

MMIC Surface Mount Power Splitter/Combiner

WP4R+

4 Way-0° 50Ω 2300 to 2700 MHz



Generic photo used for illustration purposes only
CASE STYLE: DQ1225

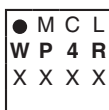
Maximum Ratings

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.	

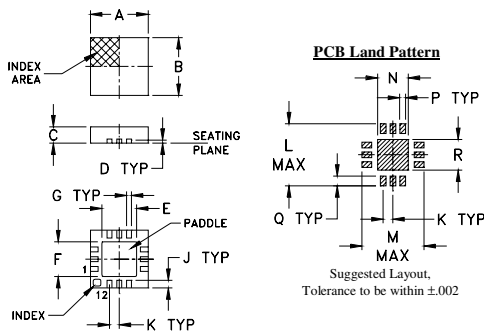
Pad Connections

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

Product Marking



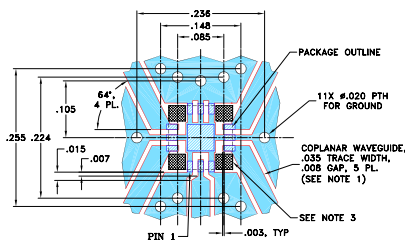
Outline Drawing



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	

Demo Board MCL P/N: TB-395+ Suggested PCB Layout (PL-259)



- NOTES:
- 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.
 - 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

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/WCLStore/terms

Features

- excellent isolation, 26 dB typ.
- good phase unbalance 2 deg. typ.
- good amplitude unbalance, 0.1 dB typ.
- small size, .118" x .118" x .035"
- high ESD level
- aqueous washable

Applications

- WLAN
- WIMAX
- ISM

Electrical Specifications

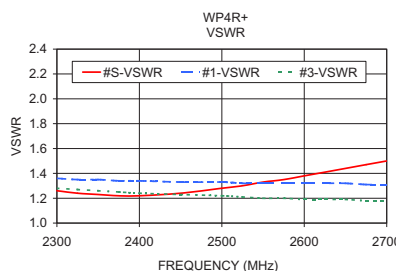
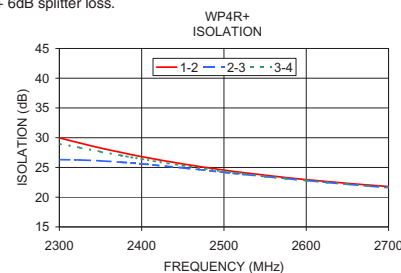
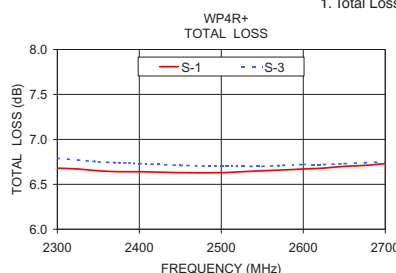
FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS* (dB) ABOVE 6.0 dB		PHASE UNBALANCE (Degrees)	AMPLITUDE UNBALANCE (dB)	VSWR (:1) Typ.	
	Typ.	Min.	Typ.	Max.			Port S	Ports 1,2,3,4
2300-2700	26	18	0.7	1.4	6	0.4	1.35	1.35

* Includes fixture loss, 0.2 dB typ.

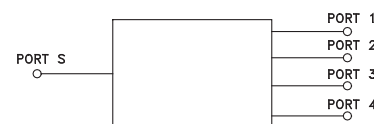
Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)				Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (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 + 6dB splitter loss.



electrical schematic



ESD Rating

Human Body Model (HBM): Class 1A (250 to < 500v) in accordance with ANSI/ESD STM 5.1 - 2001
Machine Model (MM): Class M2 (100V to < 250V) in accordance with ANSI/ESD STM 5.2 - 1999



