



Mini-Circuits®

ULTRA-SMALL CERAMIC

Power Splitter/Combiner

SCN-3-28+

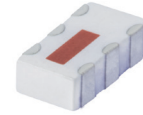
3 Way-0° 50Ω 1600 to 2800 MHz

FEATURES

- Isolation resistor, external
- Low insertion loss, 0.8 dB typ.
- Excellent amplitude unbalance, 0.2 dB typ.
- Very good phase unbalance, 5 deg. typ.
- High isolation, 12 dB typ.
- Excellent power handling, 15W as splitter
- Small size, 0.12"X0.06"X0.035"
- ESD non-sensitive
- Temperature stable LTCC technology
- Wrap around terminations for excellent solderability
- Low cost

APPLICATIONS

- DSS
- PSC, DECT
- WLAN
- Satellite communication
- Defense applications
- Line of sight communications
- WLL
- ISM applications



Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

+RoHS Compliant

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

ELECTRICAL SPECIFICATIONS AT 25°C

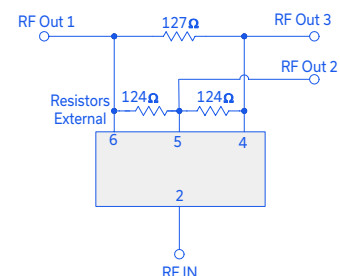
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1600		2800	MHz
Insertion Loss, above 4.8 dB	1600-2800		0.8	1.2	dB
	1800-2000		0.8	1.2	
	2000-2200		0.8	1.2	
	2400-2500		0.8	1.2	
Isolation	1600-2800	10	12		dB
	1800-2000	12	14		
	2000-2200	13	16		
	2400-2500	17	20		
Phase Unbalance	1600-2800		5.0	8.0	Degree
	1800-2000		5.0	8.0	
	2000-2200		5.0	8.0	
	2400-2500		5.0	8.0	
Amplitude Unbalance	1600-2800		0.2	0.6	dB
	1800-2000		0.2	0.6	
	2000-2200		0.2	0.5	
	2400-2500		0.2	0.5	
Return Loss (Input)	1600-2800		10		dB
	1800-2000		10		
	2000-2200		11		
	2400-2500		11		
Return Loss (Output)	1600-2800		12		dB
	1800-2000		13		
	2000-2200		12		
	2400-2500		12		

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	15W* max.

* Derate linearly to 6W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

ELECTRICAL SCHEMATIC



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Power Splitter/Combiner

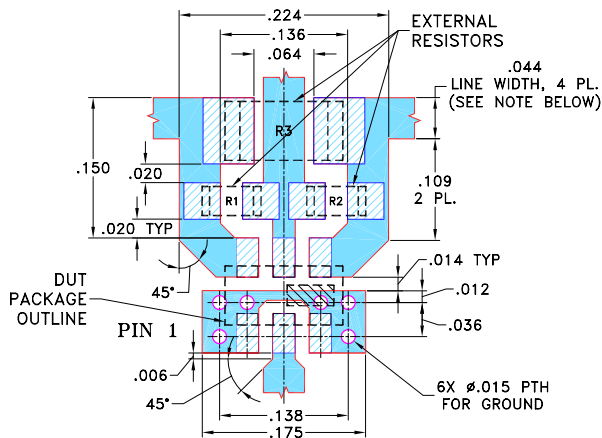
SCN-3-28+

PIN CONNECTIONS

SUM PORT	2
PORT 1	6
PORT 2	5
PORT 3	4
GROUND	1,3
PORT 1-2, 2-3	resistor external 124 ohms
PORT 1-3	resistor external 127 ohms

PRODUCT MARKING: N/A

DEMO BOARD MCL P/N: TB-303
SUGGESTED PCB LAYOUT (PL-171)



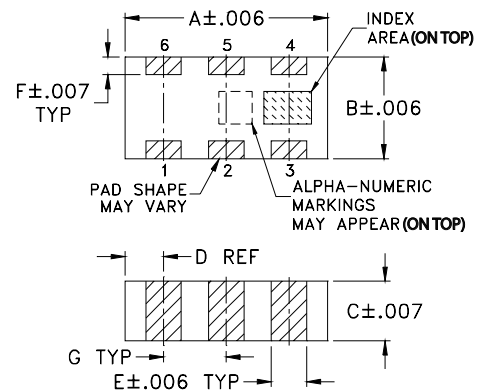
RESISTORS: R1-R2: 124 Ohm, 0603 SIZE; R3: 127 Ohm, 1206 SIZE.

