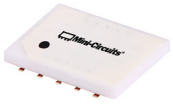
SURFACE MOUNT

Power Splitter/Combiner SCA-4-20+

4 Way-0° 50Ω 1000 to 2000 MHz

FEATURES

- Wideband, 1000 to 2000 MHz
- High isolation, 20 dB typ.
- Small surface mount package (0.25"x0.3")
- Low profile (0.045")
- Welded leads



Generic photo used for illustration purposes only

CASE STYLE: DZ944

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

APPLICATIONS

- PCS
- GPS

ELECTRICAL SPECIFICATIONS AT 25°C[1]

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1000		2000	MHz
Insertion Loss, above 6.0 dB	1000-2000 1500-1700 1700-2000		1.0 1.0 1.5	1.8 1.2 1.8	dB
Isolation	1000-2000 1500-1700 1700-2000	8 17 17	15 20 20		dB
Phase Unbalance	1000-2000 1500-1700 1700-2000			5 5 5	Degree
Amplitude Unbalance	1000-2000 1500-1700 1700-2000			0.9 0.8 0.9	dB

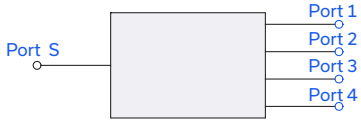
1.Tested on Evaluation Board TB-SCA-4-20+

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	5W max.
Internal Dissipation	0.25W max.

Permanent damage may occur if any of these limits are exceeded.

ELECTRICAL SCHEMATIC



SURFACE MOUNT

Power Splitter/Combiner SCA-4-20+

4 Way-0° 50Ω 1000 to 2000 MHz

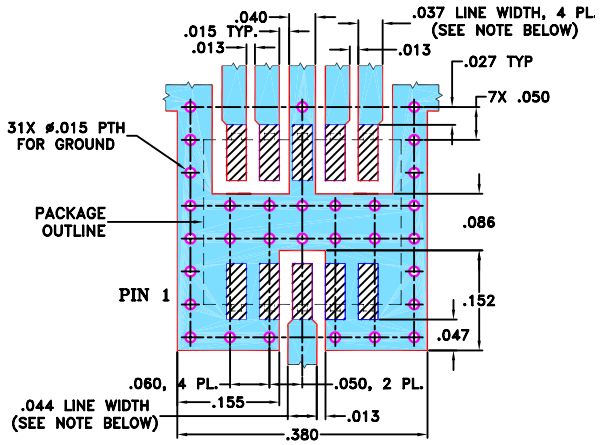
PIN CONNECTIONS

SUM PORT (PORT S)	3
PORT 1	6
PORT 2	7
PORT 3	9
PORT 4	10
GROUND	1,2,4,5,8

*PRODUCT MARKING: SCA-4-20

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

EVALUATION BOARD MCL P/N: TB-SCA-4-20+
SUGGESTED PCB LAYOUT (PL-125)

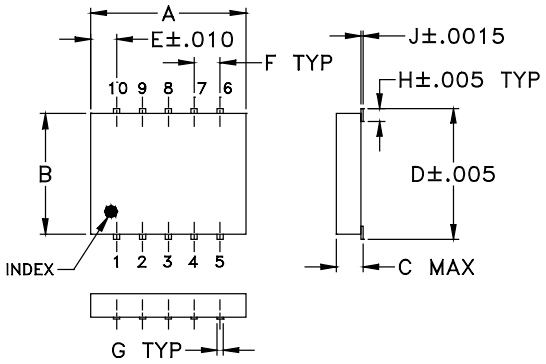


NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS 0.020" ± 0.0015", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

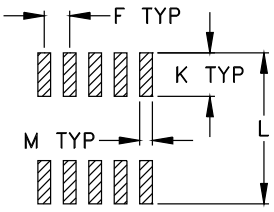
DENOTES PCB COPPER LAYOUT

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inches / mm)

