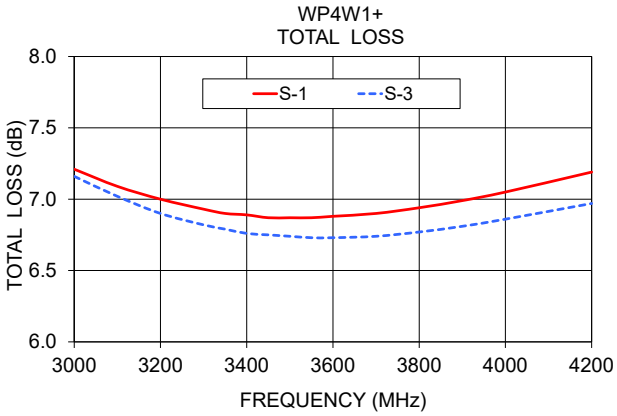
Power Splitter/Combiner WP4W1+

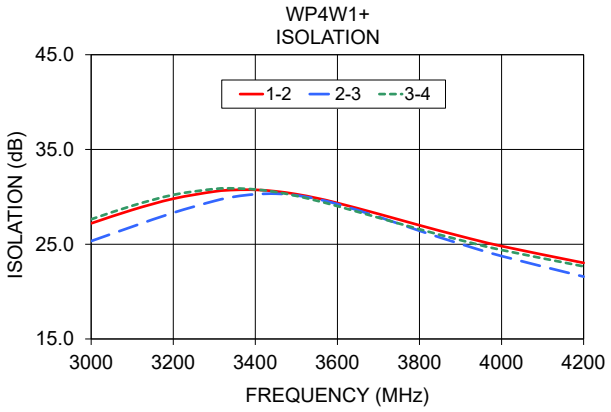
4 Way-0° 50Ω 3000 to 4200 MHz

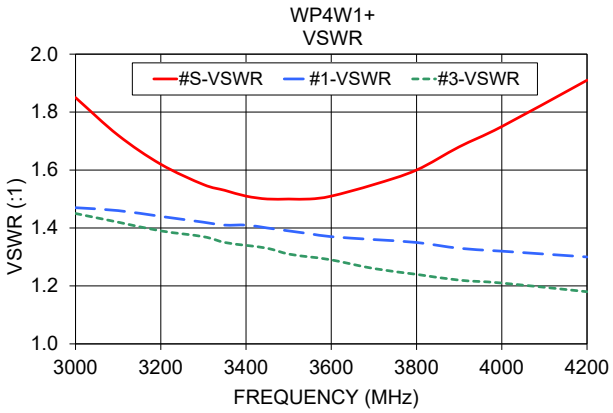
TYPICAL PERFORMANCE DATA AND CHARTS

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						
3000.00	7.21	7.24	7.16	7.17	0.07	27.20	25.33	27.63	2.26	1.85	1.47	1.43	1.45	1.48
3100.00	7.09	7.10	7.02	7.05	0.08	28.62	26.85	29.06	1.87	1.72	1.46	1.40	1.42	1.46
3200.00	7.00	6.98	6.90	6.96	0.09	29.80	28.32	30.21	1.54	1.62	1.44	1.37	1.39	1.45
3300.00	6.93	6.89	6.82	6.89	0.11	30.56	29.56	30.83	1.15	1.55	1.42	1.34	1.37	1.44
3350.00	6.90	6.85	6.79	6.87	0.11	30.73	30.02	30.89	1.21	1.53	1.41	1.33	1.35	1.43
3400.00	6.89	6.83	6.76	6.86	0.12	30.74	30.27	30.78	1.40	1.51	1.41	1.32	1.34	1.42
3450.00	6.87	6.81	6.75	6.85	0.12	30.58	30.33	30.51	1.58	1.50	1.40	1.31	1.33	1.42
3500.00	6.87	6.80	6.74	6.84	0.13	30.28	30.15	30.10	1.76	1.50	1.39	1.29	1.31	1.41
3550.00	6.87	6.79	6.73	6.85	0.14	29.86	29.77	29.59	1.99	1.50	1.38	1.28	1.30	1.40
3600.00	6.88	6.79	6.73	6.85	0.15	29.35	29.23	29.02	2.17	1.51	1.37	1.27	1.29	1.39
3700.00	6.90	6.79	6.74	6.87	0.16	28.20	27.89	27.80	2.56	1.55	1.36	1.25	1.26	1.38
3800.00	6.94	6.81	6.77	6.92	0.17	27.00	26.42	26.58	2.93	1.60	1.35	1.23	1.24	1.36
3900.00	6.99	6.85	6.81	6.97	0.18	25.85	25.03	25.43	3.30	1.68	1.33	1.21	1.22	1.35
4000.00	7.05	6.90	6.86	7.03	0.20	24.80	23.75	24.39	3.65	1.75	1.32	1.19	1.21	1.34
4200.00	7.19	7.02	6.97	7.17	0.22	23.03	21.58	22.66	4.34	1.91	1.30	1.17	1.18	1.32

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

4 Way-0° Power Splitter/Combiner WP4W1+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = -10dBm @Temperature = +25°C