NOTE:

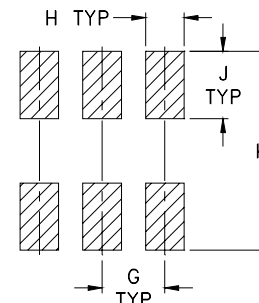
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS: .020 ± .0015; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. RESISTOR LAND PATTERNS ARE SHOWN AS PER IPC-SM-782A.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

-  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
.126	.063	.035	.024	.022	.011
3.20	1.60	0.89	0.61	0.56	0.28
G	H	J	K		wt
.039	.024	.042	.123		grams
0.99	0.61	1.07	3.12		.020

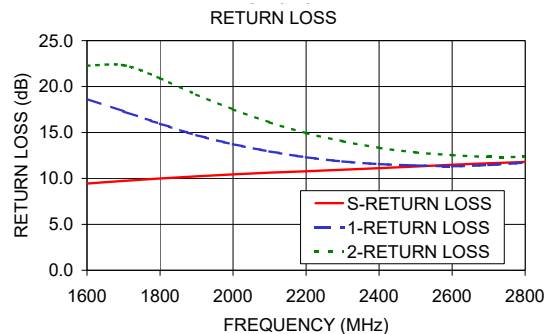
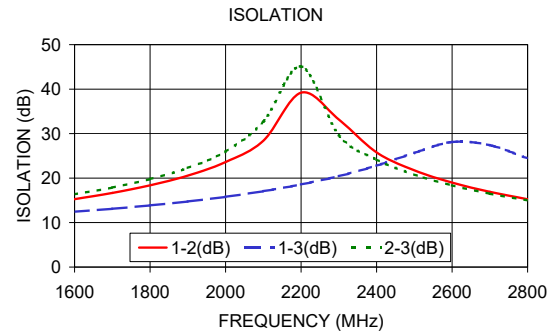
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TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss ¹ (dB)			Amplitude Unbalance (dB)	Isolation (dB)			Phase Unbalance (deg.)	Return Loss (dB)		
	S-1	S-2	S-3		1-2	1-3	2-3		S	1	2
1600.00	5.53	5.81	5.50	0.31	15.27	12.43	16.36	3.29	9.44	18.66	22.27
1700.00	5.50	5.78	5.48	0.29	16.66	13.09	17.87	3.64	9.73	17.30	22.33
1800.00	5.49	5.74	5.47	0.27	18.38	13.86	19.78	3.99	9.99	15.95	20.89
1900.00	5.48	5.71	5.47	0.24	20.57	14.75	22.29	4.31	10.23	14.71	19.12
2000.00	5.48	5.68	5.47	0.21	23.60	15.80	25.98	4.62	10.44	13.73	17.52
2100.00	5.48	5.66	5.48	0.18	28.40	17.05	32.67	4.79	10.63	12.94	16.11
2200.00	5.49	5.63	5.49	0.15	39.20	18.57	45.10	4.99	10.78	12.30	14.93
2300.00	5.49	5.62	5.50	0.12	33.16	20.43	29.60	5.06	10.95	11.85	14.05
2400.00	5.50	5.61	5.51	0.11	25.77	22.80	24.16	5.14	11.12	11.56	13.33
2500.00	5.50	5.60	5.52	0.09	21.75	25.66	20.80	5.14	11.30	11.41	12.83
2600.00	5.51	5.58	5.53	0.08	18.99	28.11	18.37	5.02	11.49	11.33	12.54
2700.00	5.50	5.59	5.54	0.08	16.91	27.40	16.50	4.88	11.65	11.46	12.34
2800.00	5.51	5.60	5.55	0.09	15.25	24.44	14.98	4.68	11.79	11.72	12.35

