

# Surface Mount Power Splitter/Combiner

## SCA-4-10+

4 Way-0° 50Ω 5 to 1000 MHz



Generic photo used for illustration purposes only

CASE STYLE: DZ943

### Maximum Ratings

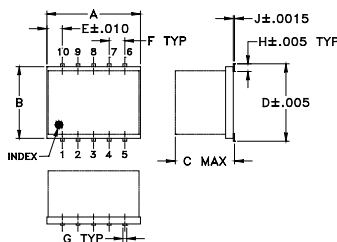
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	0.375W max.

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

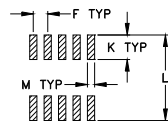
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

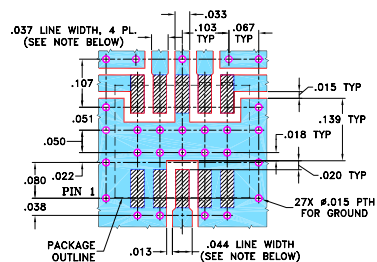


Suggested Layout  
Tolerance to be within ±0.02

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.190	.266	.050	.050	.012
7.62	6.35	4.83	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	grams	

### Demo Board MCL P/N: TB-238 Suggested PCB Layout (PL-124)



- 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

### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/WCLStore/terms.jsp](http://www.minicircuits.com/WCLStore/terms.jsp)

### Features

- wideband, 5-1000 MHz
- high isolation, 25 dB typ.
- good matching VSWR, 1.20 typ.
- excellent amplitude unbalance, 0.3 dB typ.

### Applications

- cellular
- UHF/VHF receivers/transmitters

**+RoHS Compliant**  
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500, 1000

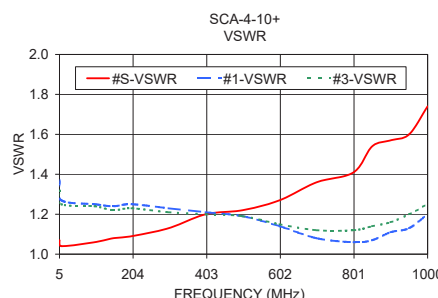
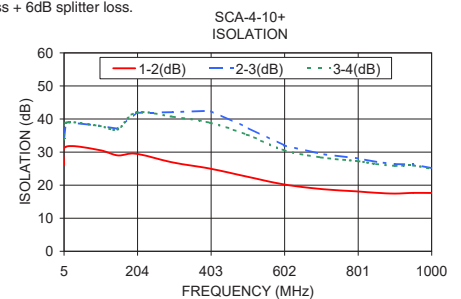
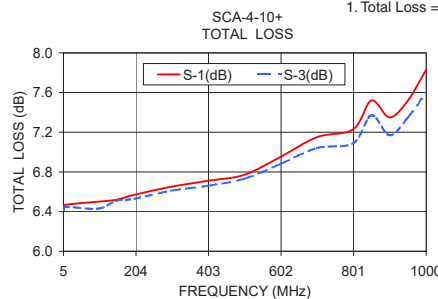
### Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) ABOVE 6.0 dB		PHASE UNBALANCE (Degrees)	AMPLITUDE UNBALANCE (dB)
	Typ.	Min.	Typ.	Max.		
$f_L - f_U$					Max.	Max.
5-1000						
5-400	30	18	0.7	1.3	5	0.8
400-500	25	17	0.8	1.5	6	0.7
500-1000	20	15	1.2	2.5	11	0.9

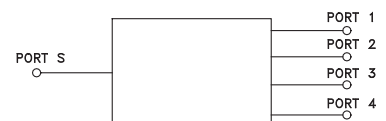
### Typical Performance Data

Freq. (MHz)	Total Loss <sup>1</sup> (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	1-3	2-3						
5.00	6.45	6.24	6.42	6.64	0.40	26.19	34.01	33.81	1.29	1.07	1.37	1.31	1.32	1.38
10.00	6.47	6.29	6.45	6.63	0.34	31.60	39.09	38.86	0.13	1.04	1.27	1.22	1.25	1.30
100.00	6.50	6.29	6.43	6.66	0.37	30.63	37.97	37.92	0.15	1.06	1.25	1.21	1.24	1.28
150.00	6.52	6.35	6.51	6.66	0.31	29.01	37.05	36.89	0.44	1.08	1.24	1.20	1.22	1.26
200.00	6.57	6.39	6.53	6.71	0.32	29.49	41.86	41.97	0.24	1.09	1.25	1.21	1.23	1.26
300.00	6.65	6.48	6.61	6.79	0.31	26.87	42.07	40.69	0.32	1.13	1.23	1.21	1.21	1.23
400.00	6.71	6.53	6.66	6.84	0.31	25.00	42.50	38.88	0.55	1.20	1.21	1.20	1.20	1.20
500.00	6.77	6.61	6.73	6.89	0.29	22.58	37.45	35.25	0.71	1.22	1.19	1.20	1.19	1.18
600.00	6.95	6.76	6.88	7.06	0.30	20.22	32.04	30.58	0.90	1.27	1.14	1.16	1.15	1.12
700.00	7.15	6.93	7.04	7.24	0.32	18.85	29.45	28.38	1.14	1.36	1.08	1.13	1.12	1.06
800.00	7.23	6.99	7.09	7.30	0.31	18.09	28.08	27.25	1.36	1.41	1.06	1.15	1.12	1.03
850.00	7.52	7.28	7.37	7.57	0.29	17.68	27.02	26.38	1.88	1.54	1.07	1.17	1.14	1.06
900.00	7.35	7.11	7.17	7.39	0.29	17.46	26.36	25.85	1.56	1.57	1.11	1.19	1.16	1.09
950.00	7.52	7.27	7.35	7.52	0.26	17.66	26.27	25.91	1.88	1.60	1.13	1.24	1.20	1.13
1000.00	7.83	7.57	7.60	7.85	0.29	17.65	25.13	24.92	2.65	1.74	1.20	1.29	1.25	1.19