FREQ. (MHz)	TOTAL LOSS[1] (dB)				AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)				
	S-1	S-2	S-3	S-4			1-2	2-3	3-4	S	1	2	3	4
2200	10.20	10.43	10.36	10.13	0.30	6.22	16.64	15.73	16.66	5.23	1.68	1.71	1.71	1.66
2300	9.56	9.76	9.69	9.49	0.27	5.60	17.43	16.42	17.47	4.41	1.65	1.68	1.67	1.63
2400	9.01	9.19	9.12	8.93	0.26	5.08	18.33	17.19	18.41	3.76	1.62	1.63	1.63	1.59
2500	8.54	8.69	8.62	8.46	0.23	4.64	19.37	18.09	19.51	3.22	1.58	1.59	1.59	1.55
2600	8.14	8.26	8.19	8.05	0.21	4.17	20.58	19.14	20.77	2.78	1.55	1.55	1.55	1.52
2700	7.81	7.91	7.84	7.72	0.19	3.76	21.91	20.31	22.22	2.44	1.51	1.50	1.51	1.48
2800	7.56	7.63	7.56	7.46	0.17	3.39	23.37	21.59	23.85	2.18	1.48	1.46	1.46	1.45
2900	7.34	7.39	7.32	7.26	0.14	3.02	25.06	23.08	25.67	1.96	1.45	1.42	1.42	1.42
3000	7.19	7.21	7.14	7.10	0.11	2.63	26.82	24.71	27.57	1.79	1.42	1.39	1.39	1.40
3050	7.12	7.14	7.07	7.04	0.10	2.43	27.72	25.57	28.51	1.72	1.41	1.37	1.37	1.39
3100	7.07	7.08	7.01	6.99	0.09	2.26	28.55	26.44	29.36	1.67	1.41	1.35	1.35	1.38
3150	7.03	7.02	6.95	6.94	0.08	2.12	29.42	27.39	30.05	1.61	1.39	1.34	1.34	1.37
3200	6.99	6.97	6.90	6.90	0.09	1.96	30.16	28.34	30.50	1.57	1.39	1.32	1.32	1.36
3250	6.95	6.93	6.85	6.87	0.10	1.79	30.71	29.20	30.66	1.53	1.37	1.30	1.30	1.36
3300	6.93	6.89	6.82	6.85	0.11	1.60	30.89	29.92	30.56	1.50	1.37	1.29	1.29	1.35
3350	6.91	6.87	6.80	6.83	0.12	1.42	30.69	30.24	30.24	1.49	1.35	1.28	1.28	1.34
3400	6.90	6.85	6.78	6.82	0.13	1.25	30.37	30.31	29.75	1.48	1.35	1.26	1.26	1.34
3450	6.90	6.84	6.76	6.82	0.14	1.08	29.91	30.07	29.18	1.48	1.34	1.26	1.25	1.33
3500	6.90	6.82	6.75	6.82	0.15	0.90	29.42	29.73	28.57	1.48	1.33	1.24	1.24	1.33
3550	6.90	6.82	6.75	6.82	0.15	0.72	28.75	29.07	27.96	1.49	1.33	1.23	1.23	1.32
3600	6.91	6.82	6.75	6.83	0.16	0.59	28.12	28.34	27.37	1.50	1.32	1.23	1.22	1.32
3650	6.92	6.82	6.75	6.84	0.17	0.49	27.44	27.50	26.80	1.53	1.32	1.22	1.22	1.32
3700	6.93	6.83	6.76	6.86	0.18	0.62	26.88	26.81	26.27	1.56	1.32	1.21	1.21	1.31
3750	6.95	6.84	6.77	6.87	0.18	0.75	26.32	26.09	25.76	1.58	1.31	1.20	1.20	1.31
3800	6.97	6.85	6.78	6.89	0.19	0.90	25.83	25.48	25.28	1.61	1.31	1.20	1.20	1.30
3850	6.98	6.86	6.79	6.91	0.20	1.06	25.35	24.92	24.85	1.63	1.30	1.19	1.19	1.30
3900	7.01	6.88	6.81	6.93	0.20	1.22	24.87	24.31	24.43	1.66	1.30	1.19	1.19	1.30
3950	7.03	6.90	6.83	6.95	0.20	1.37	24.43	23.77	24.05	1.69	1.29	1.18	1.18	1.30
4000	7.06	6.92	6.85	6.98	0.21	1.50	23.96	23.23	23.70	1.74	1.30	1.18	1.18	1.30
4050	7.08	6.94	6.87	7.00	0.21	1.65	23.64	22.77	23.36	1.77	1.29	1.18	1.18	1.30
4100	7.12	6.97	6.90	7.03	0.22	1.79	23.27	22.28	23.03	1.81	1.29	1.18	1.18	1.29
4150	7.14	6.99	6.92	7.06	0.22	1.93	22.99	21.88	22.71	1.84	1.28	1.18	1.17	1.29
4200	7.17	7.02	6.95	7.09	0.23	2.07	22.68	21.46	22.43	1.87	1.27	1.17	1.17	1.29
4250	7.21	7.05	6.98	7.12	0.23	2.23	22.42	21.07	22.17	1.91	1.28	1.17	1.17	1.29
4300	7.24	7.08	7.01	7.15	0.23	2.35	22.16	20.69	21.90	1.95	1.26	1.17	1.17	1.29
4400	7.31	7.15	7.07	7.22	0.23	2.61	21.67	19.98	21.42	2.03	1.26	1.17	1.17	1.28
4500	7.37	7.21	7.14	7.29	0.23	2.88	21.31	19.38	21.00	2.11	1.25	1.17	1.17	1.28
4600	7.45	7.29	7.21	7.36	0.24	3.14	20.93	18.79	20.58	2.20	1.24	1.17	1.17	1.27
4800	7.60	7.44	7.36	7.50	0.24	3.69	20.27	17.72	19.90	2.38	1.22	1.18	1.18	1.26
5000	7.75	7.62	7.52	7.64	0.23	4.21	19.63	16.80	19.29	2.58	1.20	1.20	1.20	1.25
5200	7.89	7.78	7.68	7.77	0.21	4.67	19.09	16.03	18.78	2.76	1.19	1.22	1.22	1.24
5400	8.05	7.96	7.86	7.92	0.19	5.23	18.59	15.27	18.33	2.98	1.18	1.24	1.25	1.24
5600	8.18	8.12	8.03	8.05	0.15	5.70	18.22	14.63	17.93	3.17	1.18	1.28	1.29	1.25
5800	8.31	8.28	8.19	8.18	0.13	6.17	17.81	14.00	17.48	3.36	1.18	1.32	1.33	1.25
6000	8.39	8.41	8.32	8.28	0.14	6.79	17.41	13.49	17.02	3.48	1.19	1.37	1.38	1.27
6200	8.48	8.54	8.48	8.40	0.14	7.14	16.94	12.98	16.56	3.61	1.21	1.43	1.44	1.30
6400	8.54	8.66	8.60	8.48	0.18	7.66	16.49	12.60	16.09	3.71	1.24	1.51	1.52	1.34
6600	8.58	8.74	8.71	8.55	0.19	7.93	16.04	12.28	15.59	3.78	1.28	1.58	1.60	1.39
6800	8.62	8.82	8.81	8.61	0.20	8.21	15.54	12.00	15.13	3.80	1.33	1.67	1.69	1.45
7000	8.63	8.87	8.88	8.63	0.25	8.36	15.03	11.70	14.63	3.79	1.37	1.76	1.78	1.50
7200	8.67	8.96	8.96	8.66	0.30	8.35	14.43	11.48	14.09	3.82	1.44	1.88	1.88	1.56
7400	8.69	9.03	9.01	8.66	0.37	8.67	13.93	11.34	13.64	3.80	1.51	1.97	1.97	1.62
7600	8.76	9.14	9.08	8.69	0.45	9.08	13.38	11.14	13.13	3.82	1.59	2.08	2.07	1.67
8000	8.82	9.27	9.07	8.67	0.61	9.59	12.59	11.07	12.35	3.72	1.73	2.27	2.21	1.78

[1] Total Loss = Insertion Loss+ 6dB Splitter Loss

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4 Way-0° Power Splitter/Combiner WP4W1+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = -10dBm @Temperature = -40°C