4 Way-0° Power Splitter/Combiner

WP4R+

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
1500	10.52	10.82	10.78	10.49	0.32	3.82	16.84	14.86	16.39	5.61	1.89	1.74	1.74	1.80
1600	9.56	9.84	9.79	9.53	0.31	3.27	18.10	15.83	17.60	4.39	1.84	1.71	1.71	1.76
1700	8.76	9.01	8.96	8.73	0.28	2.68	19.73	17.04	19.13	3.47	1.78	1.66	1.67	1.71
1800	8.11	8.33	8.29	8.08	0.26	2.14	21.86	18.53	21.09	2.78	1.72	1.61	1.62	1.66
1900	7.60	7.81	7.77	7.57	0.23	1.66	24.67	20.36	23.62	2.26	1.67	1.55	1.57	1.61
2000	7.23	7.41	7.37	7.20	0.21	1.25	28.59	22.51	26.99	1.88	1.62	1.50	1.52	1.56
2050	7.08	7.25	7.22	7.05	0.20	1.05	31.26	23.72	29.10	1.73	1.59	1.48	1.49	1.53
2100	6.96	7.12	7.08	6.93	0.19	0.88	34.57	24.99	31.44	1.60	1.57	1.45	1.47	1.51
2150	6.87	7.02	6.98	6.83	0.19	0.64	37.86	26.22	33.72	1.49	1.55	1.43	1.44	1.49
2200	6.79	6.93	6.89	6.76	0.18	0.46	37.91	27.37	34.68	1.39	1.54	1.41	1.43	1.48
2250	6.73	6.86	6.82	6.69	0.17	0.33	34.86	28.15	33.63	1.33	1.52	1.39	1.41	1.46
2300	6.69	6.81	6.77	6.65	0.16	0.32	32.12	28.55	31.65	1.27	1.51	1.37	1.39	1.45
2320	6.68	6.80	6.75	6.64	0.15	0.35	31.17	28.48	30.88	1.26	1.50	1.36	1.38	1.44
2340	6.67	6.78	6.73	6.63	0.15	0.44	30.34	28.34	30.13	1.25	1.50	1.36	1.38	1.44
2360	6.66	6.77	6.72	6.62	0.15	0.53	29.63	28.20	29.44	1.25	1.49	1.35	1.37	1.43
2400	6.64	6.75	6.70	6.60	0.14	0.67	28.26	27.73	28.16	1.24	1.49	1.34	1.36	1.43
2420	6.64	6.74	6.69	6.60	0.14	0.76	27.61	27.37	27.57	1.25	1.48	1.33	1.35	1.42
2440	6.64	6.74	6.68	6.60	0.14	0.82	27.12	27.02	27.01	1.26	1.48	1.33	1.35	1.42
2460	6.64	6.73	6.68	6.60	0.13	0.89	26.66	26.72	26.51	1.27	1.48	1.32	1.34	1.42
2500	6.64	6.73	6.67	6.60	0.13	1.03	25.79	26.05	25.65	1.29	1.47	1.31	1.33	1.41
2520	6.65	6.73	6.68	6.61	0.12	1.09	25.38	25.66	25.24	1.31	1.47	1.31	1.33	1.41
2540	6.66	6.73	6.68	6.61	0.11	1.16	25.01	25.32	24.88	1.33	1.47	1.30	1.32	1.41
2560	6.66	6.73	6.68	6.62	0.11	1.22	24.68	24.99	24.51	1.35	1.47	1.30	1.32	1.41
2580	6.67	6.73	6.68	6.63	0.10	1.31	24.35	24.67	24.19	1.37	1.47	1.29	1.32	1.41
2600	6.67	6.74	6.68	6.63	0.11	1.37	24.01	24.37	23.87	1.39	1.46	1.29	1.31	1.40
2620	6.69	6.74	6.69	6.65	0.10	1.44	23.75	24.02	23.57	1.41	1.46	1.29	1.31	1.40
2640	6.69	6.75	6.69	6.65	0.09	1.52	23.50	23.74	23.30	1.44	1.46	1.29	1.30	1.40
2660	6.71	6.76	6.70	6.67	0.09	1.58	23.26	23.44	23.03	1.46	1.46	1.28	1.30	1.40
2680	6.72	6.77	6.71	6.68	0.08	1.63	23.00	23.17	22.78	1.48	1.46	1.28	1.30	1.40
2700	6.73	6.77	6.72	6.70	0.07	1.71	22.79	22.90	22.57	1.50	1.46	1.28	1.30	1.40
2750	6.77	6.80	6.74	6.73	0.07	1.87	22.25	22.28	22.01	1.56	1.45	1.27	1.29	1.39
2800	6.81	6.82	6.77	6.77	0.05	2.08	21.78	21.70	21.54	1.62	1.46	1.26	1.29	1.39
2850	6.85	6.85	6.80	6.81	0.05	2.23	21.33	21.19	21.11	1.68	1.45	1.25	1.28	1.39
2900	6.90	6.88	6.83	6.86	0.06	2.37	20.94	20.70	20.73	1.74	1.45	1.25	1.27	1.39
2950	6.94	6.91	6.86	6.90	0.07	2.53	20.61	20.29	20.39	1.80	1.45	1.24	1.27	1.39
3000	6.99	6.95	6.90	6.95	0.08	2.70	20.29	19.84	20.08	1.85	1.45	1.24	1.26	1.39
3100	7.08	7.01	6.98	7.04	0.10	3.01	19.71	19.12	19.54	1.96	1.44	1.23	1.25	1.38
3200	7.18	7.09	7.05	7.14	0.13	3.31	19.20	18.46	19.09	2.07	1.44	1.22	1.24	1.38
3300	7.27	7.16	7.13	7.23	0.15	3.64	18.77	17.90	18.68	2.17	1.43	1.20	1.23	1.37
3400	7.37	7.24	7.21	7.32	0.16	3.93	18.38	17.35	18.32	2.27	1.42	1.19	1.22	1.35
3500	7.46	7.32	7.29	7.41	0.17	4.24	18.02	16.84	18.01	2.37	1.41	1.18	1.20	1.34
3600	7.55	7.39	7.36	7.49	0.18	4.51	17.69	16.38	17.72	2.48	1.39	1.16	1.18	1.32
3800	7.72	7.57	7.52	7.65	0.20	5.06	17.10	15.54	17.19	2.69	1.35	1.13	1.14	1.28
4000	7.88	7.73	7.68	7.81	0.19	5.59	16.60	14.82	16.71	2.90	1.30	1.09	1.09	1.22
4200	8.04	7.91	7.84	7.97	0.20	6.09	16.20	14.14	16.27	3.11	1.24	1.05	1.04	1.16
4400	8.17	8.05	7.99	8.12	0.18	6.54	15.79	13.57	15.82	3.30	1.18	1.05	1.04	1.11
4600	8.30	8.21	8.16	8.27	0.15	7.07	15.30	13.01	15.36	3.50	1.11	1.10	1.10	1.06
4800	8.42	8.35	8.30	8.39	0.13	7.50	14.78	12.51	14.85	3.69	1.08	1.18	1.17	1.08
5000	8.51	8.48	8.43	8.49	0.08	8.00	14.24	12.09	14.31	3.83	1.11	1.26	1.26	1.14
5200	8.59	8.58	8.56	8.58	0.02	8.40	13.64	11.74	13.75	3.96	1.18	1.35	1.35	1.22
5400	8.66	8.72	8.68	8.66	0.06	8.84	13.04	11.46	13.16	4.09	1.28	1.46	1.46	1.31
5600	8.76	8.89	8.83	8.76	0.13	9.30	12.42	11.19	12.54	4.31	1.38	1.57	1.58	1.40
5800	8.84	9.03	8.89	8.79	0.24	9.73	11.84	10.96	11.92	4.43	1.49	1.69	1.69	1.49
6000	8.91	9.15	8.97	8.82	0.33	10.13	11.28	10.80	11.34	4.52	1.61	1.81	1.81	1.59

¹ Total Loss = Insertion Loss+ 6dB Splitter Loss

REV. X2
WP4R+
100627

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4 Way-0° Power Splitter/Combiner