1. Total Loss = Insertion Loss + 4.8 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/MCLStore/terms.jsp

3 Way-0° Power Splitter/Combiner

SCN-3-28+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @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			1-2	1-3	2-3	S	1	2	3
10	6.06	6.06	6.04	0.02	0.38	6.10	6.08	6.05	3.00	2.95	2.95	2.93
50	6.09	6.05	6.01	0.08	0.58	6.11	6.07	6.08	3.00	2.92	2.92	2.89
100	6.10	6.07	6.03	0.07	0.47	6.15	6.15	6.15	2.99	2.87	2.88	2.85
200	6.09	6.09	6.04	0.05	0.40	6.29	6.37	6.37	2.96	2.73	2.78	2.71
300	6.07	6.10	6.03	0.07	0.46	6.50	6.68	6.66	2.93	2.54	2.64	2.51
400	6.06	6.12	6.03	0.09	0.51	6.77	7.05	7.01	2.92	2.35	2.47	2.30
500	6.05	6.13	6.01	0.12	0.53	7.11	7.47	7.44	2.89	2.14	2.29	2.09
600	6.04	6.16	5.99	0.17	0.46	7.51	7.91	7.94	2.86	1.94	2.11	1.90
700	6.03	6.16	5.96	0.20	0.50	7.95	8.35	8.46	2.84	1.77	1.94	1.72
800	6.00	6.17	5.94	0.23	0.54	8.46	8.82	9.05	2.80	1.61	1.78	1.57
900	5.98	6.17	5.91	0.26	0.76	9.01	9.28	9.69	2.77	1.48	1.65	1.44
1000	5.97	6.16	5.88	0.28	1.03	9.60	9.76	10.36	2.73	1.36	1.53	1.33
1100	5.94	6.14	5.85	0.29	1.39	10.26	10.25	11.06	2.69	1.27	1.42	1.24
1200	5.92	6.12	5.82	0.30	1.69	10.95	10.76	11.83	2.64	1.18	1.32	1.16
1300	5.88	6.09	5.79	0.30	1.96	11.73	11.30	12.66	2.59	1.12	1.24	1.12
1400	5.84	6.05	5.75	0.30	2.20	12.55	11.86	13.56	2.52	1.09	1.16	1.11
1500	5.80	6.01	5.71	0.30	2.47	13.48	12.46	14.55	2.44	1.11	1.09	1.14
1600	5.75	5.95	5.65	0.30	2.67	14.51	13.13	15.65	2.36	1.15	1.04	1.18
1650	5.72	5.91	5.62	0.29	2.76	15.06	13.49	16.26	2.31	1.18	1.02	1.21
1700	5.69	5.88	5.59	0.29	2.86	15.65	13.87	16.91	2.26	1.21	1.03	1.23
1750	5.66	5.85	5.57	0.28	2.95	16.28	14.25	17.59	2.22	1.23	1.05	1.26
1800	5.63	5.81	5.54	0.27	3.03	16.95	14.67	18.34	2.17	1.26	1.07	1.28
1850	5.59	5.78	5.51	0.27	3.10	17.69	15.11	19.16	2.11	1.28	1.10	1.31
1900	5.56	5.74	5.48	0.26	3.17	18.47	15.57	20.05	2.06	1.30	1.12	1.33
1950	5.53	5.70	5.44	0.26	3.21	19.35	16.07	21.04	2.00	1.32	1.14	1.35
2000	5.49	5.66	5.41	0.25	3.23	20.31	16.62	22.15	1.94	1.35	1.16	1.37
2050	5.46	5.61	5.37	0.24	3.26	21.42	17.21	23.37	1.88	1.37	1.18	1.39
2100	5.41	5.58	5.34	0.24	3.32	22.61	17.84	24.79	1.82	1.39	1.20	1.41
2150	5.38	5.54	5.30	0.24	3.33	23.98	18.54	26.36	1.76	1.41	1.22	1.43
2200	5.35	5.51	5.26	0.25	3.31	25.53	19.32	28.06	1.70	1.42	1.23	1.44
2250	5.31	5.47	5.23	0.24	3.34	27.19	20.15	29.62	1.64	1.44	1.25	1.46
2300	5.28	5.44	5.20	0.24	3.35	28.81	21.08	30.35	1.58	1.45	1.27	1.47
2350	5.25	5.41	5.18	0.23	3.35	29.93	22.13	29.93	1.52	1.46	1.28	1.48
2400	5.22	5.39	5.15	0.24	3.33	29.92	23.35	28.53	1.47	1.48	1.29	1.49
2450	5.20	5.37	5.13	0.24	3.32	28.71	24.71	26.83	1.41	1.49	1.31	1.50
2500	5.17	5.36	5.12	0.24	3.26	27.01	26.30	25.17	1.36	1.50	1.32	1.50
2550	5.16	5.35	5.11	0.24	3.22	25.29	28.01	23.68	1.32	1.51	1.34	1.51
2600	5.14	5.35	5.10	0.25	3.24	23.79	29.87	22.38	1.29	1.52	1.35	1.52
2650	5.13	5.36	5.10	0.26	3.22	22.40	31.25	21.18	1.27	1.53	1.36	1.53
2700	5.13	5.38	5.11	0.27	3.19	21.20	31.48	20.17	1.27	1.54	1.38	1.54
2750	5.14	5.41	5.13	0.28	3.18	20.11	30.48	19.24	1.28	1.55	1.39	1.55
2800	5.15	5.44	5.15	0.29	3.18	19.15	28.73	18.41	1.32	1.57	1.41	1.57
2850	5.17	5.49	5.18	0.32	3.16	18.30	27.01	17.67	1.37	1.59	1.43	1.58
2900	5.20	5.55	5.23	0.35	3.14	17.54	25.43	17.00	1.43	1.61	1.45	1.60
2950	5.24	5.61	5.28	0.37	3.12	16.86	24.10	16.42	1.50	1.63	1.48	1.63
3000	5.29	5.69	5.34	0.41	3.08	16.27	22.96	15.90	1.59	1.65	1.51	1.66
3100	5.42	5.90	5.50	0.48	3.00	15.24	21.05	15.00	1.80	1.72	1.58	1.73
3200	5.61	6.17	5.72	0.56	2.87	14.40	19.56	14.26	2.07	1.81	1.66	1.82
3250	5.71	6.33	5.84	0.63	2.83	14.04	18.99	13.97	2.22	1.85	1.72	1.87
3300	5.82	6.50	5.97	0.68	2.75	13.73	18.47	13.72	2.38	1.91	1.77	1.94
3400	6.09	6.90	6.29	0.82	2.55	13.23	17.64	13.32	2.75	2.03	1.91	2.08
3500	6.40	7.37	6.65	0.98	2.26	12.87	16.99	13.05	3.19	2.18	2.06	2.25
4000	8.64	10.85	9.22	2.21	2.58	12.91	16.30	13.66	6.89	3.29	3.27	3.58