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



### electrical schematic



# 4 Way-0° Power Splitter/Combiner

# SCA-4-10+

## Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +25°C

FREQ. (MHz)	TOTAL LOSS <sup>1</sup> (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
5	6.37	6.22	6.35	6.52	0.30	0.65	29.32	36.36	33.10	1.05	1.33	1.28	1.29	1.34
10	6.37	6.24	6.36	6.52	0.28	0.32	31.21	38.25	34.59	1.04	1.29	1.25	1.25	1.30
15	6.38	6.25	6.36	6.52	0.27	0.22	31.60	38.71	34.87	1.03	1.27	1.24	1.24	1.29
20	6.38	6.25	6.36	6.51	0.27	0.14	31.56	38.76	34.85	1.04	1.27	1.23	1.24	1.28
25	6.38	6.25	6.36	6.52	0.27	0.12	31.41	38.67	34.74	1.04	1.27	1.23	1.24	1.28
30	6.39	6.25	6.37	6.53	0.27	0.13	31.24	38.54	34.57	1.04	1.27	1.23	1.24	1.28
35	6.39	6.26	6.37	6.53	0.27	0.12	31.07	38.42	34.35	1.04	1.27	1.23	1.24	1.28
40	6.40	6.27	6.38	6.54	0.27	0.13	30.91	38.29	34.12	1.04	1.27	1.23	1.23	1.28
45	6.41	6.27	6.38	6.55	0.27	0.13	30.76	38.16	33.87	1.04	1.27	1.23	1.23	1.28
50	6.42	6.28	6.39	6.55	0.27	0.18	30.62	38.05	33.60	1.04	1.27	1.23	1.23	1.27
75	6.45	6.31	6.42	6.58	0.28	0.21	29.95	37.64	32.27	1.05	1.27	1.22	1.23	1.27
100	6.47	6.33	6.45	6.61	0.29	0.27	29.32	37.33	31.00	1.06	1.26	1.22	1.22	1.27
125	6.50	6.35	6.48	6.64	0.29	0.35	28.71	37.11	29.87	1.07	1.26	1.22	1.22	1.26
150	6.52	6.36	6.50	6.66	0.29	0.40	28.13	36.91	28.86	1.08	1.26	1.22	1.22	1.26
175	6.54	6.38	6.52	6.68	0.30	0.47	27.56	36.75	27.95	1.08	1.26	1.21	1.21	1.26
200	6.55	6.40	6.54	6.70	0.30	0.54	27.01	36.61	27.14	1.09	1.25	1.21	1.21	1.25
225	6.57	6.42	6.56	6.72	0.30	0.56	26.48	36.46	26.39	1.10	1.25	1.21	1.20	1.25
250	6.59	6.43	6.57	6.73	0.30	0.65	25.95	36.32	25.71	1.12	1.25	1.20	1.20	1.25
275	6.61	6.45	6.60	6.76	0.31	0.70	25.45	36.16	25.09	1.13	1.25	1.20	1.20	1.24
300	6.62	6.46	6.61	6.77	0.31	0.78	24.94	35.98	24.51	1.14	1.25	1.20	1.19	1.24
325	6.64	6.48	6.63	6.79	0.31	0.83	24.45	35.77	23.97	1.15	1.25	1.19	1.19	1.24
350	6.66	6.49	6.65	6.81	0.31	0.89	23.96	35.52	23.45	1.17	1.24	1.19	1.18	1.23
375	6.67	6.51	6.67	6.83	0.32	0.95	23.48	35.23	22.97	1.18	1.24	1.18	1.18	1.23
400	6.69	6.53	6.69	6.85	0.32	0.99	23.01	34.91	22.50	1.19	1.24	1.18	1.17	1.23
425	6.71	6.55	6.71	6.87	0.33	1.07	22.56	34.56	22.06	1.21	1.24	1.17	1.17	1.22
450	6.73	6.56	6.73	6.89	0.33	1.13	22.11	34.19	21.64	1.22	1.24	1.17	1.16	1.22
500	6.77	6.60	6.78	6.94	0.34	1.22	21.26	33.41	20.87	1.26	1.23	1.16	1.15	1.21
525	6.80	6.62	6.80	6.97	0.34	1.26	20.86	33.00	20.50	1.27	1.23	1.15	1.15	1.21
550	6.82	6.64	6.82	6.99	0.35	1.31	20.47	32.60	20.16	1.29	1.23	1.15	1.14	1.20
575	6.84	6.66	6.85	7.02	0.36	1.38	20.10	32.21	19.83	1.30	1.22	1.14	1.14	1.20
600	6.87	6.68	6.88	7.05	0.37	1.43	19.75	31.81	19.52	1.32	1.22	1.13	1.13	1.19
650	6.92	6.73	6.93	7.10	0.38	1.57	19.11	31.08	18.94	1.35	1.21	1.12	1.12	1.18
675	6.94	6.75	6.96	7.13	0.39	1.62	18.82	30.73	18.69	1.36	1.20	1.11	1.11	1.17
700	6.97	6.77	6.99	7.16	0.39	1.68	18.55	30.41	18.44	1.38	1.19	1.10	1.10	1.17
725	7.00	6.79	7.02	7.19	0.40	1.75	18.30	30.10	18.22	1.39	1.19	1.09	1.10	1.16
750	7.02	6.81	7.04	7.22	0.40	1.84	18.07	29.83	18.01	1.40	1.18	1.08	1.09	1.15
800	7.07	6.86	7.11	7.28	0.42	1.98	17.67	29.34	17.65	1.42	1.16	1.07	1.08	1.14
825	7.11	6.89	7.14	7.31	0.43	2.02	17.51	29.13	17.49	1.43	1.15	1.06	1.07	1.13
850	7.13	6.91	7.17	7.35	0.44	2.11	17.36	28.92	17.35	1.44	1.14	1.05	1.07	1.12
875	7.16	6.94	7.20	7.38	0.44	2.17	17.24	28.76	17.22	1.44	1.13	1.05	1.07	1.11
900	7.19	6.96	7.23	7.41	0.45	2.25	17.14	28.62	17.12	1.45	1.12	1.05	1.06	1.10
950	7.24	7.00	7.30	7.47	0.47	2.45	17.00	28.39	16.96	1.45	1.10	1.06	1.07	1.09
975	7.27	7.03	7.33	7.50	0.48	2.51	16.96	28.31	16.90	1.46	1.08	1.07	1.07	1.08
1000	7.30	7.05	7.37	7.54	0.48	2.56	16.94	28.25	16.86	1.45	1.07	1.08	1.08	1.06
1025	7.33	7.08	7.40	7.58	0.50	2.66	16.96	28.20	16.83	1.45	1.07	1.09	1.08	1.06
1050	7.36	7.10	7.44	7.61	0.51	2.74	16.98	28.17	16.82	1.45	1.06	1.10	1.09	1.04
1100	7.43	7.15	7.51	7.69	0.54	2.95	17.10	28.14	16.83	1.44	1.06	1.12	1.11	1.03
1200	7.57	7.27	7.68	7.85	0.59	3.35	17.55	28.12	16.96	1.40	1.09	1.17	1.15	1.02
1300	7.74	7.42	7.89	8.05	0.63	3.75	18.23	27.94	17.16	1.35	1.15	1.22	1.19	1.06
1400	7.96	7.62	8.14	8.29	0.68	4.31	19.00	27.44	17.34	1.32	1.21	1.26	1.23	1.10
1500	8.24	7.87	8.44	8.60	0.72	4.96	19.68	26.60	17.45	1.31	1.26	1.29	1.27	1.14
1600	8.59	8.20	8.82	8.97	0.76	5.85	20.11	25.71	17.64	1.32	1.31	1.31	1.31	1.18