A	B	C	D	E	F	G
.30	.250	.052	.266	.050	.050	.012
7.62	6.35	1.32	6.76	1.27	1.27	0.30

H	J	K	L	M		wt
.029	.004	.085	.296	.030		grams
0.74	0.10	2.16	7.52	0.76		0.25

TAPE & REEL INFORMATION: F34

SURFACE MOUNT

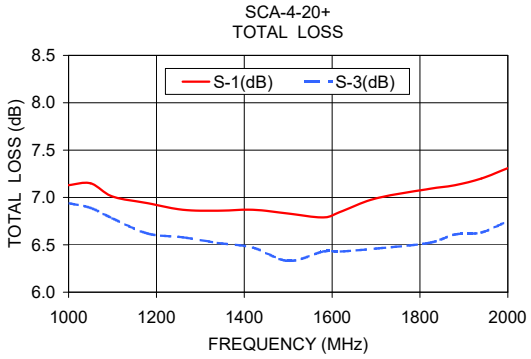
Power Splitter/Combiner SCA-4-20+

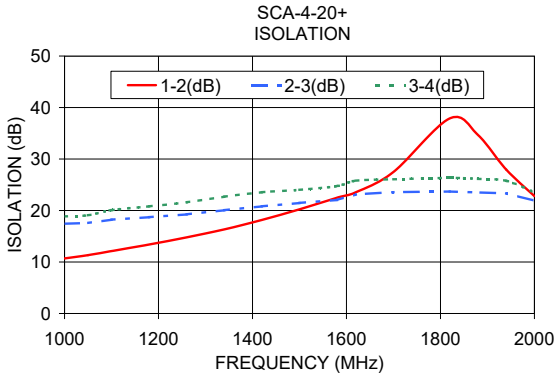
4 Way-0° 50Ω 1000 to 2000 MHz

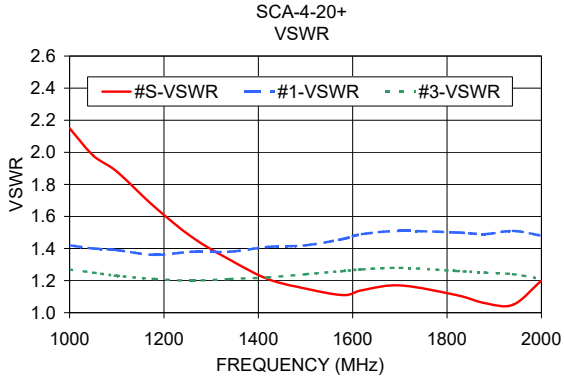
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss[1] (dB)				Amplitude Unbalance (dB)	Isolation (dB)			Phase Unbalance (deg.)	VSWR (:1)				
	S-1	S-2	S-3	S-4		1-2	1-3	2-3		S	1	2	3	4
1000.00	7.13	6.97	6.94	7.29	0.35	10.70	17.43	18.86	0.86	2.15	1.42	1.29	1.27	1.44
1050.00	7.15	6.96	6.89	7.25	0.36	11.34	17.57	19.08	0.31	1.98	1.40	1.27	1.25	1.41
1100.00	7.01	6.85	6.78	7.11	0.33	12.12	18.22	20.08	0.48	1.88	1.39	1.25	1.23	1.39
1180.00	6.94	6.73	6.62	7.00	0.38	13.40	18.71	20.81	0.93	1.66	1.36	1.25	1.21	1.37
1260.00	6.87	6.68	6.58	6.94	0.36	14.79	19.24	21.60	1.09	1.47	1.38	1.25	1.20	1.35
1340.00	6.86	6.63	6.52	6.92	0.39	16.34	20.06	22.68	0.82	1.33	1.38	1.25	1.21	1.36
1420.00	6.87	6.58	6.47	6.91	0.44	18.17	20.82	23.55	1.04	1.21	1.41	1.27	1.22	1.37
1500.00	6.83	6.44	6.33	6.84	0.51	20.24	21.46	24.01	0.89	1.15	1.42	1.29	1.24	1.38
1580.00	6.79	6.45	6.43	6.86	0.43	22.50	22.05	24.74	0.95	1.11	1.46	1.29	1.26	1.39
1620.00	6.85	6.49	6.43	6.88	0.45	23.56	23.13	25.80	1.38	1.14	1.49	1.31	1.27	1.42
1700.00	6.99	6.52	6.46	7.06	0.60	27.50	23.57	26.06	2.23	1.17	1.51	1.30	1.28	1.42
1820.00	7.09	6.56	6.52	7.14	0.62	37.89	23.68	26.33	1.50	1.11	1.50	1.28	1.26	1.42
1880.00	7.13	6.61	6.61	7.23	0.62	34.66	23.52	26.14	2.04	1.06	1.49	1.27	1.25	1.42
1940.00	7.20	6.67	6.63	7.27	0.64	27.96	23.34	25.78	1.94	1.05	1.51	1.24	1.24	1.42
2000.00	7.31	6.76	6.75	7.38	0.63	22.79	21.89	23.53	1.31	1.20	1.48	1.21	1.21	1.41

1. Total Loss = Insertion Loss + 6.0 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 SCA-4-20+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0 dBm @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
300	7.88	7.87	7.86	7.91	0.05	0.45	6.38	10.90	6.41	3.46	2.60	2.55	2.57	2.64
400	7.78	7.74	7.73	7.83	0.09	0.68	6.48	12.18	6.51	3.26	2.31	2.23	2.25	2.35
500	7.64	7.58	7.57	7.69	0.12	0.84	6.88	13.47	6.90	3.03	2.09	2.00	2.00	2.13
600	7.48	7.40	7.39	7.55	0.16	1.08	7.48	14.75	7.48	2.79	1.94	1.81	1.81	1.96
700	7.33	7.22	7.20	7.39	0.19	1.30	8.21	16.07	8.19	2.55	1.82	1.67	1.66	1.82
800	7.17	7.05	7.02	7.22	0.21	1.55	9.07	17.42	9.01	2.31	1.73	1.57	1.55	1.71
900	7.04	6.89	6.86	7.08	0.22	1.75	10.01	18.78	9.92	2.09	1.66	1.50	1.47	1.63
925	7.02	6.86	6.82	7.04	0.23	1.80	10.26	19.12	10.18	2.04	1.64	1.48	1.45	1.61
950	6.99	6.83	6.78	7.01	0.23	1.88	10.51	19.47	10.43	1.99	1.63	1.47	1.44	1.59
975	6.97	6.79	6.75	6.98	0.23	1.95	10.78	19.82	10.69	1.95	1.62	1.46	1.43	1.57
1000	6.94	6.76	6.71	6.95	0.24	2.05	11.05	20.17	10.96	1.90	1.60	1.44	1.41	1.55
1050	6.90	6.71	6.66	6.90	0.25	2.15	11.62	20.86	11.52	1.81	1.58	1.42	1.39	1.52
1075	6.88	6.68	6.64	6.89	0.25	2.17	11.91	21.21	11.82	1.77	1.56	1.41	1.38	1.51