WP4R+

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
1500	10.46	10.76	10.73	10.46	0.30	4.61	16.58	14.65	16.15	6.09	1.88	1.73	1.73	1.80
1600	9.49	9.76	9.73	9.47	0.30	4.04	17.81	15.59	17.33	4.73	1.83	1.70	1.70	1.75
1700	8.67	8.91	8.89	8.65	0.27	3.56	19.40	16.78	18.83	3.69	1.77	1.65	1.66	1.70
1800	8.00	8.23	8.20	7.99	0.24	3.15	21.51	18.26	20.75	2.93	1.71	1.60	1.61	1.65
1900	7.49	7.70	7.67	7.48	0.22	2.73	24.24	20.06	23.23	2.38	1.66	1.55	1.56	1.59
2000	7.11	7.29	7.26	7.08	0.21	2.29	28.11	22.22	26.54	1.96	1.61	1.50	1.51	1.55
2050	6.95	7.12	7.10	6.93	0.20	2.19	30.79	23.47	28.60	1.79	1.58	1.47	1.48	1.52
2100	6.83	6.99	6.96	6.80	0.19	1.98	34.25	24.78	30.97	1.64	1.56	1.45	1.46	1.50
2150	6.73	6.88	6.85	6.70	0.18	1.80	38.11	26.11	33.36	1.52	1.54	1.43	1.43	1.47
2200	6.65	6.79	6.76	6.62	0.17	1.62	38.57	27.34	34.77	1.42	1.53	1.41	1.41	1.46
2250	6.59	6.72	6.69	6.56	0.16	1.55	35.14	28.21	33.98	1.34	1.51	1.39	1.39	1.44
2300	6.54	6.67	6.64	6.52	0.15	1.59	32.14	28.65	32.01	1.28	1.49	1.37	1.37	1.43
2320	6.53	6.65	6.62	6.50	0.15	1.63	31.14	28.57	31.19	1.26	1.49	1.37	1.37	1.43
2340	6.52	6.64	6.61	6.49	0.15	1.61	30.28	28.46	30.38	1.25	1.48	1.36	1.36	1.42
2360	6.51	6.62	6.59	6.48	0.14	1.67	29.57	28.29	29.66	1.25	1.48	1.35	1.36	1.42
2400	6.50	6.61	6.57	6.47	0.14	1.82	28.17	27.80	28.32	1.24	1.47	1.34	1.35	1.42
2420	6.50	6.60	6.56	6.46	0.13	1.92	27.52	27.41	27.72	1.24	1.47	1.33	1.34	1.41
2440	6.49	6.59	6.55	6.46	0.13	1.99	27.00	27.10	27.15	1.25	1.47	1.33	1.34	1.41
2460	6.49	6.59	6.55	6.46	0.12	2.13	26.55	26.76	26.62	1.26	1.47	1.32	1.33	1.41
2500	6.49	6.58	6.54	6.47	0.12	2.25	25.65	26.07	25.71	1.28	1.46	1.31	1.32	1.40
2520	6.50	6.58	6.54	6.48	0.11	2.35	25.24	25.66	25.28	1.30	1.46	1.31	1.32	1.40
2540	6.51	6.58	6.54	6.48	0.10	2.45	24.88	25.31	24.90	1.32	1.46	1.30	1.31	1.39
2560	6.51	6.58	6.54	6.48	0.10	2.53	24.53	24.95	24.53	1.34	1.46	1.30	1.31	1.39
2580	6.52	6.59	6.55	6.49	0.09	2.64	24.17	24.63	24.18	1.36	1.46	1.29	1.31	1.39
2600	6.52	6.60	6.55	6.50	0.09	2.74	23.81	24.29	23.87	1.38	1.45	1.29	1.30	1.39
2620	6.54	6.60	6.56	6.51	0.09	2.82	23.54	23.96	23.55	1.41	1.45	1.29	1.30	1.39
2640	6.54	6.60	6.56	6.52	0.08	2.91	23.28	23.63	23.27	1.43	1.45	1.28	1.29	1.39
2660	6.56	6.61	6.57	6.53	0.08	3.02	23.06	23.32	23.00	1.46	1.46	1.28	1.29	1.39
2680	6.57	6.63	6.58	6.55	0.08	3.12	22.79	23.06	22.74	1.48	1.46	1.28	1.29	1.39
2700	6.58	6.64	6.59	6.57	0.07	3.19	22.58	22.78	22.50	1.51	1.45	1.28	1.29	1.39
2750	6.62	6.65	6.61	6.60	0.06	3.43	22.09	22.16	21.96	1.57	1.45	1.27	1.28	1.39
2800	6.66	6.68	6.64	6.64	0.04	3.64	21.64	21.59	21.46	1.63	1.46	1.26	1.28	1.39
2850	6.70	6.70	6.66	6.68	0.03	3.86	21.23	21.12	21.02	1.69	1.45	1.25	1.27	1.39
2900	6.74	6.73	6.70	6.73	0.04	4.10	20.86	20.65	20.63	1.75	1.45	1.25	1.27	1.39
2950	6.78	6.76	6.73	6.76	0.05	4.35	20.54	20.26	20.28	1.81	1.45	1.24	1.26	1.38
3000	6.83	6.79	6.76	6.81	0.06	4.56	20.22	19.82	19.96	1.87	1.44	1.23	1.25	1.38
3100	6.91	6.86	6.84	6.90	0.08	4.94	19.65	19.11	19.41	1.98	1.43	1.22	1.24	1.37
3200	7.00	6.92	6.90	6.98	0.10	5.34	19.15	18.47	18.95	2.08	1.42	1.21	1.23	1.36
3300	7.09	6.99	6.98	7.07	0.11	5.75	18.68	17.87	18.54	2.19	1.42	1.19	1.21	1.35
3400	7.19	7.08	7.07	7.17	0.12	6.16	18.23	17.29	18.19	2.31	1.40	1.17	1.20	1.34
3500	7.28	7.16	7.15	7.27	0.13	6.48	17.85	16.77	17.86	2.42	1.38	1.16	1.19	1.33
3600	7.37	7.24	7.23	7.34	0.14	6.77	17.51	16.30	17.57	2.53	1.37	1.15	1.17	1.31
3800	7.55	7.40	7.39	7.50	0.16	7.43	16.91	15.44	17.04	2.76	1.33	1.11	1.14	1.27
4000	7.70	7.56	7.53	7.65	0.17	7.93	16.44	14.71	16.56	2.96	1.28	1.08	1.08	1.21
4200	7.86	7.75	7.70	7.82	0.16	8.58	16.00	14.03	16.13	3.19	1.22	1.04	1.03	1.16
4400	7.99	7.88	7.83	7.96	0.16	9.27	15.59	13.45	15.68	3.37	1.17	1.06	1.04	1.09
4600	8.13	8.06	8.01	8.12	0.12	9.87	15.11	12.87	15.22	3.61	1.11	1.11	1.11	1.06
4800	8.25	8.19	8.16	8.25	0.09	10.53	14.60	12.37	14.72	3.81	1.08	1.18	1.18	1.08
5000	8.35	8.32	8.28	8.34	0.07	11.16	14.11	11.93	14.18	3.96	1.11	1.27	1.25	1.14
5200	8.40	8.40	8.39	8.42	0.03	11.76	13.56	11.60	13.61	4.09	1.18	1.36	1.34	1.20
5400	8.44	8.50	8.49	8.48	0.06	11.89	12.96	11.30	13.05	4.20	1.27	1.46	1.45	1.29
5600	8.49	8.61	8.61	8.55	0.12	12.43	12.36	11.06	12.42	4.37	1.38	1.55	1.57	1.39
5800	8.60	8.76	8.71	8.61	0.17	12.76	11.73	10.82	11.81	4.57	1.49	1.69	1.70	1.49
6000	8.62	8.85	8.76	8.62	0.23	13.41	11.18	10.68	11.24	4.63	1.61	1.83	1.84	1.59