<sup>1</sup>Total Loss = Insertion Loss+ 6dB Splitter Loss



# 4 Way-0° Power Splitter/Combiner

# SCA-4-10+

## Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = -40°C

FREQ. (MHz)	TOTAL LOSS <sup>1</sup> (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
5	6.40	6.21	6.38	6.63	0.42	1.86	24.97	32.87	23.69	1.09	1.46	1.39	1.49	1.59
10	6.34	6.19	6.30	6.50	0.30	1.27	29.24	37.33	26.93	1.06	1.30	1.25	1.32	1.39
15	6.33	6.19	6.29	6.46	0.26	0.92	31.87	39.90	29.37	1.05	1.24	1.21	1.25	1.31
20	6.32	6.19	6.27	6.43	0.24	0.73	33.35	41.19	31.22	1.05	1.22	1.19	1.22	1.28
25	6.31	6.19	6.26	6.42	0.23	0.58	34.12	41.75	32.68	1.05	1.21	1.18	1.20	1.26
30	6.31	6.19	6.26	6.42	0.23	0.49	34.51	41.97	33.78	1.05	1.20	1.17	1.19	1.24
35	6.32	6.19	6.27	6.42	0.23	0.44	34.67	42.02	34.61	1.05	1.19	1.16	1.18	1.23
40	6.32	6.20	6.27	6.42	0.22	0.40	34.68	41.95	35.26	1.05	1.19	1.16	1.17	1.22
45	6.33	6.20	6.28	6.42	0.22	0.35	34.59	41.84	35.74	1.05	1.19	1.16	1.17	1.22
50	6.33	6.20	6.28	6.43	0.22	0.33	34.45	41.72	36.05	1.05	1.18	1.15	1.16	1.21
75	6.36	6.23	6.31	6.45	0.22	0.35	33.46	41.00	35.60	1.07	1.19	1.15	1.15	1.20
100	6.39	6.25	6.34	6.47	0.22	0.36	32.41	40.36	33.96	1.09	1.20	1.15	1.16	1.19
125	6.40	6.26	6.36	6.50	0.23	0.40	31.40	39.83	32.39	1.10	1.19	1.16	1.16	1.19
150	6.42	6.28	6.38	6.51	0.23	0.43	30.48	39.36	31.01	1.11	1.18	1.16	1.16	1.20
175	6.43	6.29	6.39	6.53	0.24	0.48	29.63	38.90	29.83	1.11	1.19	1.15	1.15	1.21
200	6.45	6.30	6.41	6.55	0.24	0.57	28.84	38.48	28.79	1.12	1.20	1.15	1.15	1.21
225	6.46	6.32	6.43	6.57	0.25	0.62	28.10	38.08	27.87	1.13	1.19	1.15	1.15	1.21
250	6.47	6.33	6.44	6.58	0.25	0.64	27.39	37.64	27.04	1.13	1.19	1.15	1.16	1.20
275	6.49	6.35	6.46	6.60	0.25	0.72	26.73	37.23	26.29	1.14	1.20	1.15	1.16	1.20
300	6.50	6.36	6.47	6.61	0.26	0.75	26.09	36.78	25.60	1.15	1.20	1.15	1.15	1.20
325	6.52	6.37	6.49	6.64	0.27	0.82	25.48	36.31	24.96	1.16	1.20	1.15	1.15	1.20
350	6.53	6.38	6.50	6.65	0.26	0.89	24.89	35.84	24.36	1.18	1.20	1.15	1.15	1.21
375	6.55	6.40	6.52	6.67	0.27	0.96	24.33	35.35	23.79	1.20	1.21	1.15	1.15	1.21
400	6.56	6.41	6.54	6.69	0.27	0.99	23.78	34.85	23.25	1.21	1.21	1.15	1.15	1.20
425	6.57	6.43	6.56	6.71	0.28	1.05	23.26	34.33	22.74	1.22	1.21	1.15	1.15	1.20
450	6.59	6.44	6.57	6.72	0.28	1.13	22.76	33.83	22.26	1.23	1.21	1.14	1.15	1.20
500	6.63	6.47	6.61	6.76	0.29	1.25	21.82	32.84	21.37	1.26	1.21	1.14	1.14	1.20
525	6.65	6.49	6.63	6.79	0.30	1.30	21.39	32.36	20.97	1.28	1.21	1.13	1.14	1.20
550	6.66	6.50	6.65	6.80	0.30	1.34	20.96	31.89	20.57	1.29	1.21	1.12	1.13	1.20
575	6.69	6.52	6.68	6.83	0.31	1.37	20.57	31.44	20.20	1.31	1.20	1.12	1.12	1.19
600	6.71	6.54	6.70	6.86	0.32	1.46	20.19	31.00	19.85	1.33	1.20	1.11	1.12	1.18
650	6.75	6.58	6.75	6.91	0.33	1.56	19.51	30.22	19.21	1.36	1.19	1.10	1.11	1.17
675	6.77	6.59	6.77	6.93	0.34	1.63	19.20	29.86	18.93	1.37	1.17	1.09	1.10	1.17
700	6.79	6.61	6.80	6.96	0.35	1.65	18.91	29.53	18.66	1.39	1.17	1.08	1.09	1.16
725	6.82	6.63	6.83	6.99	0.35	1.71	18.65	29.23	18.41	1.40	1.17	1.07	1.08	1.15
750	6.84	6.65	6.85	7.01	0.36	1.73	18.41	28.95	18.18	1.42	1.16	1.07	1.07	1.14
800	6.88	6.69	6.90	7.06	0.38	1.85	18.00	28.47	17.77	1.44	1.13	1.05	1.06	1.13
825	6.91	6.71	6.93	7.10	0.39	1.88	17.83	28.26	17.60	1.45	1.13	1.05	1.05	1.12
850	6.93	6.73	6.96	7.12	0.39	1.93	17.68	28.08	17.45	1.46	1.12	1.04	1.05	1.12
875	6.95	6.75	6.98	7.15	0.40	2.00	17.54	27.93	17.31	1.46	1.11	1.04	1.04	1.11
900	6.97	6.76	7.01	7.17	0.41	2.03	17.44	27.80	17.20	1.46	1.10	1.05	1.05	1.10
950	7.02	6.80	7.06	7.23	0.43	2.12	17.29	27.60	17.02	1.47	1.08	1.07	1.06	1.08
975	7.04	6.82	7.09	7.26	0.44	2.22	17.25	27.52	16.95	1.47	1.07	1.08	1.06	1.07
1000	7.07	6.84	7.12	7.29	0.45	2.24	17.22	27.47	16.91	1.47	1.06	1.08	1.07	1.06
1025	7.10	6.86	7.15	7.32	0.46	2.27	17.22	27.45	16.88	1.47	1.05	1.10	1.08	1.05
1050	7.12	6.88	7.19	7.35	0.47	2.24	17.24	27.43	16.85	1.47	1.05	1.11	1.09	1.04
1100	7.17	6.91	7.25	7.41	0.50	2.51	17.34	27.42	16.85	1.46	1.05	1.14	1.11	1.02
1200	7.28	7.01	7.38	7.55	0.55	2.99	17.75	27.48	16.97	1.41	1.09	1.19	1.16	1.03
1300	7.42	7.12	7.56	7.72	0.60	3.60	18.35	27.37	17.15	1.37	1.16	1.24	1.20	1.07
1400	7.60	7.28	7.77	7.92	0.64	4.31	19.02	26.95	17.30	1.33	1.22	1.28	1.25	1.11
1500	7.83	7.50	8.02	8.18	0.68	5.16	19.54	26.17	17.39	1.31	1.28	1.31	1.29	1.16
1600	8.14	7.79	8.34	8.50	0.71	6.31	19.82	25.29	17.53	1.31	1.32	1.34	1.32	1.19