1100	6.87	6.66	6.60	6.86	0.26	2.27	12.22	21.55	12.11	1.73	1.56	1.40	1.37	1.50
1125	6.85	6.64	6.58	6.84	0.27	2.32	12.53	21.89	12.43	1.70	1.54	1.39	1.37	1.48
1150	6.84	6.62	6.56	6.82	0.28	2.37	12.86	22.21	12.75	1.66	1.53	1.38	1.36	1.47
1175	6.83	6.60	6.55	6.81	0.29	2.47	13.20	22.53	13.08	1.63	1.52	1.38	1.35	1.46
1200	6.82	6.58	6.52	6.79	0.30	2.51	13.55	22.85	13.44	1.60	1.51	1.37	1.34	1.45
1225	6.82	6.57	6.51	6.79	0.31	2.49	13.92	23.16	13.80	1.57	1.51	1.36	1.34	1.44
1250	6.80	6.55	6.49	6.77	0.31	2.62	14.30	23.46	14.18	1.54	1.50	1.36	1.33	1.44
1275	6.80	6.54	6.48	6.77	0.32	2.65	14.71	23.75	14.58	1.51	1.49	1.35	1.33	1.43
1300	6.79	6.53	6.47	6.75	0.33	2.70	15.14	24.02	15.00	1.48	1.48	1.35	1.32	1.42
1325	6.79	6.51	6.46	6.75	0.34	2.76	15.58	24.29	15.44	1.46	1.47	1.34	1.32	1.42
1350	6.79	6.50	6.45	6.75	0.34	2.80	16.06	24.54	15.91	1.43	1.46	1.33	1.32	1.41
1375	6.79	6.49	6.44	6.74	0.35	2.86	16.56	24.78	16.41	1.41	1.46	1.33	1.32	1.41
1400	6.79	6.49	6.43	6.75	0.36	2.89	17.10	25.01	16.94	1.39	1.45	1.32	1.31	1.40
1450	6.79	6.47	6.42	6.75	0.38	3.00	18.30	25.42	18.11	1.35	1.43	1.31	1.31	1.39
1475	6.79	6.46	6.41	6.75	0.39	3.03	18.97	25.59	18.76	1.32	1.42	1.31	1.30	1.39
1500	6.80	6.45	6.41	6.76	0.39	3.01	19.71	25.75	19.46	1.30	1.42	1.30	1.30	1.38
1525	6.80	6.45	6.40	6.76	0.40	3.02	20.51	25.89	20.24	1.28	1.41	1.29	1.29	1.38
1550	6.80	6.44	6.40	6.77	0.40	3.07	21.40	26.02	21.10	1.26	1.40	1.29	1.29	1.38
1575	6.81	6.44	6.40	6.77	0.41	3.09	22.40	26.12	22.06	1.24	1.39	1.28	1.29	1.37
1600	6.82	6.44	6.39	6.78	0.42	3.10	23.54	26.20	23.09	1.22	1.38	1.27	1.28	1.37
1625	6.83	6.44	6.39	6.80	0.43	3.05	24.88	26.25	24.33	1.20	1.37	1.26	1.27	1.37
1650	6.84	6.43	6.40	6.81	0.44	3.10	26.46	26.29	25.78	1.18	1.37	1.26	1.27	1.36
1675	6.85	6.44	6.40	6.82	0.45	3.08	28.41	26.30	27.55	1.16	1.36	1.25	1.26	1.36
1700	6.86	6.44	6.40	6.83	0.47	3.04	30.92	26.29	29.78	1.14	1.35	1.24	1.25	1.36
1725	6.88	6.45	6.41	6.86	0.47	3.04	34.45	26.24	32.82	1.13	1.34	1.23	1.24	1.35
1750	6.89	6.46	6.42	6.87	0.48	2.98	39.89	26.17	37.52	1.12	1.33	1.22	1.24	1.35
1775	6.92	6.47	6.43	6.90	0.49	3.01	43.31	26.08	47.23	1.12	1.32	1.21	1.22	1.34
1800	6.95	6.49	6.44	6.93	0.50	3.00	36.97	25.94	42.40	1.13	1.31	1.20	1.22	1.34
1825	6.99	6.51	6.46	6.96	0.53	3.00	32.40	25.77	35.19	1.14	1.30	1.19	1.20	1.34
1850	7.02	6.53	6.48	7.00	0.54	2.99	29.23	25.56	31.14	1.17	1.30	1.18	1.19	1.33
1875	7.05	6.57	6.51	7.04	0.54	2.97	26.87	25.32	28.33	1.20	1.29	1.16	1.18	1.33
1900	7.10	6.60	6.54	7.08	0.56	2.95	24.99	25.05	26.16	1.24	1.28	1.15	1.17	1.32
1925	7.16	6.64	6.58	7.13	0.58	2.92	23.40	24.75	24.40	1.29	1.27	1.14	1.16	1.32
1950	7.21	6.69	6.62	7.19	0.59	2.92	22.02	24.42	22.90	1.34	1.27	1.13	1.14	1.31
2000	7.35	6.81	6.73	7.33	0.61	2.80	19.72	23.68	20.44	1.45	1.26	1.11	1.12	1.31
2050	7.54	6.97	6.87	7.51	0.66	2.85	17.84	22.90	18.45	1.60	1.26	1.09	1.10	1.31
2100	7.76	7.18	7.07	7.74	0.68	2.80	16.24	22.08	16.78	1.77	1.27	1.10	1.10	1.31
2200	8.38	7.75	7.60	8.33	0.77	2.75	13.73	20.65	14.14	2.25	1.31	1.18	1.17	1.36
2300	9.19	8.53	8.39	9.16	0.80	2.73	11.85	19.54	12.19	2.94	1.39	1.28	1.27	1.45