FREQ. (MHz)	TOTAL LOSS[1] (dB)				AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)				
	S-1	S-2	S-3	S-4			1-2	2-3	3-4	S	1	2	3	4
2200	10.12	10.35	10.27	10.06	0.29	8.77	16.43	15.52	16.43	5.68	1.67	1.70	1.70	1.66
2300	9.46	9.67	9.59	9.40	0.27	8.21	17.21	16.20	17.23	4.72	1.64	1.67	1.67	1.62
2400	8.92	9.09	9.02	8.83	0.26	7.79	18.10	16.95	18.16	4.01	1.61	1.63	1.63	1.59
2500	8.43	8.58	8.50	8.34	0.24	7.54	19.15	17.87	19.24	3.40	1.58	1.59	1.59	1.56
2600	8.01	8.13	8.05	7.92	0.21	7.18	20.39	18.95	20.49	2.89	1.54	1.54	1.55	1.53
2700	7.69	7.79	7.71	7.60	0.19	6.82	21.66	20.08	21.92	2.54	1.51	1.50	1.52	1.49
2800	7.44	7.51	7.43	7.35	0.17	6.59	23.02	21.28	23.53	2.27	1.47	1.46	1.48	1.46
2900	7.21	7.27	7.19	7.14	0.13	6.31	24.72	22.77	25.34	2.02	1.44	1.42	1.44	1.44
3000	7.05	7.08	7.00	6.97	0.10	5.97	26.42	24.36	27.25	1.84	1.41	1.38	1.39	1.41
3050	6.98	7.00	6.92	6.91	0.10	5.82	27.27	25.16	28.20	1.77	1.40	1.36	1.37	1.39
3100	6.93	6.94	6.85	6.85	0.09	5.69	28.10	26.01	29.07	1.71	1.39	1.34	1.35	1.38
3150	6.87	6.87	6.79	6.80	0.09	5.59	29.08	26.99	29.80	1.64	1.38	1.32	1.33	1.37
3200	6.83	6.81	6.73	6.75	0.10	5.48	29.97	28.04	30.29	1.58	1.37	1.30	1.31	1.36
3250	6.79	6.77	6.68	6.71	0.11	5.35	30.69	29.07	30.50	1.54	1.36	1.28	1.29	1.35
3300	6.77	6.73	6.64	6.68	0.12	5.21	30.90	29.90	30.44	1.50	1.35	1.27	1.28	1.35
3350	6.75	6.71	6.62	6.67	0.13	5.09	30.68	30.26	30.13	1.49	1.34	1.26	1.27	1.34
3400	6.74	6.69	6.60	6.65	0.14	4.97	30.31	30.35	29.65	1.49	1.34	1.24	1.25	1.33
3450	6.74	6.67	6.58	6.65	0.15	4.86	29.83	30.12	29.08	1.49	1.33	1.24	1.24	1.32
3500	6.73	6.66	6.57	6.64	0.16	4.74	29.34	29.78	28.47	1.49	1.32	1.22	1.22	1.31
3550	6.73	6.65	6.56	6.65	0.17	4.63	28.66	29.14	27.86	1.50	1.32	1.22	1.21	1.30
3600	6.74	6.65	6.56	6.65	0.18	4.56	28.03	28.39	27.25	1.51	1.31	1.21	1.20	1.30
3650	6.75	6.66	6.57	6.66	0.19	4.48	27.35	27.51	26.67	1.54	1.31	1.20	1.19	1.30
3700	6.76	6.66	6.57	6.67	0.19	4.39	26.76	26.79	26.13	1.57	1.30	1.19	1.18	1.29
3750	6.78	6.67	6.58	6.69	0.20	4.51	26.16	26.06	25.62	1.60	1.30	1.19	1.18	1.29
3800	6.80	6.69	6.59	6.71	0.20	4.72	25.69	25.41	25.14	1.63	1.30	1.19	1.17	1.29
3850	6.81	6.70	6.61	6.73	0.21	4.92	25.22	24.84	24.69	1.65	1.30	1.18	1.17	1.29
3900	6.84	6.71	6.62	6.75	0.22	5.14	24.78	24.30	24.28	1.68	1.30	1.18	1.17	1.28
3950	6.85	6.73	6.64	6.77	0.22	5.34	24.36	23.78	23.91	1.70	1.29	1.17	1.16	1.29
4000	6.88	6.75	6.66	6.80	0.22	5.52	23.91	23.22	23.55	1.75	1.29	1.17	1.16	1.29
4050	6.91	6.77	6.68	6.82	0.23	5.72	23.54	22.75	23.22	1.78	1.29	1.17	1.16	1.29
4100	6.94	6.80	6.71	6.85	0.23	5.92	23.12	22.21	22.89	1.83	1.28	1.17	1.16	1.28
4150	6.97	6.83	6.74	6.87	0.23	6.11	22.80	21.78	22.57	1.86	1.28	1.17	1.16	1.28
4200	7.00	6.86	6.76	6.90	0.24	6.31	22.50	21.35	22.28	1.90	1.27	1.17	1.16	1.28
4250	7.03	6.88	6.79	6.93	0.24	6.52	22.26	21.01	22.02	1.94	1.27	1.17	1.15	1.27
4300	7.05	6.90	6.81	6.96	0.24	6.69	22.03	20.65	21.76	1.96	1.26	1.17	1.15	1.27
4400	7.12	6.97	6.87	7.03	0.25	7.05	21.51	19.93	21.29	2.05	1.25	1.17	1.15	1.27
4500	7.19	7.04	6.95	7.10	0.25	7.41	21.08	19.28	20.86	2.14	1.25	1.17	1.16	1.27
4600	7.27	7.12	7.02	7.16	0.25	7.78	20.75	18.69	20.45	2.23	1.25	1.17	1.16	1.26
4800	7.40	7.26	7.15	7.30	0.25	8.53	20.12	17.64	19.77	2.40	1.22	1.17	1.18	1.26
5000	7.57	7.44	7.33	7.45	0.24	9.26	19.41	16.66	19.14	2.63	1.20	1.20	1.19	1.25
5200	7.69	7.59	7.47	7.58	0.22	9.92	18.95	15.90	18.63	2.80	1.19	1.23	1.22	1.25
5400	7.85	7.76	7.64	7.71	0.21	10.64	18.42	15.13	18.15	3.04	1.19	1.26	1.24	1.23
5600	7.97	7.92	7.80	7.83	0.17	11.36	18.09	14.53	17.74	3.23	1.19	1.30	1.30	1.26
5800	8.12	8.10	7.99	7.99	0.14	11.97	17.63	13.83	17.29	3.50	1.19	1.34	1.33	1.26
6000	8.13	8.16	8.04	8.02	0.14	12.79	17.37	13.39	16.85	3.52	1.20	1.39	1.39	1.29
6200	8.23	8.30	8.19	8.14	0.16	13.27	16.91	12.85	16.40	3.70	1.22	1.46	1.44	1.31
6400	8.29	8.42	8.31	8.20	0.22	14.13	16.41	12.46	15.94	3.82	1.25	1.54	1.53	1.36
6600	8.37	8.55	8.46	8.31	0.24	14.72	15.90	12.07	15.45	4.01	1.30	1.62	1.62	1.41
6800	8.43	8.65	8.58	8.39	0.26	15.30	15.41	11.78	15.00	4.09	1.35	1.70	1.72	1.47
7000	8.41	8.68	8.62	8.40	0.27	15.80	14.95	11.51	14.54	4.04	1.40	1.81	1.85	1.54
7200	8.45	8.77	8.73	8.46	0.32	15.99	14.32	11.28	14.00	4.12	1.47	1.92	1.97	1.62
7400	8.43	8.79	8.78	8.46	0.35	16.13	13.80	11.09	13.57	4.06	1.54	2.01	2.08	1.68
7600	8.49	8.88	8.85	8.50	0.39	16.25	13.25	10.89	13.05	4.08	1.62	2.11	2.17	1.74
8000	8.54	8.97	8.81	8.59	0.44	17.26	12.50	10.68	12.23	3.94	1.74	2.27	2.28	1.82