<sup>1</sup>Total Loss = Insertion Loss+ 6dB Splitter Loss



# 4 Way-0° Power Splitter/Combiner

# SCA-4-10+

## Typical Performance Data

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

FREQ. (MHz)	TOTAL LOSS <sup>1</sup> (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
5	6.48	6.28	6.46	6.68	0.39	0.54	27.68	34.34	30.89	1.04	1.40	1.34	1.36	1.42
10	6.49	6.30	6.47	6.68	0.38	0.24	28.26	35.31	31.25	1.03	1.38	1.32	1.33	1.39
15	6.51	6.32	6.48	6.69	0.37	0.16	28.25	35.48	31.36	1.03	1.37	1.32	1.33	1.38
20	6.51	6.32	6.48	6.69	0.37	0.12	28.13	35.47	31.37	1.03	1.38	1.32	1.32	1.38
25	6.51	6.32	6.48	6.69	0.36	0.11	28.02	35.41	31.33	1.03	1.38	1.32	1.32	1.38
30	6.52	6.33	6.49	6.69	0.36	0.14	27.91	35.34	31.25	1.04	1.38	1.32	1.32	1.38
35	6.53	6.33	6.49	6.70	0.37	0.18	27.81	35.28	31.14	1.04	1.39	1.32	1.33	1.38
40	6.54	6.34	6.50	6.71	0.36	0.22	27.71	35.22	31.00	1.04	1.39	1.32	1.33	1.38
45	6.54	6.35	6.51	6.72	0.37	0.25	27.63	35.17	30.85	1.04	1.39	1.33	1.33	1.38
50	6.55	6.36	6.52	6.72	0.37	0.28	27.55	35.13	30.67	1.04	1.39	1.33	1.33	1.38
75	6.57	6.39	6.55	6.76	0.37	0.38	27.16	34.94	29.72	1.03	1.37	1.33	1.33	1.38
100	6.59	6.41	6.57	6.79	0.38	0.41	26.77	34.82	28.75	1.03	1.35	1.31	1.31	1.38
125	6.62	6.42	6.59	6.81	0.39	0.51	26.41	34.76	27.83	1.03	1.35	1.29	1.29	1.36
150	6.65	6.44	6.62	6.82	0.38	0.71	26.06	34.75	26.99	1.04	1.36	1.28	1.28	1.35
175	6.66	6.46	6.64	6.84	0.38	0.86	25.67	34.78	26.23	1.05	1.35	1.28	1.28	1.33
200	6.68	6.49	6.67	6.86	0.37	0.93	25.29	34.84	25.55	1.06	1.33	1.29	1.28	1.32
225	6.70	6.51	6.68	6.88	0.38	0.97	24.90	34.88	24.92	1.08	1.33	1.28	1.27	1.31
250	6.72	6.52	6.70	6.90	0.38	1.09	24.49	34.91	24.34	1.09	1.34	1.27	1.26	1.31
275	6.74	6.54	6.72	6.92	0.39	1.25	24.08	34.92	23.80	1.11	1.32	1.25	1.24	1.31
300	6.75	6.56	6.74	6.94	0.38	1.37	23.65	34.90	23.29	1.12	1.31	1.25	1.23	1.30
325	6.78	6.58	6.77	6.96	0.39	1.46	23.24	34.88	22.83	1.14	1.31	1.24	1.23	1.29
350	6.79	6.59	6.78	6.98	0.39	1.56	22.82	34.83	22.38	1.15	1.31	1.24	1.23	1.28
375	6.82	6.62	6.81	7.01	0.39	1.69	22.41	34.73	21.96	1.16	1.30	1.23	1.22	1.27
400	6.83	6.63	6.83	7.03	0.39	1.78	22.00	34.61	21.57	1.17	1.29	1.22	1.21	1.26