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

4 Way-0° Power Splitter/Combiner SCA-4-20+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0 dBm @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
300	7.85	7.84	7.82	7.88	0.06	0.51	6.32	10.84	6.38	3.50	2.63	2.58	2.59	2.66
400	7.73	7.69	7.69	7.79	0.10	0.75	6.42	12.12	6.49	3.30	2.33	2.25	2.27	2.36
500	7.59	7.53	7.52	7.66	0.14	0.86	6.83	13.39	6.87	3.08	2.12	2.02	2.01	2.14
600	7.42	7.34	7.35	7.52	0.17	1.11	7.41	14.66	7.45	2.84	1.95	1.83	1.82	1.97
700	7.26	7.16	7.15	7.35	0.20	1.40	8.13	15.96	8.14	2.59	1.83	1.69	1.68	1.83
800	7.10	6.97	6.96	7.18	0.21	1.66	8.96	17.28	8.94	2.35	1.74	1.58	1.56	1.72
900	6.96	6.81	6.78	7.02	0.23	1.86	9.87	18.62	9.83	2.13	1.67	1.50	1.47	1.63
925	6.92	6.77	6.74	6.98	0.24	1.95	10.11	18.96	10.08	2.07	1.65	1.48	1.45	1.60
950	6.90	6.73	6.70	6.94	0.24	2.04	10.36	19.31	10.33	2.02	1.64	1.47	1.44	1.59
975	6.87	6.70	6.67	6.91	0.24	2.04	10.62	19.64	10.58	1.97	1.62	1.46	1.43	1.57
1000	6.84	6.66	6.63	6.88	0.25	2.15	10.87	19.99	10.84	1.92	1.60	1.44	1.41	1.55
1050	6.79	6.61	6.57	6.83	0.26	2.22	11.42	20.67	11.38	1.84	1.58	1.42	1.39	1.52
1075	6.78	6.58	6.55	6.81	0.26	2.25	11.71	21.01	11.66	1.80	1.56	1.41	1.38	1.51
1100	6.76	6.55	6.52	6.78	0.27	2.32	12.01	21.34	11.95	1.76	1.56	1.40	1.37	1.49
1125	6.75	6.54	6.49	6.76	0.27	2.37	12.31	21.68	12.25	1.72	1.54	1.39	1.36	1.48
1150	6.73	6.51	6.47	6.75	0.28	2.37	12.62	21.99	12.56	1.68	1.53	1.38	1.35	1.47
1175	6.72	6.49	6.45	6.73	0.28	2.44	12.95	22.30	12.88	1.65	1.52	1.37	1.35	1.46
1200	6.71	6.47	6.43	6.71	0.28	2.51	13.29	22.60	13.23	1.61	1.51	1.37	1.34	1.45
1225	6.70	6.46	6.41	6.70	0.29	2.47	13.65	22.91	13.58	1.58	1.51	1.36	1.33	1.44
1250	6.69	6.44	6.39	6.69	0.30	2.57	14.01	23.20	13.95	1.56	1.49	1.35	1.33	1.43
1275	6.69	6.43	6.38	6.68	0.31	2.63	14.41	23.48	14.34	1.53	1.49	1.35	1.32	1.42
1300	6.68	6.41	6.36	6.66	0.32	2.58	14.82	23.74	14.74	1.50	1.48	1.34	1.32	1.42
1325	6.68	6.40	6.35	6.66	0.33	2.62	15.25	24.01	15.16	1.48	1.47	1.33	1.32	1.41
1350	6.67	6.38	6.34	6.65	0.33	2.70	15.70	24.26	15.61	1.45	1.47	1.33	1.31	1.40
1375	6.67	6.37	6.33	6.65	0.34	2.73	16.19	24.48	16.10	1.43	1.46	1.32	1.31	1.40
1400	6.67	6.36	6.32	6.65	0.34	2.81	16.71	24.71	16.61	1.41	1.45	1.32	1.31	1.39
1450	6.66	6.34	6.30	6.64	0.36	2.86	17.86	25.09	17.72	1.36	1.43	1.31	1.30	1.39
1475	6.67	6.34	6.28	6.64	0.39	2.92	18.50	25.24	18.35	1.34	1.43	1.31	1.29	1.38
1500	6.67	6.33	6.30	6.65	0.37	2.97	19.18	25.44	19.01	1.32	1.42	1.30	1.29	1.38
1525	6.67	6.32	6.28	6.65	0.38	2.94	19.94	25.58	19.76	1.30	1.41	1.29	1.29	1.37
1550	6.67	6.31	6.27	6.66	0.40	2.98	20.77	25.69	20.52	1.28	1.40	1.29	1.29	1.38
1575	6.67	6.30	6.28	6.67	0.40	3.01	21.72	25.79	21.42	1.26	1.39	1.28	1.29	1.37
1600	6.67	6.30	6.27	6.67	0.40	2.98	22.79	25.85	22.40	1.24	1.39	1.28	1.28	1.37
1625	6.69	6.30	6.26	6.68	0.42	3.04	24.00	25.91	23.53	1.22	1.38	1.27	1.27	1.37
1650	6.69	6.29	6.26	6.69	0.43	3.04	25.43	25.94	24.86	1.19	1.37	1.26	1.27	1.36
1675	6.70	6.29	6.26	6.69	0.44	3.04	27.15	25.96	26.41	1.17	1.36	1.25	1.26	1.36
1700	6.71	6.29	6.26	6.70	0.46	3.09	29.33	25.95	28.34	1.15	1.36	1.24	1.26	1.36
1725	6.72	6.29	6.27	6.73	0.47	3.05	32.18	25.93	30.72	1.14	1.35	1.24	1.25	1.35
1750	6.74	6.30	6.27	6.75	0.48	3.07	36.84	25.82	34.31	1.12	1.34	1.22	1.24	1.35
1775	6.76	6.31	6.27	6.76	0.49	3.11	46.86	25.75	40.47	1.12	1.33	1.22	1.23	1.34
1800	6.79	6.32	6.29	6.79	0.50	3.15	44.19	25.64	55.11	1.12	1.32	1.21	1.22	1.34
1825	6.82	6.35	6.31	6.81	0.51	3.14	35.73	25.47	39.38	1.13	1.31	1.20	1.21	1.34
1850	6.84	6.36	6.32	6.85	0.52	3.16	31.32	25.25	33.57	1.16	1.30	1.18	1.20	1.33
1875	6.88	6.39	6.35	6.89	0.54	3.17	28.35	25.02	30.07	1.19	1.29	1.17	1.20	1.33
1900	6.91	6.43	6.38	6.93	0.55	3.22	26.18	24.77	27.51	1.22	1.29	1.16	1.19	1.33
1925	6.96	6.46	6.41	6.98	0.57	3.16	24.35	24.46	25.52	1.27	1.28	1.14	1.17	1.32
1950	7.02	6.50	6.45	7.04	0.59	3.18	22.83	24.14	23.83	1.32	1.28	1.13	1.15	1.32
2000	7.15	6.61	6.55	7.17	0.62	3.13	20.31	23.41	21.14	1.44	1.26	1.11	1.12	1.31
2050	7.32	6.76	6.68	7.33	0.65	3.15	18.30	22.63	19.01	1.59	1.26	1.10	1.11	1.31
2100	7.53	6.95	6.87	7.55	0.68	3.11	16.62	21.84	17.23	1.76	1.28	1.11	1.11	1.32
2200	8.10	7.48	7.37	8.11	0.74	3.04	13.95	20.38	14.44	2.24	1.32	1.18	1.17	1.36
2300	8.90	8.23	8.11	8.91	0.79	2.87	11.96	19.23	12.39	2.94	1.40	1.28	1.27	1.45