[1] Total Loss = Insertion Loss+ 6dB Splitter Loss

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4 Way-0° Power Splitter/Combiner WP4W1+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = -10dBm @Temperature = +85°C

FREQ. (MHz)	TOTAL LOSS[1] (dB)				AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)				
	S-1	S-2	S-3	S-4			1-2	2-3	3-4	S	1	2	3	4
2200	10.26	10.48	10.41	10.19	0.29	7.90	16.75	15.84	16.80	4.98	1.68	1.71	1.70	1.66
2300	9.63	9.82	9.75	9.56	0.26	7.46	17.56	16.53	17.62	4.21	1.65	1.68	1.66	1.63
2400	9.08	9.24	9.17	9.00	0.24	7.05	18.50	17.33	18.58	3.58	1.62	1.64	1.62	1.59
2500	8.60	8.74	8.67	8.52	0.22	6.64	19.58	18.27	19.69	3.08	1.59	1.60	1.58	1.55
2600	8.21	8.32	8.24	8.12	0.19	6.28	20.81	19.34	20.98	2.67	1.55	1.55	1.53	1.51
2700	7.88	7.97	7.89	7.79	0.17	5.94	22.21	20.55	22.45	2.35	1.52	1.50	1.49	1.48
2800	7.63	7.69	7.61	7.54	0.15	5.57	23.74	21.89	24.11	2.10	1.48	1.46	1.45	1.44
2900	7.43	7.46	7.39	7.34	0.12	5.21	25.44	23.41	25.96	1.90	1.45	1.43	1.41	1.42
3000	7.28	7.29	7.22	7.19	0.10	4.94	27.23	25.06	27.91	1.74	1.43	1.39	1.37	1.39
3050	7.22	7.22	7.15	7.13	0.09	4.82	28.15	25.94	28.86	1.68	1.41	1.37	1.36	1.38
3100	7.17	7.16	7.09	7.09	0.08	4.67	28.96	26.84	29.71	1.63	1.41	1.35	1.34	1.37
3150	7.12	7.11	7.03	7.04	0.09	4.65	29.76	27.75	30.38	1.58	1.39	1.34	1.33	1.37
3200	7.09	7.06	6.99	7.01	0.10	4.69	30.39	28.63	30.78	1.54	1.39	1.32	1.31	1.36
3250	7.06	7.02	6.95	6.98	0.11	4.75	30.82	29.40	30.90	1.51	1.37	1.31	1.30	1.35
3300	7.04	6.99	6.92	6.96	0.12	4.84	30.94	30.06	30.74	1.48	1.37	1.29	1.29	1.35
3350	7.03	6.97	6.90	6.95	0.13	4.92	30.71	30.30	30.36	1.47	1.35	1.28	1.28	1.34
3400	7.02	6.95	6.88	6.94	0.14	5.00	30.37	30.30	29.83	1.46	1.35	1.26	1.27	1.34
3450	7.01	6.94	6.87	6.94	0.15	5.06	29.85	29.97	29.23	1.46	1.34	1.26	1.26	1.33
3500	7.01	6.92	6.86	6.94	0.15	5.16	29.32	29.54	28.61	1.46	1.33	1.24	1.25	1.33
3550	7.02	6.92	6.85	6.95	0.16	5.24	28.63	28.88	27.99	1.47	1.33	1.23	1.24	1.33
3600	7.02	6.92	6.86	6.96	0.17	5.40	28.02	28.16	27.39	1.48	1.32	1.23	1.23	1.32
3650	7.04	6.93	6.86	6.97	0.18	5.63	27.37	27.33	26.82	1.51	1.32	1.22	1.22	1.32
3700	7.05	6.93	6.87	6.99	0.18	5.92	26.81	26.65	26.28	1.53	1.31	1.21	1.22	1.32
3750	7.07	6.94	6.88	7.00	0.19	6.19	26.24	25.99	25.78	1.55	1.30	1.20	1.21	1.32
3800	7.09	6.95	6.89	7.02	0.20	6.41	25.75	25.34	25.31	1.58	1.30	1.20	1.21	1.31
3850	7.11	6.97	6.90	7.04	0.20	6.64	25.27	24.76	24.87	1.60	1.29	1.19	1.20	1.31
3900	7.13	6.99	6.92	7.06	0.21	6.83	24.79	24.19	24.46	1.64	1.30	1.19	1.20	1.31
3950	7.15	7.00	6.94	7.09	0.21	7.05	24.37	23.68	24.09	1.66	1.29	1.19	1.19	1.31
4000	7.18	7.03	6.97	7.12	0.22	7.34	23.93	23.12	23.73	1.70	1.29	1.18	1.19	1.31
4050	7.21	7.05	6.99	7.14	0.22	7.57	23.61	22.68	23.39	1.73	1.28	1.18	1.19	1.30
4100	7.24	7.07	7.01	7.17	0.23	7.80	23.24	22.19	23.06	1.77	1.28	1.18	1.18	1.30
4150	7.27	7.10	7.04	7.20	0.23	8.00	22.95	21.78	22.74	1.81	1.27	1.18	1.18	1.30
4200	7.30	7.13	7.07	7.23	0.24	8.19	22.66	21.36	22.46	1.84	1.27	1.17	1.18	1.30
4250	7.34	7.17	7.10	7.27	0.24	8.40	22.39	20.98	22.21	1.89	1.27	1.17	1.18	1.30
4300	7.37	7.20	7.13	7.30	0.24	8.63	22.16	20.62	21.94	1.92	1.26	1.17	1.18	1.30
4400	7.45	7.27	7.20	7.37	0.25	9.12	21.68	19.94	21.46	2.01	1.25	1.17	1.17	1.29
4500	7.52	7.34	7.27	7.44	0.25	9.51	21.32	19.33	21.04	2.09	1.25	1.17	1.17	1.28
4600	7.60	7.42	7.35	7.51	0.25	9.92	20.96	18.74	20.62	2.19	1.24	1.17	1.17	1.27
4800	7.75	7.57	7.49	7.65	0.25	10.81	20.32	17.71	19.96	2.37	1.22	1.18	1.18	1.26
5000	7.89	7.73	7.65	7.79	0.25	11.57	19.72	16.85	19.37	2.56	1.20	1.20	1.19	1.25
5200	8.03	7.89	7.80	7.92	0.23	12.31	19.18	16.07	18.88	2.73	1.18	1.22	1.21	1.24
5400	8.19	8.07	7.97	8.07	0.21	12.95	18.69	15.32	18.44	2.95	1.16	1.24	1.23	1.23
5600	8.32	8.24	8.14	8.21	0.18	13.60	18.32	14.69	18.05	3.14	1.15	1.27	1.27	1.23
5800	8.46	8.41	8.31	8.35	0.15	14.22	17.88	14.06	17.63	3.32	1.15	1.31	1.31	1.24
6000	8.56	8.56	8.46	8.46	0.10	14.71	17.46	13.52	17.17	3.45	1.17	1.35	1.36	1.26
6200	8.66	8.69	8.63	8.60	0.09	15.54	16.99	13.03	16.72	3.58	1.18	1.39	1.42	1.29
6400	8.72	8.80	8.77	8.69	0.11	16.31	16.57	12.68	16.26	3.65	1.20	1.46	1.49	1.33
6600	8.76	8.87	8.89	8.76	0.13	17.29	16.13	12.37	15.76	3.68	1.24	1.53	1.57	1.37
6800	8.78	8.93	8.98	8.80	0.20	18.30	15.66	12.11	15.28	3.65	1.29	1.60	1.66	1.41
7000	8.79	8.99	9.06	8.83	0.27	19.38	15.12	11.83	14.75	3.61	1.33	1.70	1.74	1.46
7200	8.82	9.07	9.12	8.83	0.30	20.52	14.57	11.66	14.19	3.58	1.40	1.82	1.81	1.50
7400	8.85	9.16	9.16	8.82	0.34	21.40	14.07	11.51	13.71	3.55	1.48	1.93	1.89	1.55
7600	8.92	9.29	9.21	8.83	0.46	22.23	13.52	11.43	13.19	3.52	1.56	2.05	1.98	1.61
8000	9.04	9.50	9.24	8.83	0.67	23.01	12.68	11.37	12.42	3.48	1.72	2.27	2.15	1.74