425	6.86	6.66	6.85	7.05	0.39	1.86	21.61	34.43	21.19	1.19	1.28	1.21	1.20	1.26
450	6.88	6.68	6.88	7.07	0.39	1.96	21.22	34.22	20.84	1.21	1.28	1.20	1.19	1.25
500	6.93	6.73	6.93	7.13	0.40	2.18	20.48	33.75	20.20	1.24	1.27	1.19	1.18	1.24
525	6.96	6.75	6.96	7.16	0.41	2.31	20.14	33.47	19.90	1.26	1.26	1.18	1.17	1.23
550	6.98	6.77	6.98	7.18	0.41	2.38	19.80	33.17	19.61	1.27	1.25	1.17	1.16	1.22
575	7.01	6.80	7.02	7.21	0.42	2.49	19.49	32.86	19.35	1.29	1.25	1.16	1.15	1.22
600	7.04	6.82	7.04	7.24	0.42	2.57	19.19	32.54	19.10	1.30	1.24	1.15	1.14	1.21
650	7.10	6.88	7.10	7.30	0.42	2.76	18.64	31.91	18.63	1.33	1.22	1.13	1.13	1.19
675	7.13	6.90	7.13	7.33	0.43	2.87	18.40	31.62	18.42	1.35	1.22	1.13	1.12	1.19
700	7.16	6.93	7.16	7.36	0.43	2.98	18.17	31.32	18.22	1.36	1.21	1.12	1.12	1.18
725	7.19	6.96	7.20	7.40	0.44	3.11	17.96	31.04	18.04	1.37	1.20	1.11	1.11	1.17
750	7.22	6.98	7.22	7.43	0.45	3.22	17.76	30.80	17.86	1.38	1.19	1.10	1.10	1.16
800	7.28	7.04	7.30	7.49	0.46	3.47	17.44	30.33	17.56	1.40	1.17	1.08	1.09	1.15
825	7.32	7.06	7.33	7.53	0.46	3.57	17.31	30.13	17.43	1.41	1.16	1.07	1.08	1.14
850	7.35	7.09	7.36	7.56	0.47	3.69	17.18	29.97	17.31	1.41	1.15	1.06	1.08	1.14
875	7.38	7.13	7.40	7.60	0.48	3.79	17.09	29.81	17.21	1.42	1.14	1.06	1.07	1.13
900	7.41	7.15	7.43	7.63	0.48	3.93	17.01	29.69	17.12	1.42	1.13	1.05	1.07	1.12
950	7.48	7.21	7.51	7.70	0.50	4.19	16.91	29.46	16.99	1.43	1.11	1.05	1.06	1.10
975	7.52	7.24	7.55	7.74	0.51	4.28	16.90	29.38	16.95	1.43	1.10	1.05	1.06	1.09
1000	7.55	7.27	7.59	7.78	0.51	4.42	16.90	29.34	16.92	1.43	1.09	1.06	1.07	1.08
1025	7.59	7.29	7.63	7.82	0.53	4.60	16.92	29.30	16.91	1.43	1.08	1.07	1.07	1.08
1050	7.63	7.33	7.67	7.86	0.53	4.71	16.96	29.28	16.90	1.42	1.07	1.08	1.08	1.07
1100	7.71	7.40	7.76	7.95	0.56	4.98	17.10	29.26	16.93	1.42	1.07	1.10	1.09	1.05
1200	7.89	7.55	7.97	8.15	0.60	5.61	17.59	29.22	17.12	1.38	1.09	1.15	1.13	1.03
1300	8.10	7.74	8.20	8.38	0.64	6.14	18.35	28.99	17.41	1.34	1.14	1.19	1.17	1.05
1400	8.35	7.97	8.48	8.66	0.69	6.83	19.27	28.38	17.71	1.31	1.19	1.22	1.22	1.09
1500	8.67	8.27	8.82	9.00	0.73	7.62	20.20	27.44	18.00	1.31	1.25	1.26	1.26	1.13
1600	9.05	8.63	9.23	9.40	0.77	8.67	20.95	26.49	18.34	1.33	1.31	1.29	1.30	1.18