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

4 Way-0° Power Splitter/Combiner SCA-4-20+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0 dBm @Temperature = +85°C

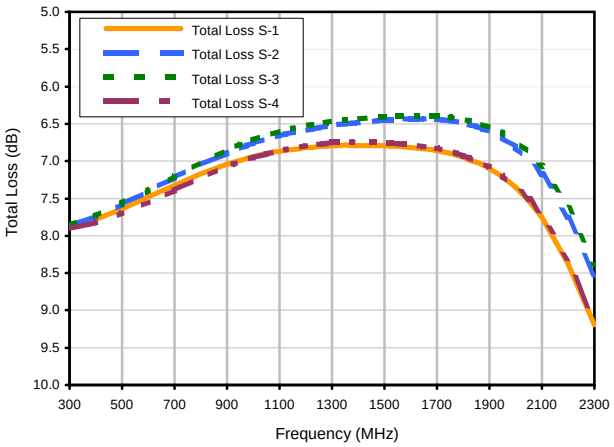
FREQ. (MHz)	TOTAL LOSS[1] (dB)				AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)				
	S-1	S-2	S-3	S-4			1-2	2-3	3-4	S	1	2	3	4
300	7.92	7.89	7.88	7.95	0.07	0.68	6.42	10.92	6.42	3.44	2.59	2.54	2.54	2.62
400	7.81	7.75	7.76	7.86	0.11	0.69	6.50	12.21	6.53	3.23	2.30	2.21	2.23	2.34
500	7.67	7.61	7.60	7.73	0.13	0.82	6.91	13.51	6.91	3.00	2.08	1.98	1.98	2.12
600	7.52	7.43	7.42	7.57	0.15	1.04	7.52	14.81	7.49	2.77	1.93	1.80	1.80	1.95
700	7.37	7.26	7.24	7.41	0.17	1.20	8.27	16.15	8.22	2.52	1.81	1.67	1.66	1.82
800	7.23	7.10	7.06	7.26	0.19	1.52	9.14	17.52	9.06	2.29	1.72	1.57	1.55	1.71
900	7.10	6.96	6.90	7.10	0.20	1.70	10.11	18.90	10.00	2.07	1.65	1.50	1.47	1.63
925	7.08	6.92	6.86	7.07	0.21	1.73	10.37	19.25	10.26	2.02	1.64	1.48	1.46	1.61
950	7.05	6.89	6.83	7.03	0.23	1.80	10.63	19.61	10.53	1.97	1.62	1.47	1.44	1.59
975	7.03	6.86	6.80	7.01	0.23	1.87	10.91	19.96	10.80	1.93	1.61	1.46	1.43	1.58
1000	7.01	6.83	6.77	6.97	0.24	2.01	11.19	20.31	11.07	1.88	1.59	1.45	1.42	1.56
1050	6.97	6.78	6.72	6.93	0.25	2.10	11.77	21.01	11.65	1.80	1.57	1.43	1.40	1.53
1075	6.95	6.76	6.70	6.91	0.26	2.12	12.08	21.37	11.95	1.76	1.56	1.42	1.39	1.52
1100	6.94	6.73	6.67	6.89	0.27	2.19	12.40	21.70	12.26	1.72	1.55	1.41	1.38	1.51
1125	6.92	6.72	6.65	6.87	0.27	2.26	12.72	22.06	12.59	1.68	1.54	1.40	1.37	1.49
1150	6.91	6.69	6.63	6.86	0.28	2.27	13.07	22.38	12.91	1.65	1.53	1.39	1.36	1.48
1175	6.91	6.68	6.61	6.85	0.30	2.34	13.42	22.70	13.26	1.61	1.52	1.38	1.35	1.47
1200	6.90	6.66	6.59	6.84	0.31	2.39	13.78	23.02	13.63	1.58	1.51	1.37	1.35	1.46
1225	6.90	6.65	6.57	6.83	0.32	2.41	14.17	23.34	14.00	1.55	1.51	1.37	1.34	1.45
1250	6.89	6.63	6.56	6.82	0.33	2.55	14.57	23.64	14.40	1.52	1.50	1.36	1.34	1.44
1275	6.88	6.62	6.55	6.81	0.33	2.54	14.99	23.93	14.82	1.49	1.49	1.36	1.33	1.44
1300	6.88	6.61	6.53	6.81	0.35	2.55	15.44	24.21	15.24	1.47	1.48	1.35	1.33	1.43
1325	6.88	6.59	6.53	6.81	0.35	2.62	15.90	24.48	15.71	1.44	1.47	1.34	1.33	1.42
1350	6.87	6.58	6.52	6.80	0.36	2.63	16.40	24.74	16.20	1.42	1.47	1.33	1.32	1.42
1375	6.87	6.57	6.51	6.80	0.37	2.69	16.93	24.97	16.72	1.39	1.46	1.33	1.32	1.41
1400	6.88	6.56	6.50	6.80	0.38	2.74	17.49	25.20	17.28	1.37	1.45	1.32	1.31	1.40
1450	6.88	6.55	6.49	6.81	0.40	2.80	18.76	25.60	18.50	1.32	1.44	1.31	1.31	1.40
1475	6.89	6.54	6.48	6.81	0.41	2.84	19.48	25.76	19.20	1.30	1.43	1.30	1.30	1.39
1500	6.89	6.55	6.50	6.83	0.40	2.99	20.25	25.96	19.95	1.28	1.42	1.29	1.30	1.39
1525	6.90	6.53	6.48	6.83	0.42	2.87	21.12	26.09	20.79	1.26	1.41	1.29	1.29	1.38
1550	6.90	6.53	6.47	6.84	0.42	2.90	22.06	26.22	21.67	1.24	1.40	1.28	1.29	1.38
1575	6.91	6.52	6.48	6.85	0.43	2.92	23.16	26.32	22.71	1.21	1.40	1.27	1.28	1.37
1600	6.92	6.52	6.48	6.86	0.44	2.91	24.42	26.40	23.88	1.19	1.39	1.27	1.27	1.37
1625	6.93	6.53	6.48	6.89	0.45	2.92	25.89	26.46	25.25	1.18	1.38	1.26	1.27	1.37
1650	6.94	6.53	6.48	6.90	0.46	2.91	27.66	26.50	26.90	1.16	1.37	1.25	1.26	1.36
1675	6.96	6.53	6.48	6.90	0.47	2.91	29.87	26.51	28.91	1.14	1.36	1.24	1.25	1.36
1700	6.98	6.54	6.48	6.93	0.49	2.95	32.71	26.51	31.57	1.12	1.35	1.23	1.24	1.35
1725	7.00	6.55	6.51	6.95	0.49	2.87	36.11	26.53	35.20	1.12	1.35	1.22	1.24	1.35
1750	7.02	6.57	6.52	6.97	0.50	2.79	39.08	26.41	40.09	1.11	1.33	1.21	1.23	1.34
1775	7.05	6.58	6.53	7.00	0.52	2.86	36.61	26.34	40.80	1.12	1.33	1.20	1.22	1.34
1800	7.08	6.60	6.55	7.02	0.53	2.81	32.76	26.23	35.63	1.13	1.32	1.19	1.21	1.33
1825	7.12	6.63	6.58	7.07	0.54	2.97	29.76	26.08	31.70	1.15	1.31	1.18	1.20	1.33
1850	7.15	6.66	6.59	7.11	0.56	2.96	27.36	25.87	28.81	1.18	1.30	1.17	1.18	1.32
1875	7.21	6.71	6.63	7.15	0.58	3.07	25.35	25.60	26.62	1.21	1.29	1.15	1.17	1.32
1900	7.25	6.74	6.66	7.21	0.58	3.03	23.82	25.38	24.78	1.25	1.29	1.14	1.16	1.31
1925	7.30	6.78	6.70	7.26	0.60	3.05	22.41	25.07	23.27	1.30	1.28	1.13	1.15	1.31
1950	7.36	6.83	6.75	7.33	0.61	3.13	21.18	24.74	21.93	1.35	1.27	1.12	1.13	1.30
2000	7.51	6.97	6.87	7.48	0.64	3.03	19.07	24.00	19.70	1.47	1.26	1.09	1.11	1.30
2050	7.70	7.13	7.02	7.66	0.68	2.96	17.33	23.22	17.85	1.62	1.26	1.08	1.09	1.30
2100	7.94	7.35	7.23	7.88	0.71	2.92	15.85	22.41	16.29	1.79	1.27	1.10	1.09	1.31
2200	8.56	7.95	7.79	8.49	0.77	2.88	13.47	20.96	13.80	2.27	1.32	1.17	1.16	1.35
2300	9.44	8.78	8.61	9.34	0.83	2.95	11.68	19.83	11.95	2.97	1.39	1.27	1.27	1.44

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

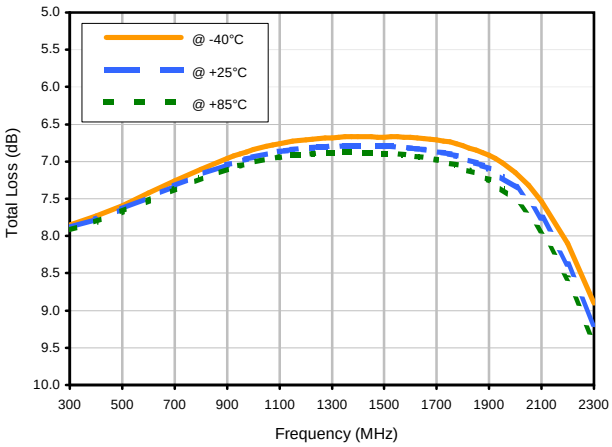
4 Way-0° Power Splitter/Combiner SCA-4-20+