[1] Total Loss = Insertion Loss+ 6dB Splitter Loss

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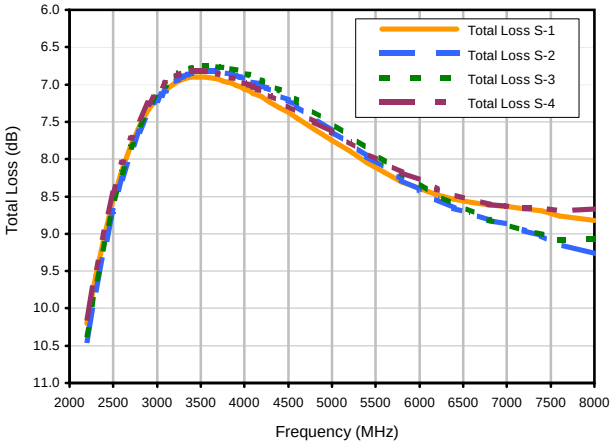
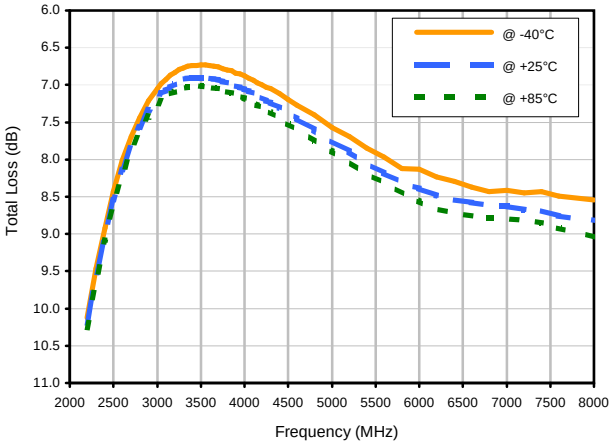
4 Way-0° Power Splitter/Combiner WP4W1+