<sup>1</sup>Total Loss = Insertion Loss+ 6dB Splitter Loss

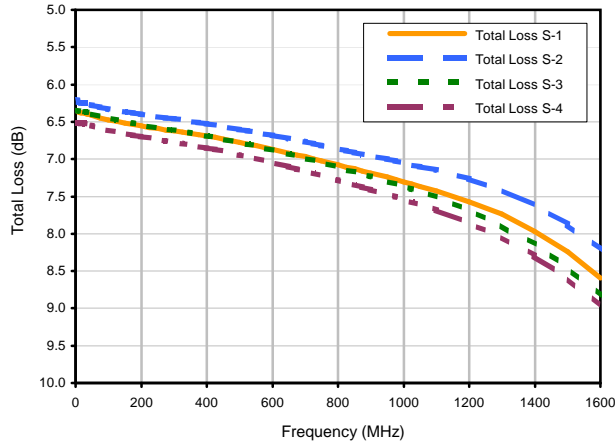


# 4 Way-0° Power Splitter/Combiner

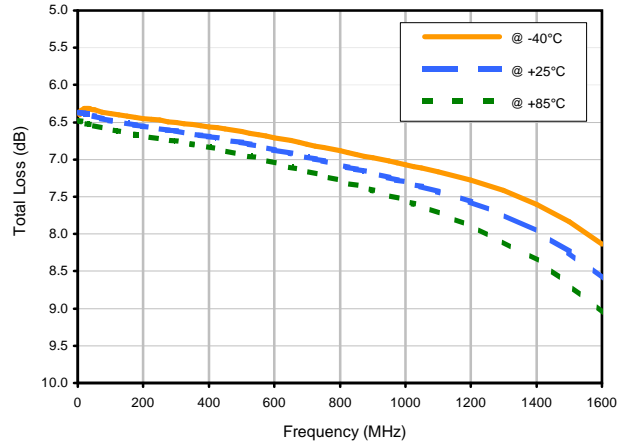
# SCA-4-10+

## Typical Performance Curves

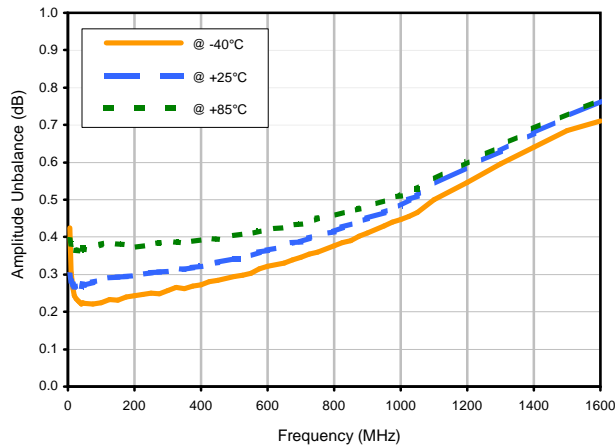
### Total Loss



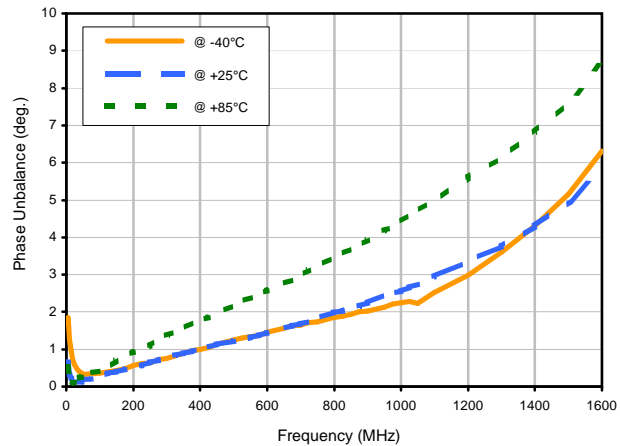
### Total Loss S-1 vs. TEMPERATURE



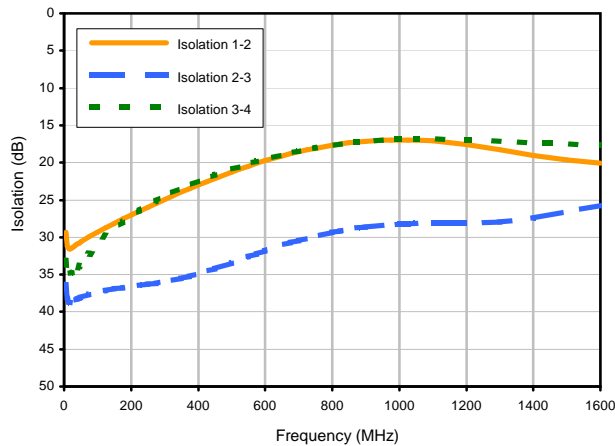
### Amplitude Unbalance vs. TEMPERATURE



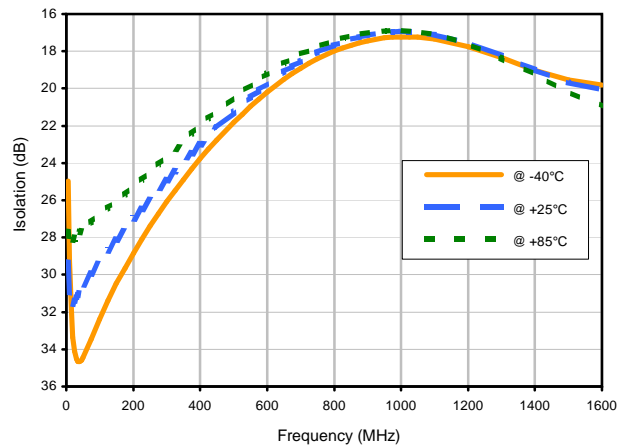
### Phase Unbalance vs. TEMPERATURE



### Isolation



### Isolation 1-2 vs. TEMPERATURE



REV. X2  
SCA-4-10+  
100627  
Page 1 of 2



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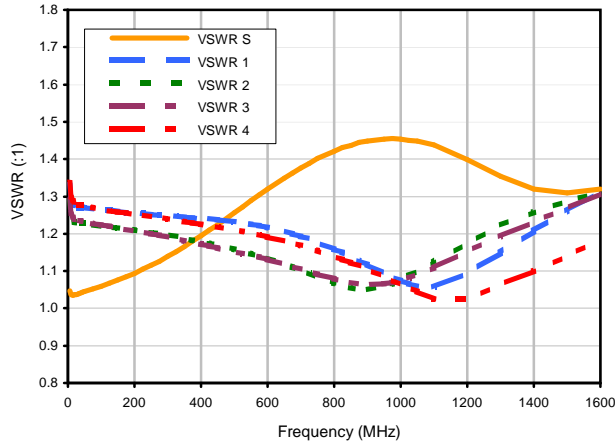


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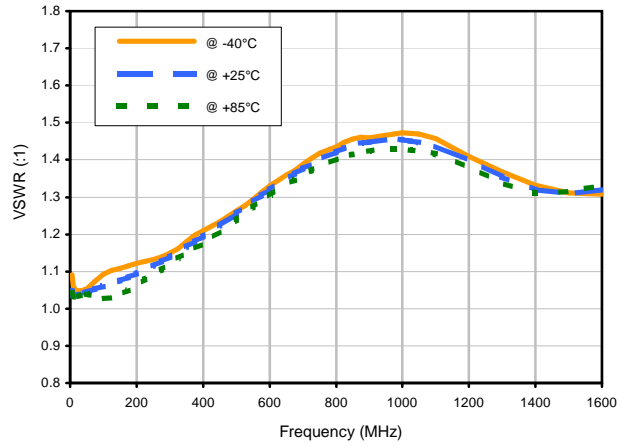