Typical Performance Curves

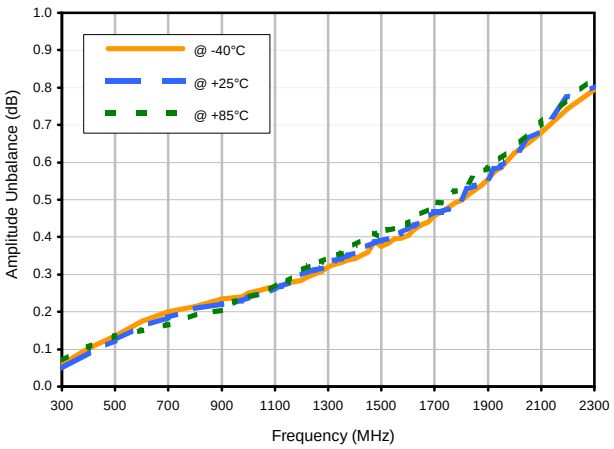
Total Loss



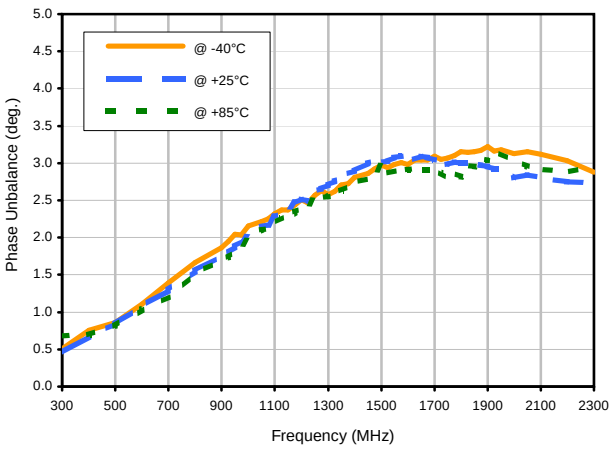
Total Loss S-1 vs. TEMPERATURE



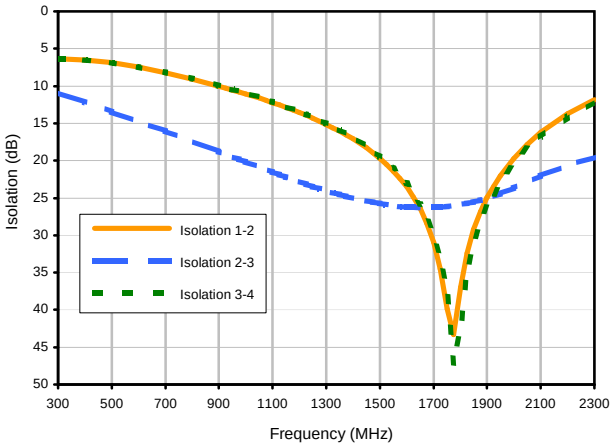
Amplitude Unbalance vs. TEMPERATURE



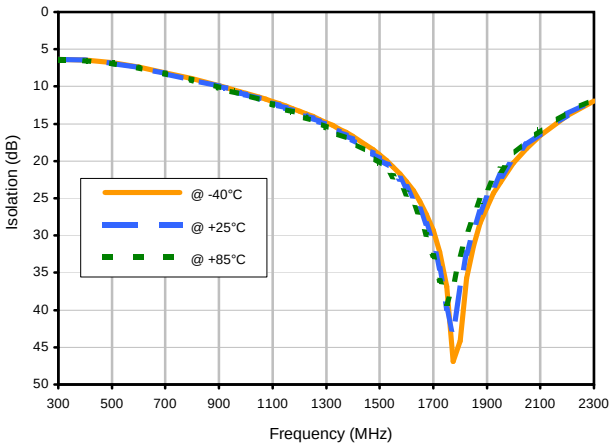
Phase Unbalance vs. TEMPERATURE



Isolation

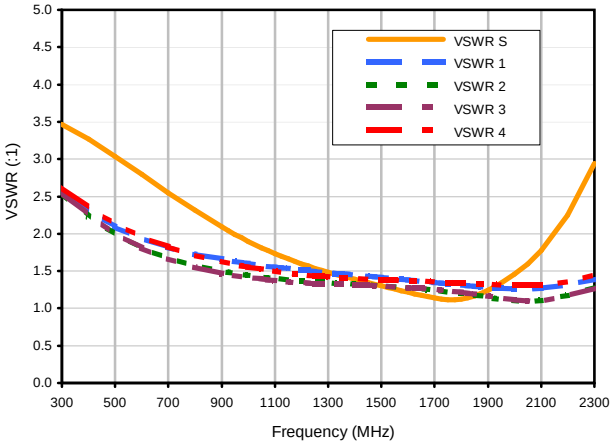


Isolation 1-2 vs. TEMPERATURE

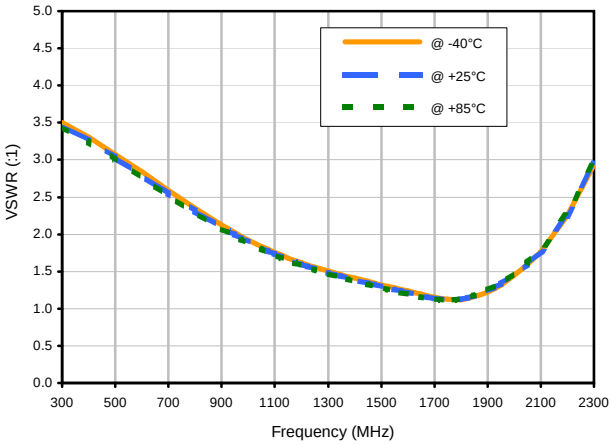


Typical Performance Curves

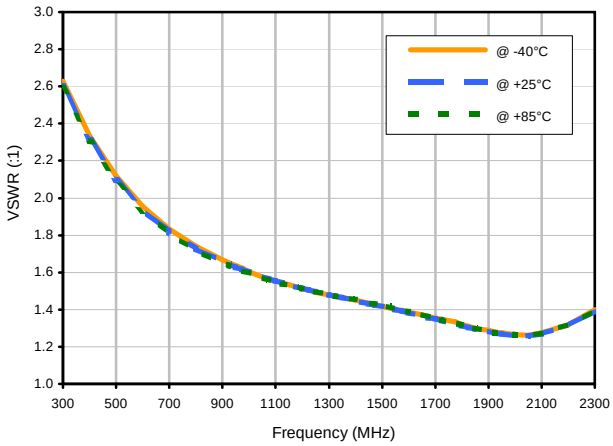
VSWR



VSWR SUM vs. TEMPERATURE



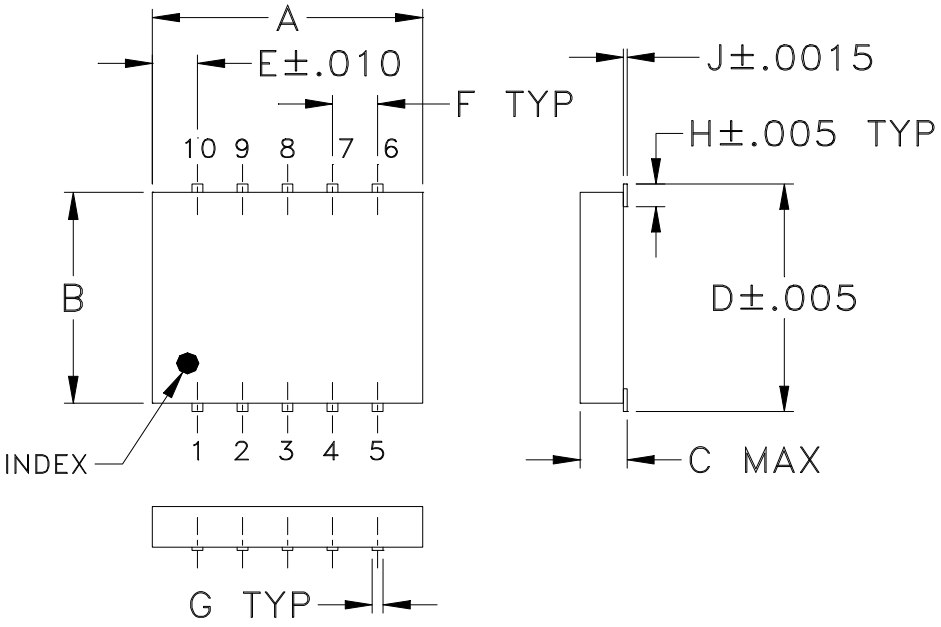
VSWR OUT1 vs. TEMPERATURE



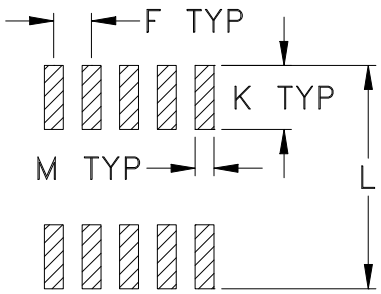
Case Style DZ

DZ944

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