¹ Total Loss = Insertion Loss+ 6dB Splitter Loss

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4 Way-0° Power Splitter/Combiner

WP4R+

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
1500	10.57	10.87	10.82	10.54	0.33	5.33	16.99	15.00	16.55	5.31	1.89	1.75	1.75	1.81
1600	9.61	9.89	9.85	9.58	0.31	4.82	18.26	15.95	17.77	4.19	1.84	1.71	1.71	1.76
1700	8.82	9.08	9.04	8.79	0.29	4.38	19.88	17.16	19.32	3.34	1.79	1.66	1.67	1.71
1800	8.18	8.41	8.37	8.15	0.26	3.98	21.99	18.63	21.29	2.69	1.73	1.60	1.62	1.66
1900	7.68	7.89	7.85	7.65	0.24	3.63	24.80	20.48	23.84	2.20	1.67	1.55	1.57	1.60
2000	7.31	7.49	7.46	7.28	0.22	3.29	28.79	22.63	27.22	1.84	1.62	1.49	1.51	1.56
2050	7.17	7.34	7.30	7.13	0.21	3.09	31.50	23.84	29.37	1.69	1.59	1.47	1.49	1.53
2100	7.05	7.21	7.17	7.01	0.20	2.96	34.93	25.13	31.74	1.56	1.57	1.44	1.47	1.51
2150	6.95	7.10	7.06	6.91	0.19	2.78	38.55	26.40	33.91	1.46	1.55	1.42	1.44	1.49
2200	6.88	7.02	6.98	6.84	0.18	2.66	38.48	27.61	34.69	1.37	1.54	1.40	1.42	1.48
2250	6.82	6.95	6.91	6.78	0.17	2.49	35.12	28.41	33.54	1.30	1.52	1.38	1.40	1.46
2300	6.77	6.90	6.85	6.74	0.16	2.37	32.20	28.84	31.58	1.25	1.51	1.36	1.38	1.45
2320	6.76	6.88	6.84	6.73	0.16	2.28	31.26	28.74	30.82	1.23	1.50	1.36	1.38	1.44
2340	6.75	6.87	6.82	6.72	0.15	2.28	30.39	28.61	30.04	1.23	1.50	1.35	1.37	1.44
2360	6.75	6.86	6.81	6.71	0.15	2.31	29.66	28.44	29.35	1.22	1.49	1.34	1.36	1.43
2400	6.73	6.84	6.79	6.69	0.15	2.32	28.33	27.91	28.08	1.22	1.48	1.33	1.35	1.43
2420	6.73	6.83	6.78	6.69	0.14	2.33	27.64	27.54	27.52	1.23	1.48	1.33	1.35	1.42
2440	6.73	6.83	6.77	6.69	0.14	2.39	27.10	27.19	26.97	1.24	1.48	1.32	1.34	1.42
2460	6.73	6.82	6.77	6.69	0.13	2.47	26.66	26.86	26.49	1.25	1.48	1.32	1.34	1.41
2500	6.73	6.82	6.76	6.70	0.13	2.62	25.79	26.14	25.64	1.28	1.47	1.31	1.33	1.41
2520	6.74	6.82	6.77	6.70	0.12	2.70	25.35	25.75	25.21	1.30	1.47	1.30	1.32	1.41
2540	6.75	6.82	6.77	6.70	0.12	2.79	25.00	25.40	24.87	1.32	1.47	1.30	1.32	1.40
2560	6.75	6.82	6.77	6.71	0.11	2.93	24.66	25.04	24.52	1.34	1.47	1.29	1.32	1.40
2580	6.76	6.83	6.77	6.72	0.11	2.97	24.32	24.72	24.19	1.36	1.46	1.29	1.31	1.40
2600	6.77	6.84	6.78	6.73	0.11	3.05	23.99	24.40	23.86	1.38	1.46	1.29	1.31	1.40
2620	6.78	6.84	6.78	6.74	0.10	3.10	23.71	24.07	23.57	1.40	1.45	1.28	1.30	1.40
2640	6.79	6.84	6.79	6.75	0.10	3.19	23.45	23.75	23.31	1.43	1.45	1.28	1.30	1.40