## Typical Performance Curves

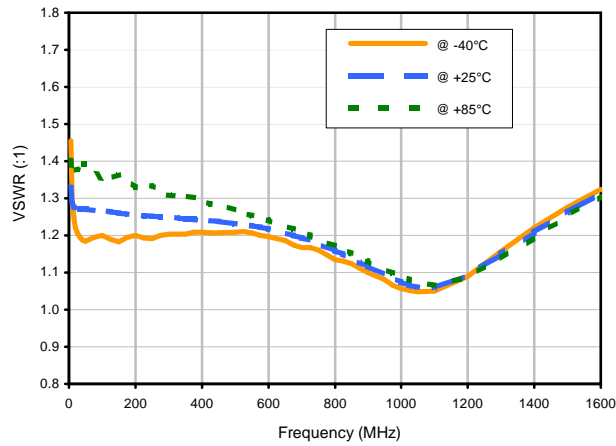
VSWR



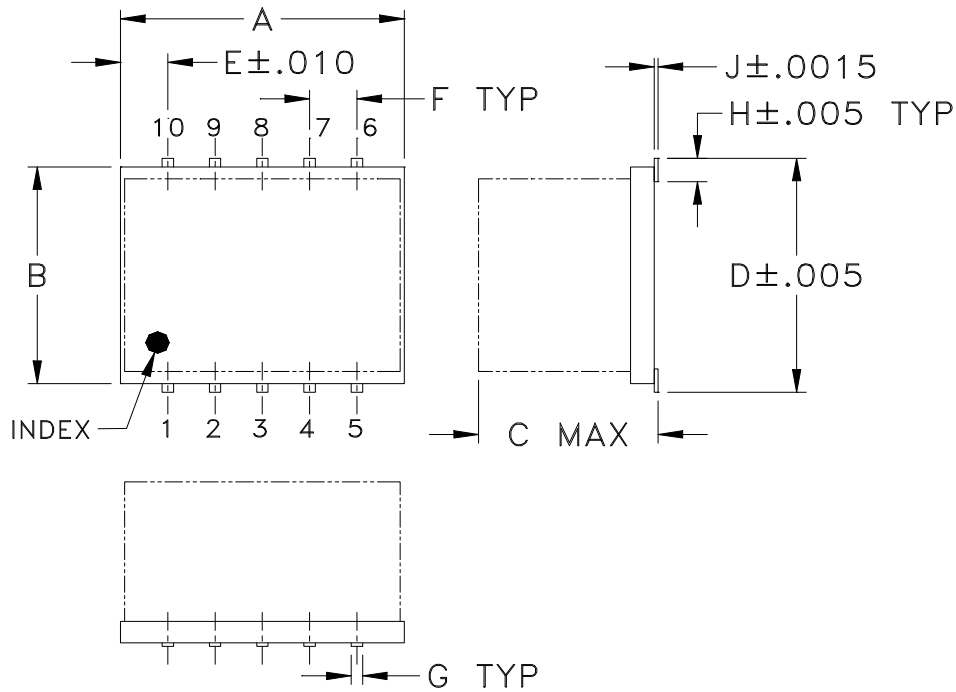
VSWR SUM vs. TEMPERATURE



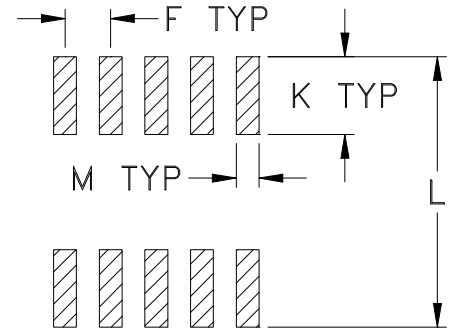
VSWR OUT1 vs. TEMPERATURE



### 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	WT. GRAMS
DZ943	.30 (7.62)	.250 (6.35)	.190 (4.83)	.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)	0.5

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

#### Notes:

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



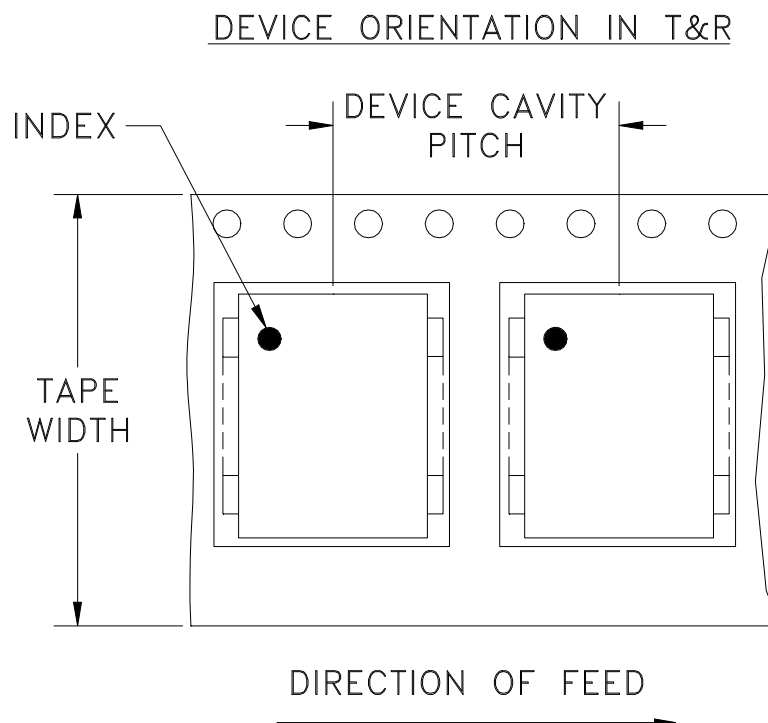
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# Tape & Reel Packaging TR-F34



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.