DZ944	.30 (7.62)	.250 (6.35)	.052 (1.32)	.266 (6.76)	.050 (1.27)	.050 (1.27)	.012 (0.30)	.029 (0.74)	.004 (0.10)	.085 (2.16)	.296 (7.52)	.030 (0.76)	0.25

Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3Pl. ± .005

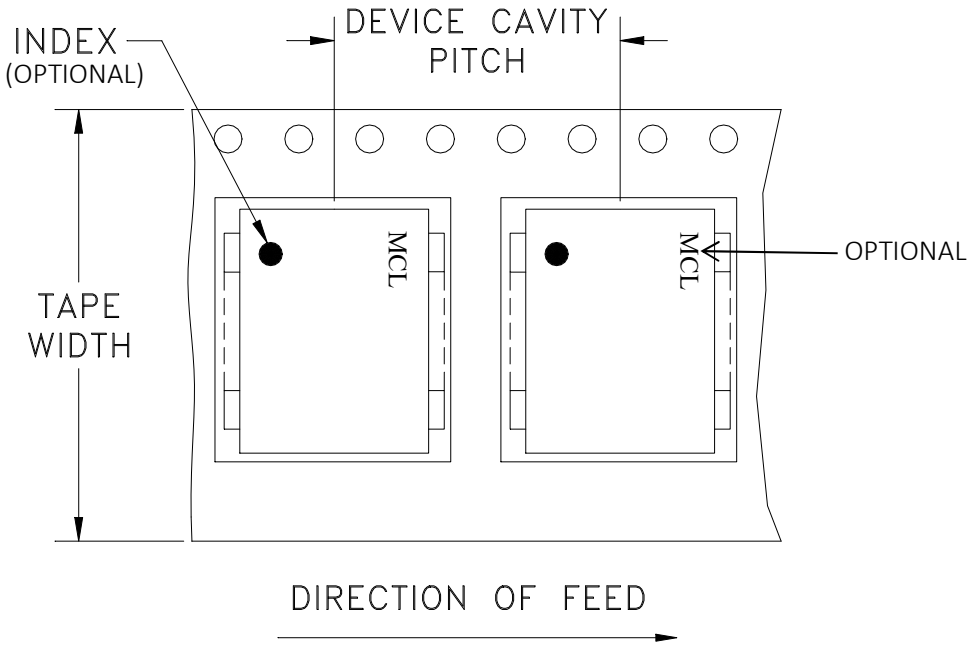
Notes:

1. Case material: Ceramic.
2. Termination finish:
   For RoHS Case Styles: Tin plate. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

Tape & Reel Packaging TR-F34

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
16	12	7	Small quantity standard (see note)	20
				50
				100
				200
		13	Standard	500
				1000

Note: Availability of small reel quantity varies by model.
Refer to pricing and availability on individual model dashboard.

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.

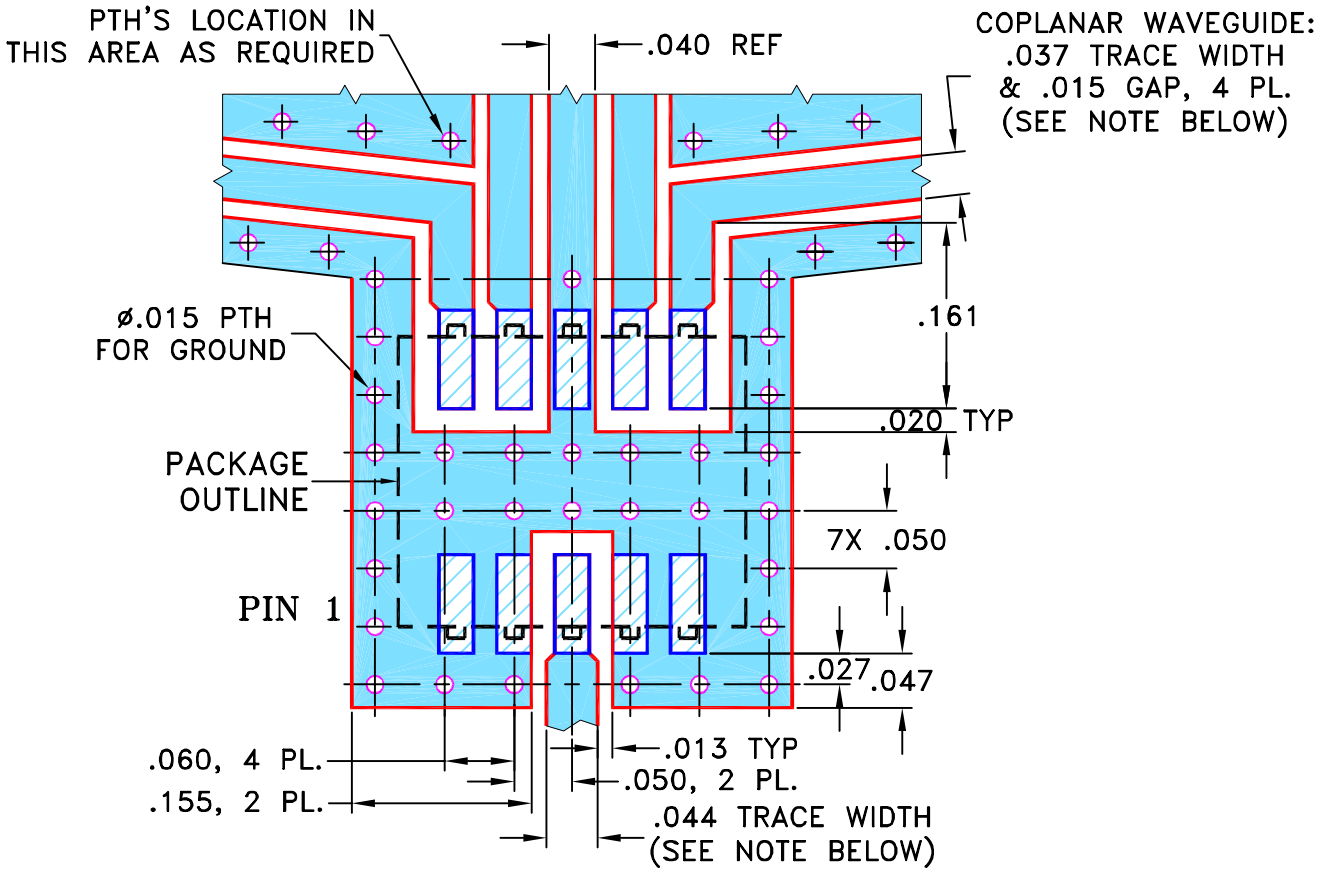
Go to: www.minicircuits.com/pages/pdfs/tape.pdf

Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M84705	NEW RELEASE	01/02/03	MMG	ABD
A	M91639	REMOVED NOTE 2, UPDATED DIMENSIONS	04/14/04	AV	DJ
B	M102713	UPDATED DWG. ACCORDING AS B14-TB-241	01/25/06	MMG	ABD
		& ADDED "...WITH SMOBC"			

SUGGESTED MOUNTING CONFIGURATION
FOR DZ944 CASE STYLE, "ny" PIN CONNECTION.



NOTES: 1. TRACE WIDTH AND GAP ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015".
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.

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	MMG	12/30/02
TOLERANCES ON:	CHECKED	AV	01/02/03
2 PL DECIMALS ±	APPROVED	ABD	01/02/03
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

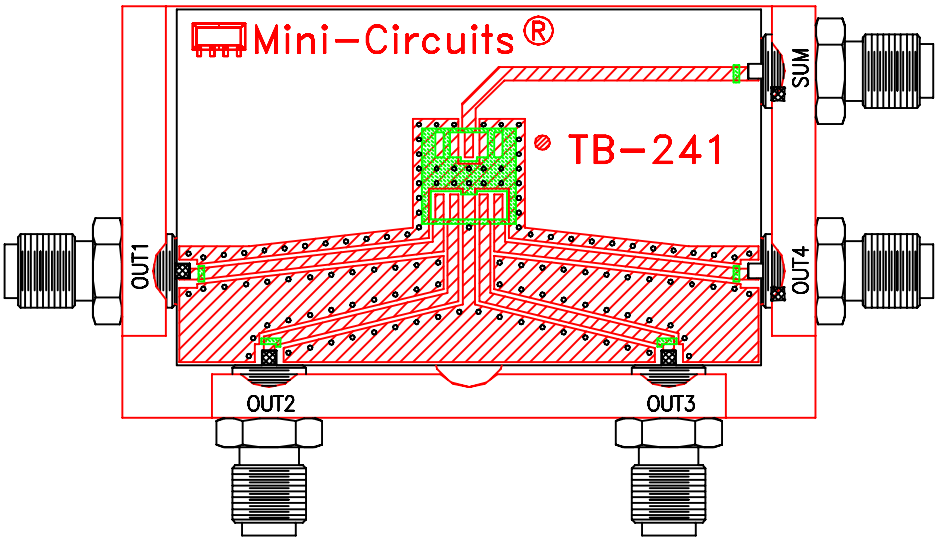
Mini-Circuits®
13 Neptune Avenue
Brooklyn NY 11235

PL, ny, DZ944, SCA, TB-241

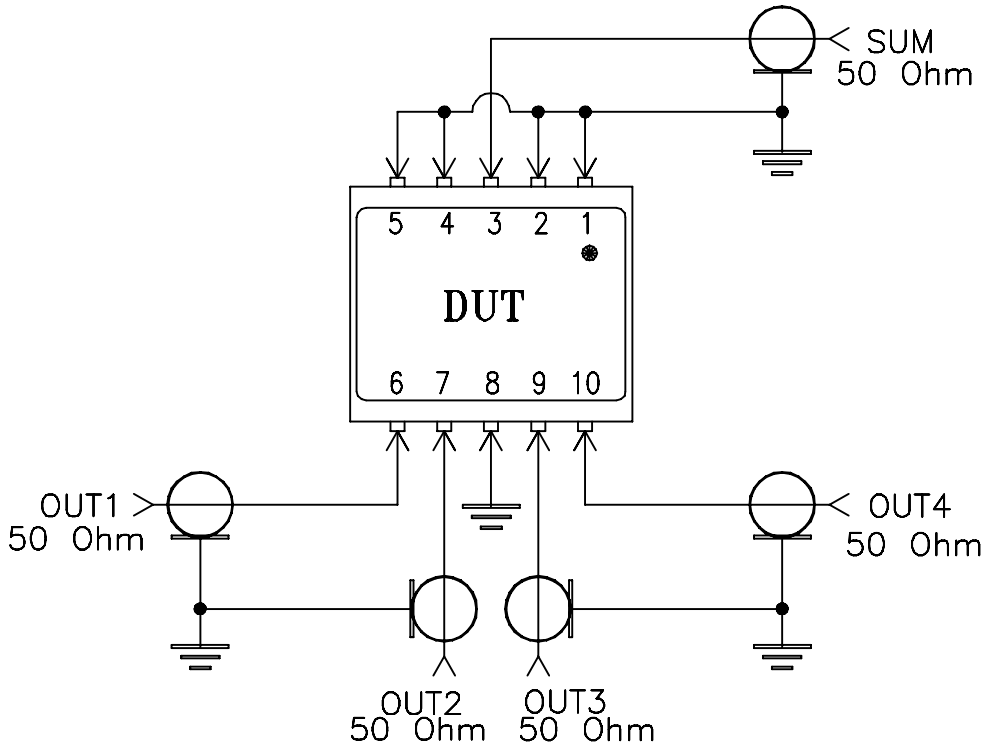
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-125	B

FILE:	SCALE:	SHEET:
98PL125	6:1	1 OF 1

Evaluation Board and Circuit



TB-241



Schematic Diagram

Notes:

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

Mini-Circuits®

Mini-Circuits

Environmental Specifications ENV05

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	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102-C, Condition C
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process: 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215