2660	6.80	6.85	6.79	6.76	0.10	3.26	23.20	23.45	23.05	1.45	1.46	1.28	1.30	1.40
2680	6.82	6.87	6.80	6.77	0.09	3.36	22.96	23.17	22.80	1.47	1.46	1.27	1.30	1.40
2700	6.83	6.87	6.82	6.79	0.08	3.41	22.73	22.90	22.57	1.49	1.45	1.27	1.29	1.40
2750	6.87	6.90	6.84	6.82	0.07	3.59	22.20	22.26	22.04	1.55	1.45	1.26	1.28	1.39
2800	6.91	6.93	6.87	6.87	0.06	3.75	21.71	21.65	21.56	1.61	1.45	1.26	1.28	1.39
2850	6.95	6.95	6.90	6.90	0.05	4.01	21.28	21.15	21.14	1.67	1.44	1.25	1.28	1.39
2900	7.00	6.99	6.94	6.96	0.06	4.18	20.87	20.65	20.76	1.73	1.44	1.25	1.27	1.39
2950	7.05	7.01	6.97	7.00	0.08	4.32	20.54	20.23	20.42	1.78	1.44	1.24	1.27	1.39
3000	7.10	7.06	7.01	7.05	0.08	4.48	20.21	19.78	20.11	1.84	1.44	1.24	1.26	1.39
3100	7.20	7.13	7.09	7.15	0.11	4.84	19.64	19.05	19.58	1.95	1.44	1.23	1.26	1.39
3200	7.30	7.21	7.17	7.24	0.13	5.22	19.14	18.40	19.13	2.06	1.43	1.22	1.25	1.38
3300	7.40	7.29	7.25	7.34	0.15	5.55	18.73	17.83	18.72	2.15	1.43	1.21	1.24	1.38
3400	7.50	7.37	7.33	7.43	0.17	5.90	18.36	17.31	18.38	2.25	1.43	1.20	1.23	1.37
3500	7.59	7.44	7.41	7.52	0.19	6.21	18.03	16.82	18.06	2.34	1.42	1.18	1.21	1.35
3600	7.68	7.52	7.48	7.60	0.20	6.61	17.73	16.38	17.79	2.44	1.40	1.17	1.19	1.33
3800	7.84	7.68	7.63	7.77	0.21	7.30	17.19	15.58	17.27	2.63	1.35	1.14	1.15	1.28
4000	7.99	7.84	7.79	7.93	0.21	8.06	16.72	14.88	16.79	2.84	1.30	1.09	1.09	1.22
4200	8.16	8.01	7.95	8.08	0.21	8.85	16.33	14.22	16.34	3.03	1.24	1.05	1.03	1.16
4400	8.28	8.15	8.09	8.23	0.18	9.36	15.90	13.63	15.90	3.22	1.18	1.05	1.05	1.10
4600	8.41	8.30	8.26	8.37	0.15	9.87	15.40	13.09	15.43	3.43	1.11	1.11	1.11	1.06
4800	8.52	8.45	8.40	8.50	0.12	10.29	14.86	12.60	14.92	3.61	1.08	1.18	1.19	1.09
5000	8.62	8.58	8.54	8.60	0.08	10.72	14.31	12.19	14.39	3.76	1.12	1.27	1.28	1.16
5200	8.71	8.69	8.69	8.70	0.02	11.15	13.72	11.84	13.84	3.91	1.20	1.35	1.38	1.24
5400	8.80	8.85	8.81	8.79	0.06	11.61	13.14	11.55	13.27	4.05	1.29	1.47	1.47	1.34
5600	8.91	9.04	8.95	8.89	0.15	12.17	12.54	11.29	12.66	4.24	1.39	1.58	1.58	1.42
5800	9.01	9.20	9.00	8.91	0.29	12.79	11.97	11.06	12.04	4.34	1.49	1.70	1.67	1.50
6000	9.10	9.35	9.08	8.95	0.40	13.26	11.42	10.93	11.47	4.42	1.61	1.81	1.78	1.58

¹ Total Loss = Insertion Loss+ 6dB Splitter Loss

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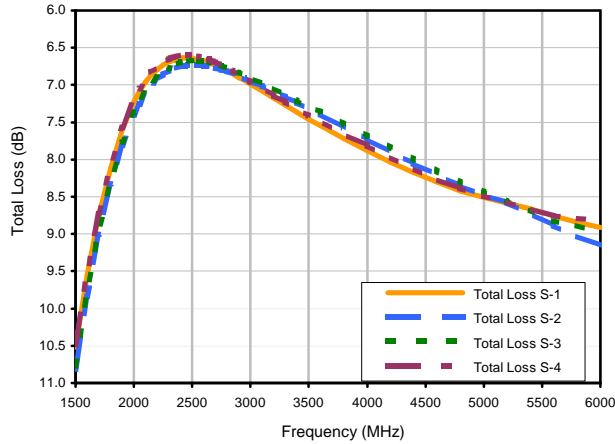