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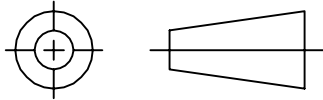
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THIRD ANGLE PROJECTION

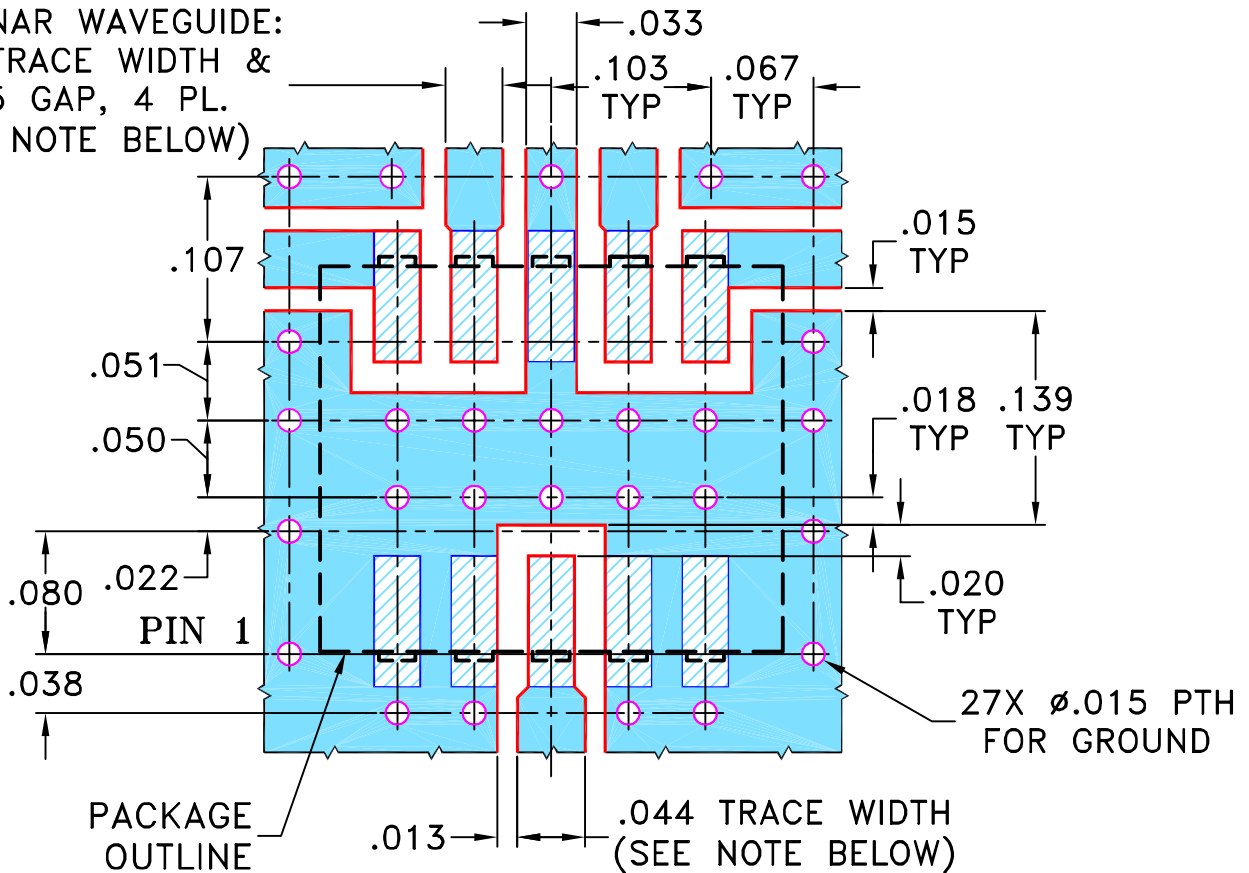


REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M84016	NEW RELEASE	01/03/03	MMG	WP
A	M91639	REMOVED NOTE 2, UPDATED DIMENSIONS	04/14/04	AV	DJ
B	M102713	ADDED "...WITH SMOBC"	01/16/06	GF	IL

SUGGESTED MOUNTING CONFIGURATION  
FOR DZ943 CASE STYLE, "ny" PIN CONNECTION.

COPLANAR WAVEGUIDE:  
.037 TRACE WIDTH &  
.015 GAP, 4 PL.  
(SEE NOTE BELOW)



NOTES: 1.COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & 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 TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± .005 ANGLES ± FRACTIONS ±	DRAWN	MMG	01/03/03
	CHECKED	AV	01/03/03
	APPROVED	WP	01/03/03



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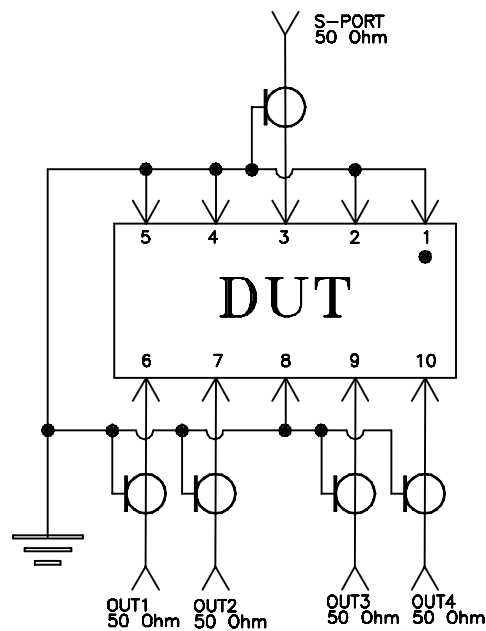
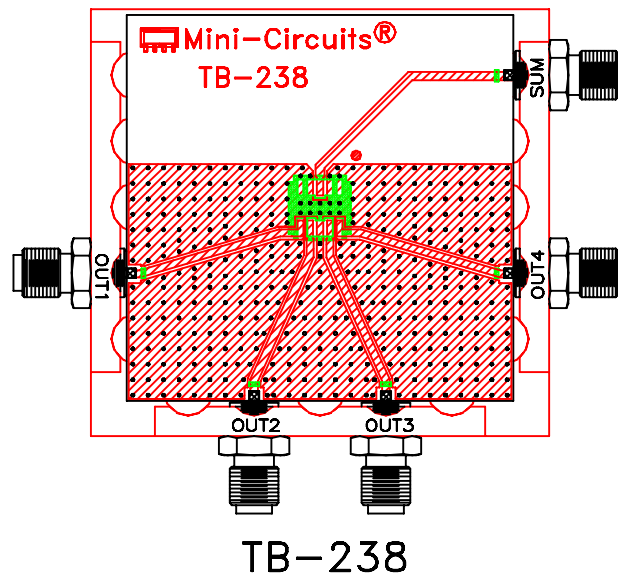
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SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-124	B
FILE:	98PL124	SCALE:	8:1
		SHEET:	1 OF 1


# Evaluation Board and Circuit



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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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