Typical Performance Curves

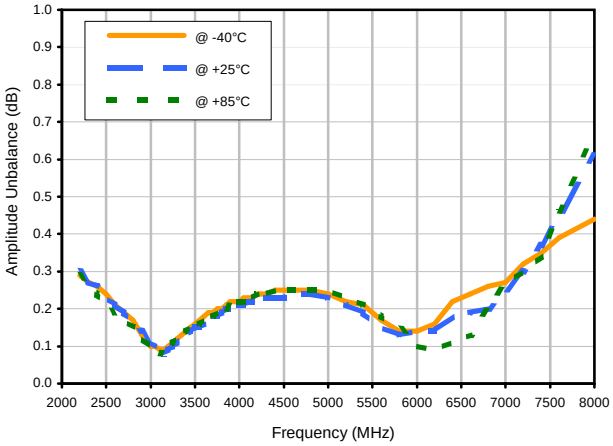
Total Loss



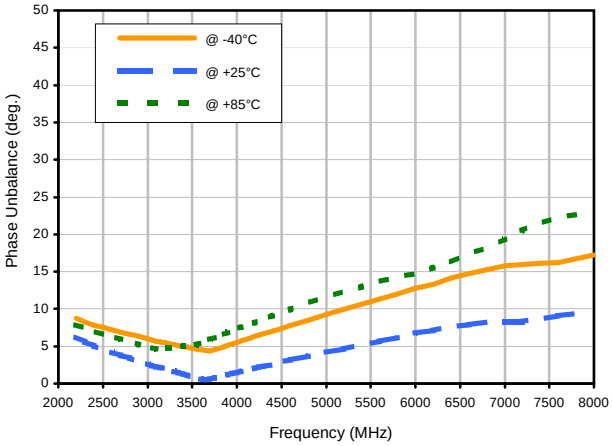
Total Loss S-1 vs. TEMPERATURE



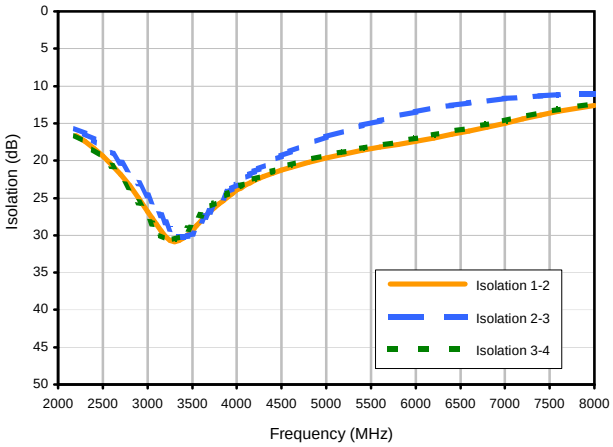
Amplitude Unbalance vs. TEMPERATURE



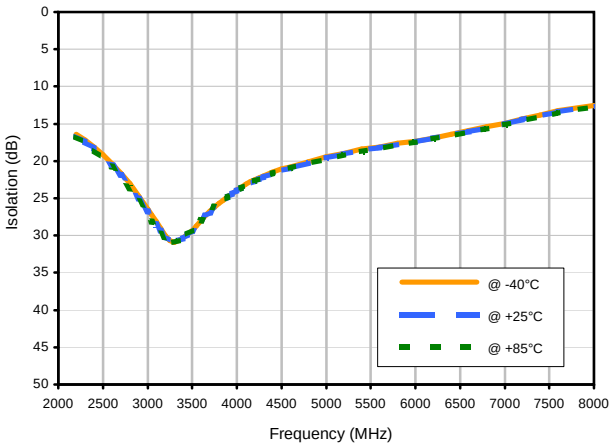
Phase Unbalance vs. TEMPERATURE



Isolation



Isolation 1-2 vs. TEMPERATURE



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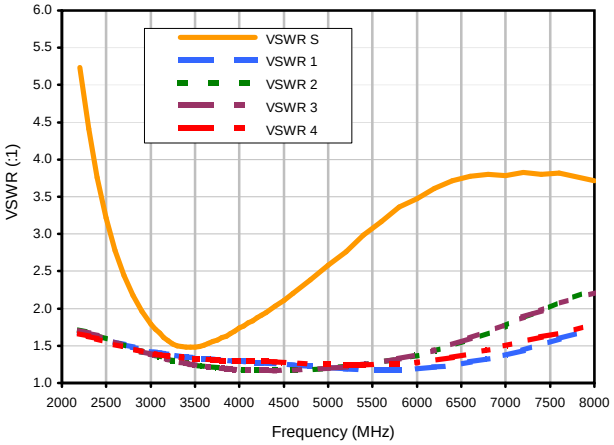
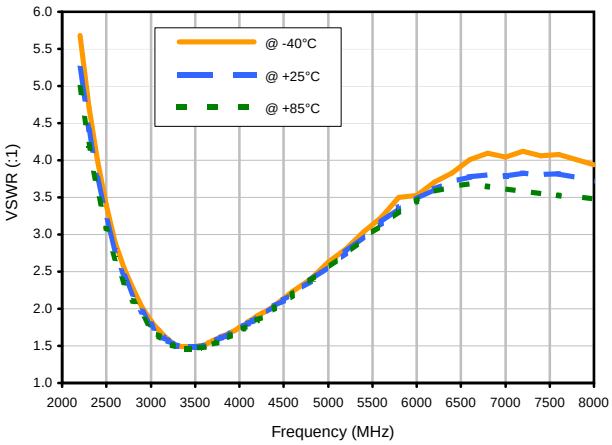
Typical Performance Curves

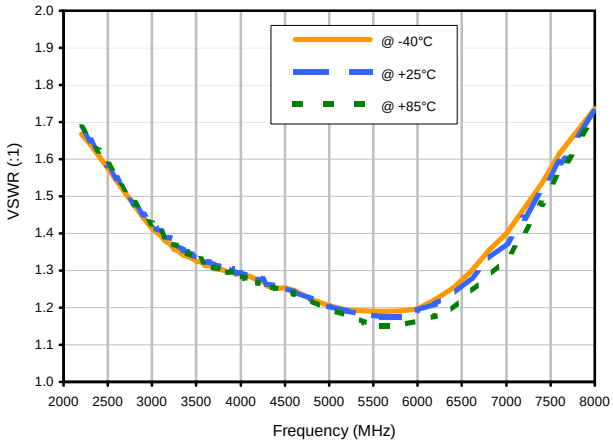
VSWR



VSWR SUM vs. TEMPERATURE



VSWR OUT1 vs. TEMPERATURE



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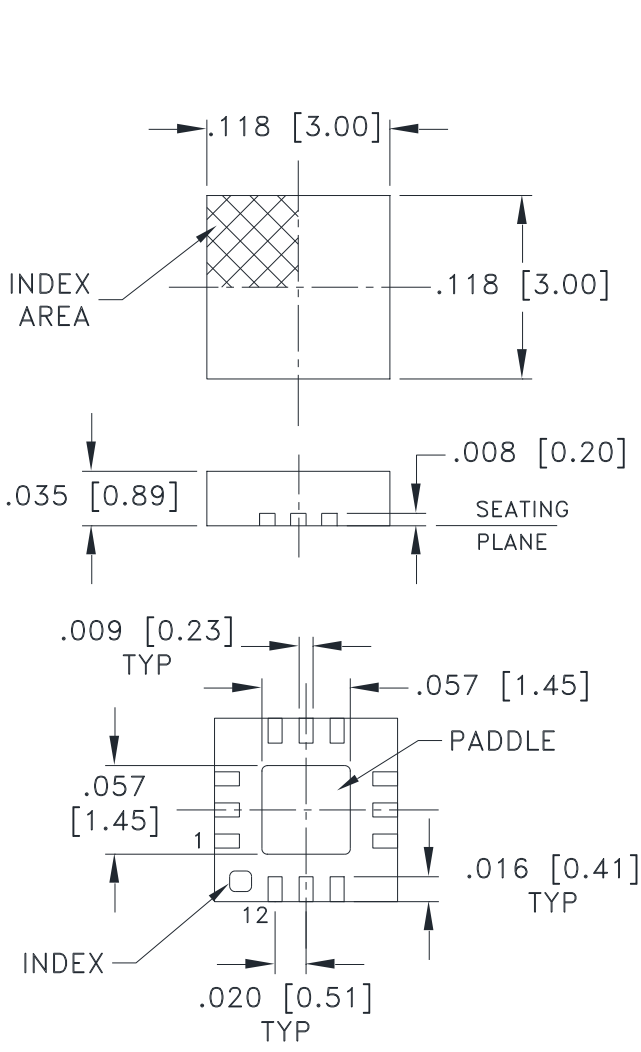
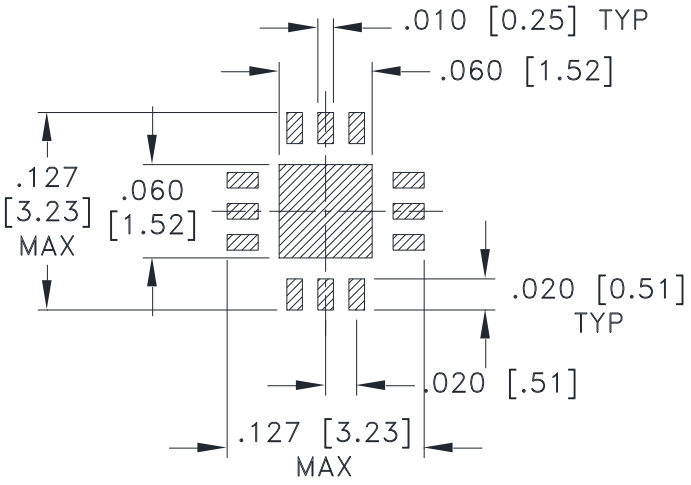
Case Style DQ