4 Way-0° Power Splitter/Combiner

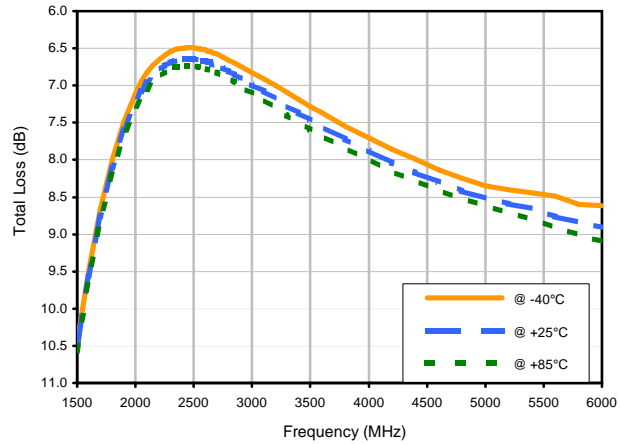
WP4R+

Typical Performance Curves

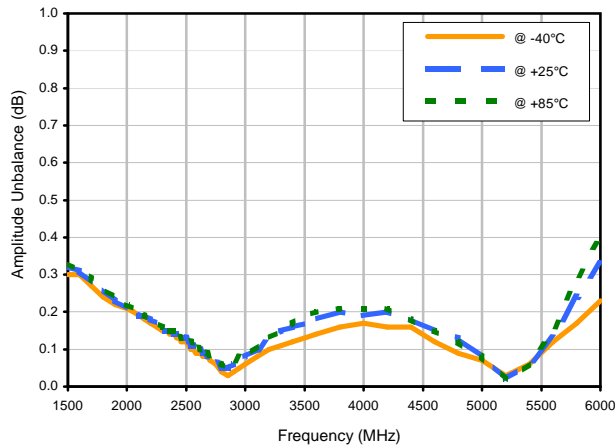
Total Loss



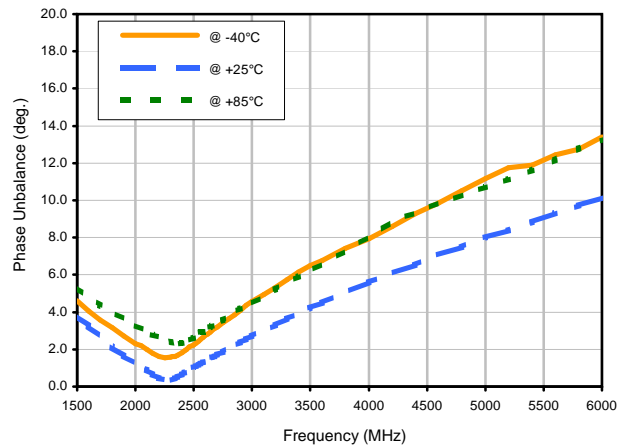
Total Loss S-1 vs. TEMPERATURE



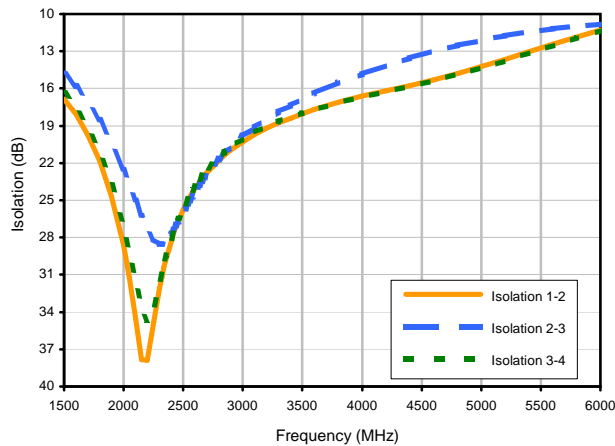
Amplitude Unbalance vs. TEMPERATURE



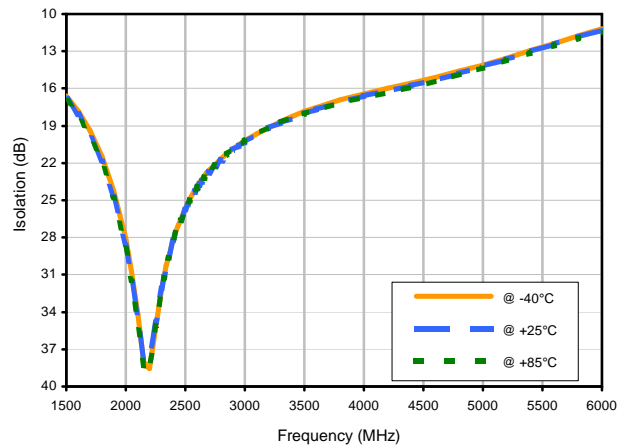
Phase Unbalance vs. TEMPERATURE



Isolation



Isolation 1-2 vs. TEMPERATURE



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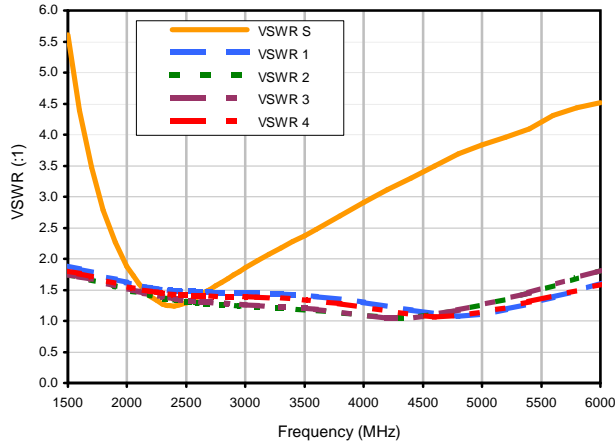


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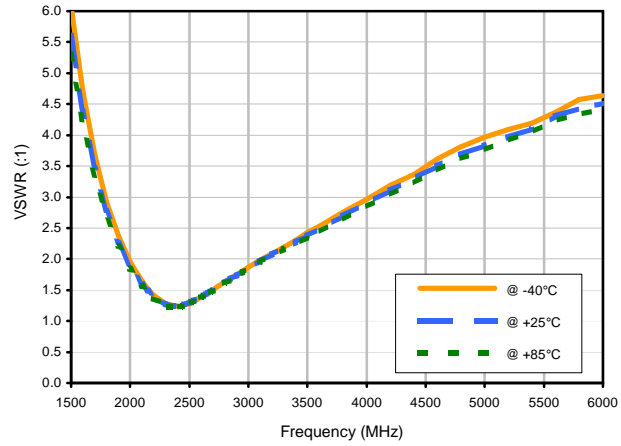


Typical Performance Curves

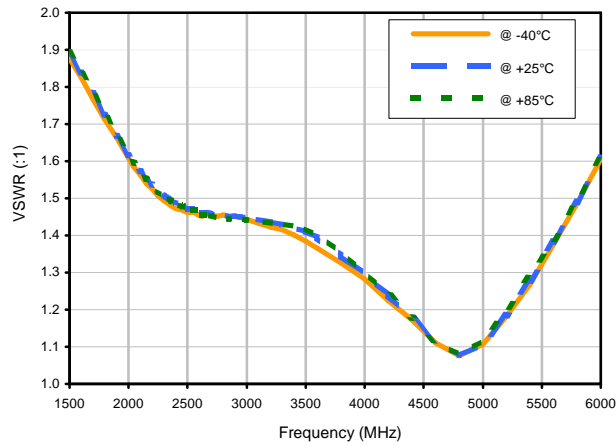
VSWR



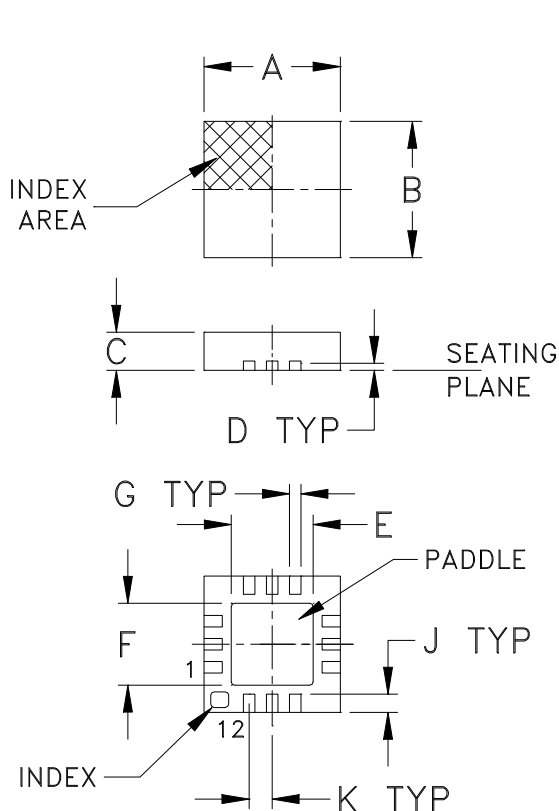
VSWR SUM vs. TEMPERATURE



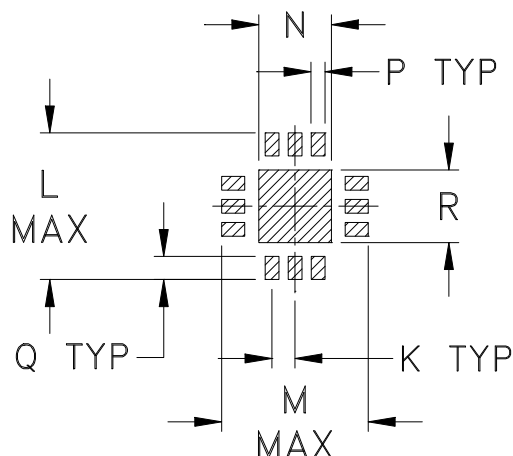
VSWR OUT1 vs. TEMPERATURE



Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	N
DQ1225	.118 (3.00)	.118 (3.00)	.035 (0.89)	.008 (0.20)	.057 (1.45)	.057 (1.45)	.009 (0.23)	-- --	.016 (0.41)	.020 (0.51)	.127 (3.22)	.127 (3.22)	.049 (1.25)

CASE #	P	Q	R	S	T	WT. GRAM
DQ1225	.010 (0.25)	.020 (0.51)	.049 (1.25)	-- --	-- --	.02

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

Notes:

- Case material: Plastic.
- 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.

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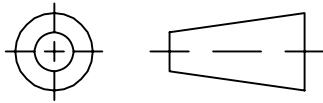
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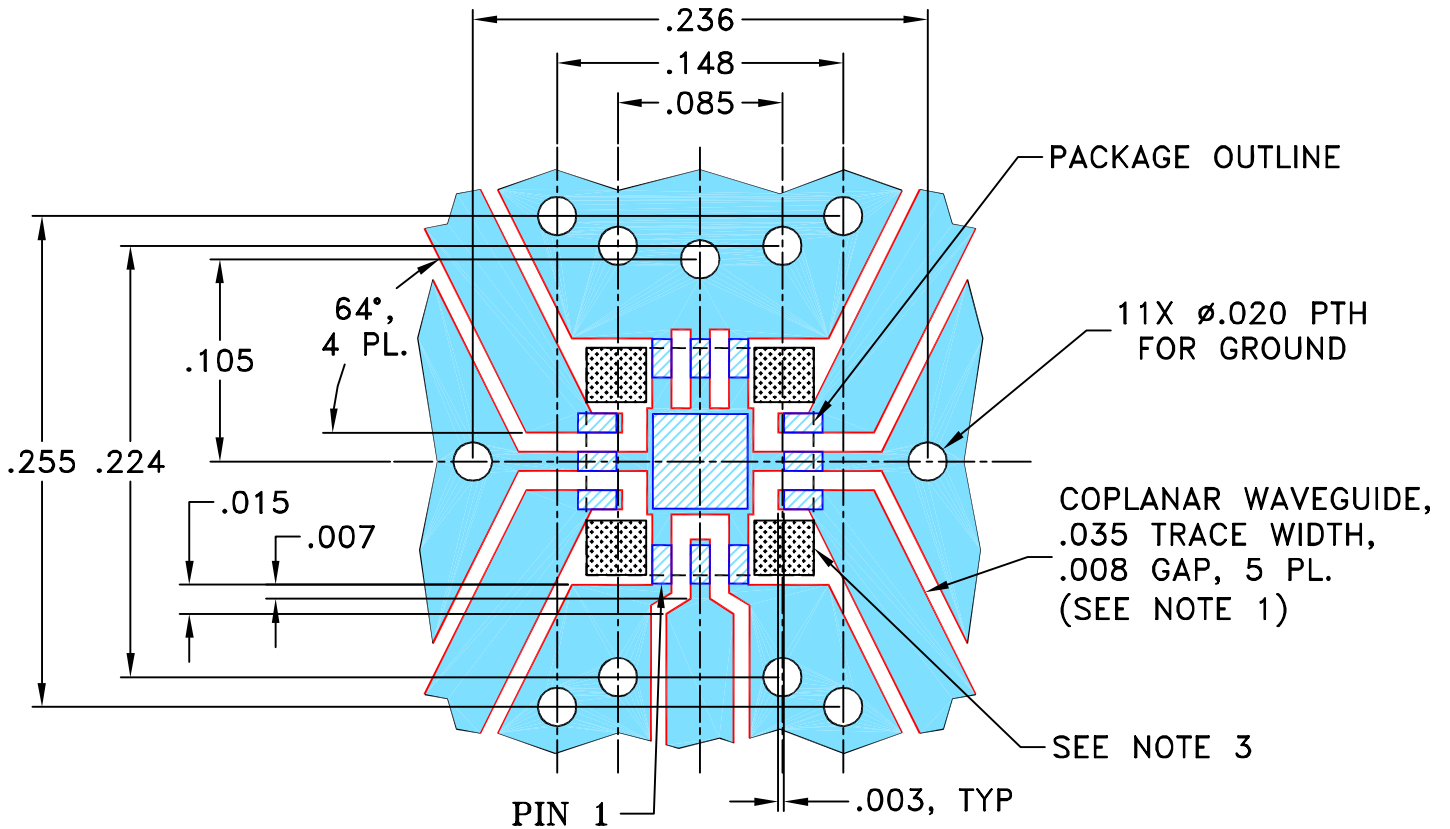
THIRD ANGLE PROJECTION