DQ1225

Outline Dimensions



PCB Land Pattern



SUGGESTED LAYOUT,
TOLERANCE TO BE WITHIN ±.002

Weight: .02 Grams

Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3 Pl. ± .004

Notes:

1. Case material: Plastic.
2. Termination finish:
   - For RoHS Case Styles: Tin-Silver alloy plate over Nickel barrier or Matte-Tin. All models, (+) suffix. See Data sheet.
   - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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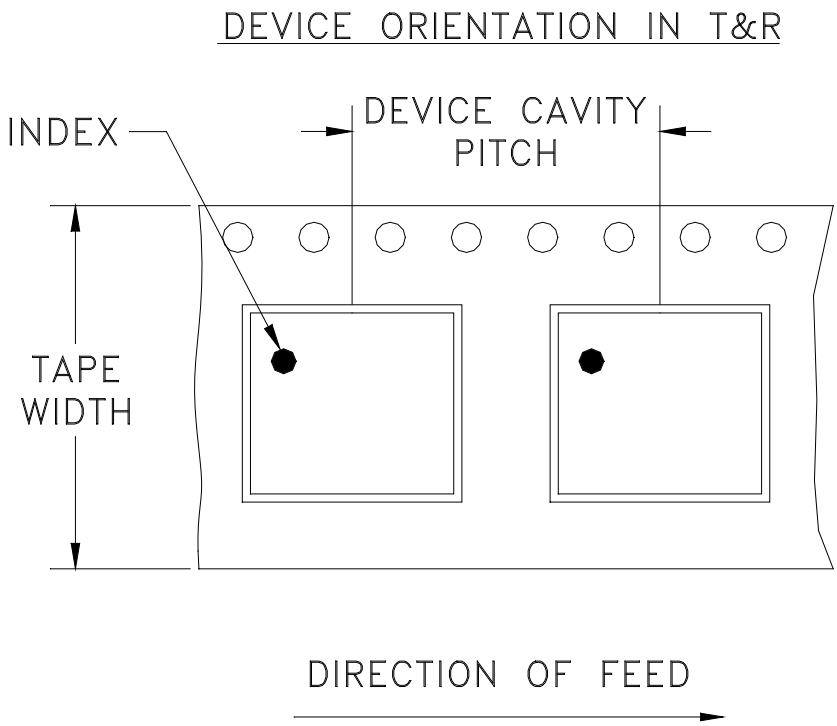
Tape & Reel Packaging TR-F66



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
8	4	7	Small quantity standard	20
				50
				100
				200
				500
		7	Standard	1000, 2000, 3000

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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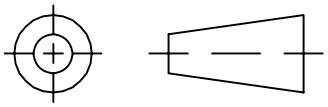
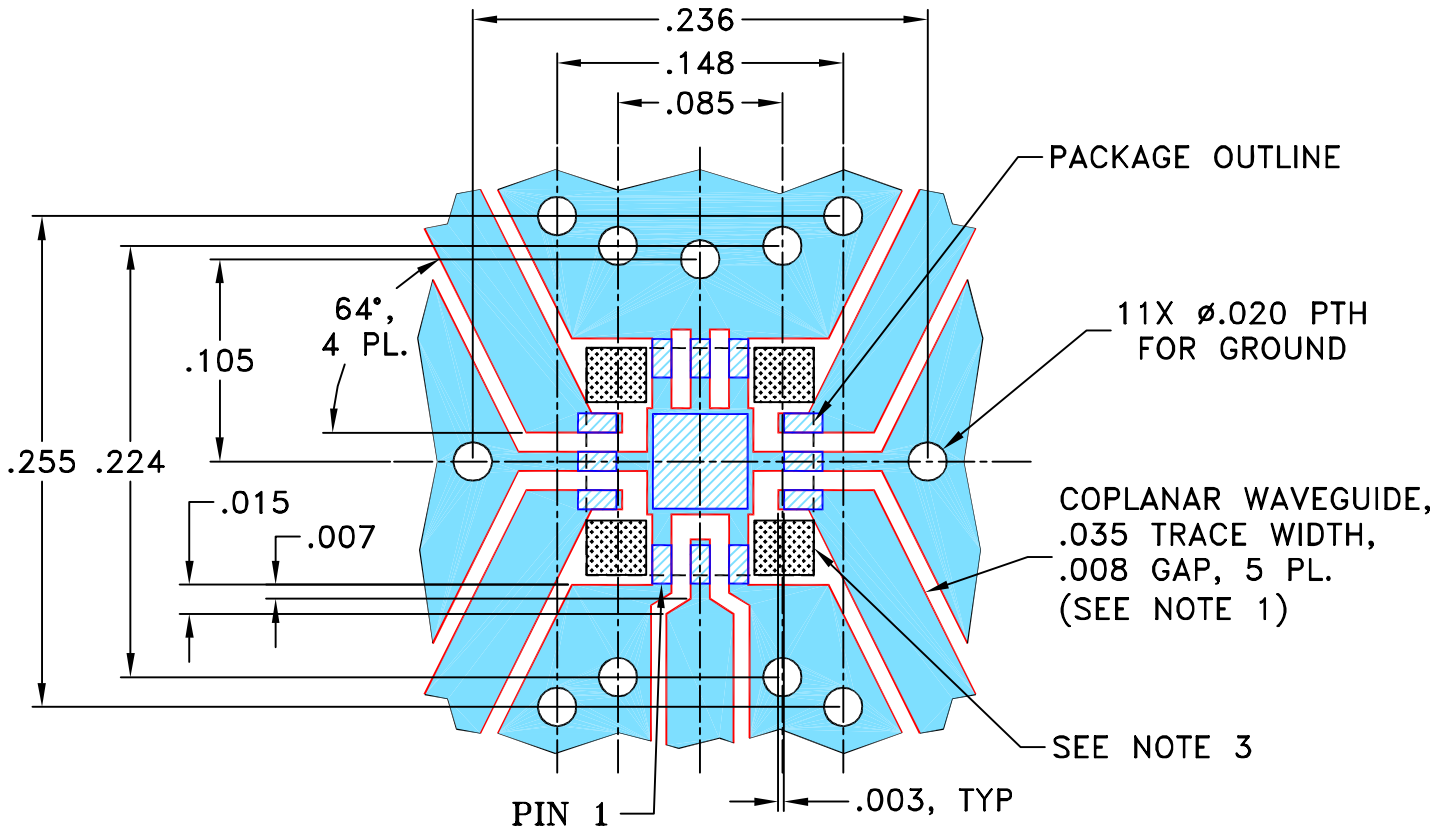
THIRD ANGLE PROJECTION



REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M109251	NEW RELEASE	01/11/07	PW	WP
A	M112849	UPDATED NOTE 3	08/03/07	AV	WP

SUGGESTED MOUNTING CONFIGURATION FOR DQ1225 CASE STYLE, "rx" PIN CONNECTION



NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	PW	01/10/07
TOLERANCES ON:	CHECKED	IL	01/11/07
2 PL DECIMALS ±	APPROVED	WP	01/11/07
3 PL DECIMALS ± .005			
ANGLES ± 1°			
FRACTIONS ±			

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ASHEETA1.DWG REV:A DATE:01/12/95

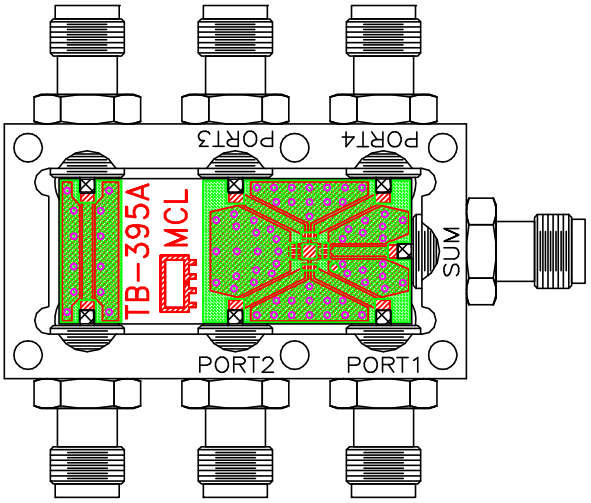
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, rx, DQ1225, WP4, TB-395+

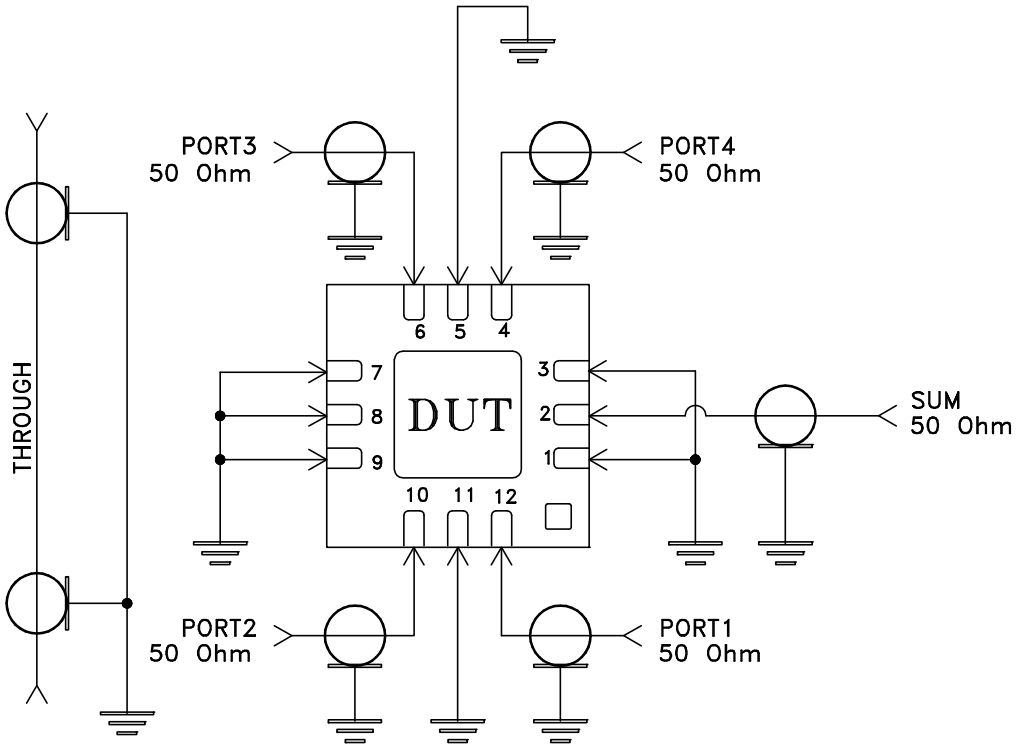
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-259	A

FILE:	SCALE:	SHEET:
98PL259	10:1	1 OF 1

Evaluation Board and Circuit



TB-395+



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.020 inch.

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Environmental Specifications ENV12

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-65° to 150° C Ambient Environment	Individual Model Data Sheet
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102-C, Condition C
Temperature Cycling	-65° to 150°C, 100 cycles	JESD22-A104
Temperature Humidity	85°C/ 85% RH, 168 hours	JESD22-113
Solder Reflow Heat	Sn-Pb Eutetic Process: 240°C peak Pb-Free Process: 260°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Moisture Sensitivity: Level 1	Bake at 125°C for 24 hours Soak at 85°C/85% RH for 168 hours, Reflow 3 cycles at 240°C peak (Non-RoHS) or 260°C (RoHS)	J-STD-020
Solderability	10X magnification, 95% coverage	JESD22-B102, Method 1: Dip and Look Test
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D

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