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 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

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

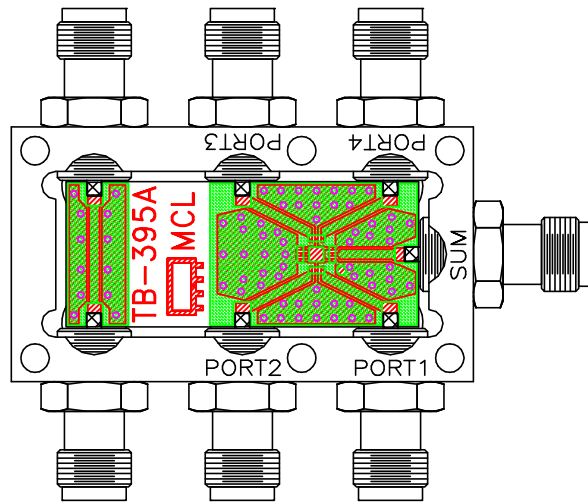
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PL, rx, DQ1225, WP4, TB-395+

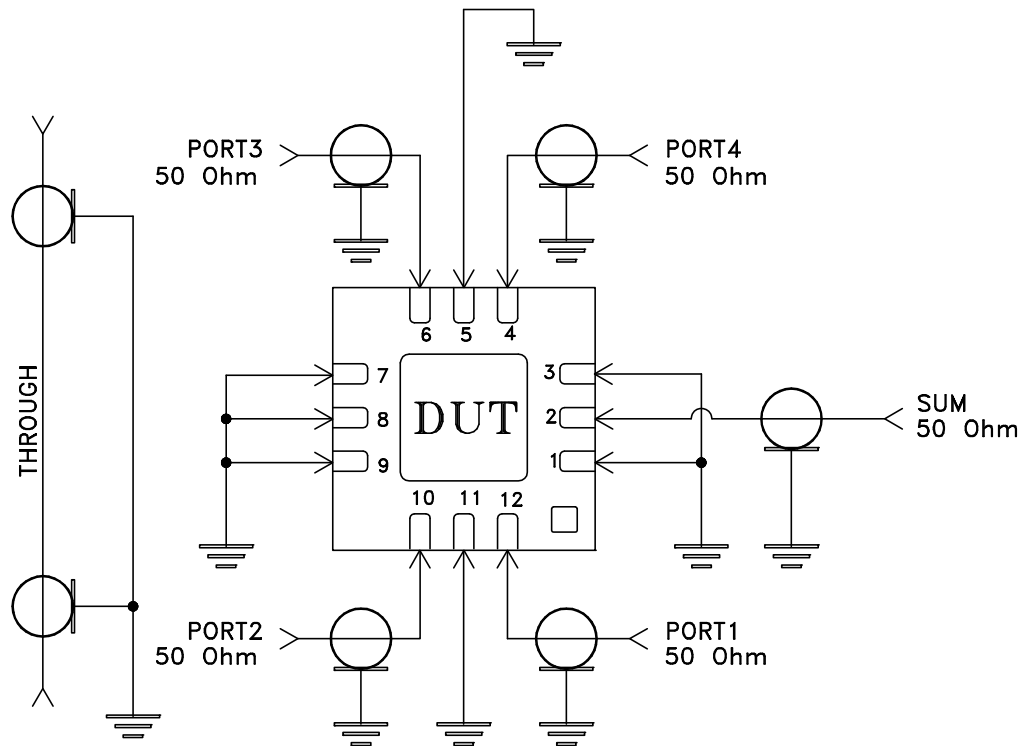
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SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-259	A
FILE:	98PL259	SCALE:	10:1
SHEET:		1 OF 1	

Evaluation Board and Circuit




TB-395+



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent, Dielectric Constant=3.5, Thickness=.020 inch.

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Specification	Test/Inspection Condition	Reference
Operating Temperature	-40° to 85° C Ambient Environment	Individual Model Data
Storage Temperature	-65° to 150° C Ambient Environment	Individual Model Data
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102-C, 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
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, Meth
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Meth
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Meth

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