¹ Total Loss = Insertion Loss+ 4.8dB Splitter Loss

3 Way-0° Power Splitter/Combiner

SCN-3-28+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = -55°C

FREQ. (MHz)	TOTAL LOSS ¹ (dB)			AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)			
	S-1	S-2	S-3			1-2	1-3	2-3	S	1	2	3
10	6.05	6.06	6.03	0.03	0.39	6.08	6.05	6.03	3.02	2.97	2.97	2.96
50	6.08	6.04	5.99	0.09	0.62	6.08	6.03	6.03	3.03	2.94	2.93	2.91
100	6.03	6.01	5.96	0.07	0.52	6.15	6.13	6.14	2.95	2.91	2.93	2.89
200	6.01	6.01	5.96	0.05	0.35	6.27	6.34	6.34	2.94	2.78	2.83	2.76
300	6.01	6.05	5.97	0.08	0.35	6.43	6.60	6.58	2.96	2.59	2.68	2.55
400	5.99	6.05	5.96	0.09	0.37	6.68	6.96	6.92	2.95	2.39	2.51	2.34
500	5.95	6.06	5.93	0.13	0.50	7.00	7.35	7.34	2.92	2.17	2.34	2.14
600	5.92	6.07	5.89	0.18	0.36	7.38	7.78	7.82	2.89	1.97	2.16	1.94
700	5.92	6.06	5.86	0.20	0.36	7.81	8.21	8.30	2.88	1.80	1.96	1.75
800	5.89	6.06	5.82	0.24	0.40	8.30	8.65	8.89	2.85	1.63	1.81	1.59
900	5.83	6.04	5.78	0.26	0.64	8.86	9.14	9.55	2.80	1.49	1.67	1.47
1000	5.82	6.03	5.74	0.29	0.89	9.45	9.58	10.20	2.77	1.38	1.55	1.34
1100	5.78	6.00	5.69	0.31	1.36	10.09	10.05	10.89	2.73	1.28	1.44	1.25
1200	5.75	5.97	5.66	0.31	1.65	10.78	10.56	11.65	2.68	1.20	1.34	1.18
1300	5.71	5.94	5.63	0.31	1.90	11.55	11.10	12.48	2.64	1.14	1.24	1.14
1400	5.67	5.89	5.58	0.31	2.13	12.40	11.67	13.40	2.58	1.12	1.16	1.13
1500	5.63	5.85	5.55	0.30	2.40	13.31	12.26	14.39	2.52	1.13	1.10	1.17
1600	5.56	5.78	5.48	0.30	2.62	14.36	12.94	15.52	2.43	1.18	1.05	1.22
1650	5.54	5.74	5.44	0.30	2.70	14.94	13.30	16.14	2.39	1.21	1.05	1.25
1700	5.51	5.71	5.42	0.29	2.79	15.58	13.71	16.85	2.34	1.24	1.06	1.28
1750	5.48	5.66	5.38	0.28	2.83	16.25	14.12	17.57	2.29	1.26	1.09	1.30
1800	5.45	5.63	5.36	0.27	2.95	16.97	14.56	18.39	2.25	1.30	1.11	1.33
1850	5.41	5.58	5.32	0.26	3.00	17.78	15.04	19.30	2.19	1.32	1.14	1.35
1900	5.37	5.54	5.28	0.26	3.03	18.67	15.55	20.30	2.13	1.34	1.16	1.37
1950	5.33	5.50	5.25	0.25	3.07	19.63	16.08	21.40	2.08	1.37	1.18	1.40
2000	5.29	5.46	5.21	0.25	3.10	20.71	16.67	22.70	2.01	1.39	1.20	1.42
2050	5.23	5.39	5.15	0.24	3.15	22.01	17.31	24.22	1.93	1.41	1.22	1.43
2100	5.18	5.35	5.11	0.24	3.26	23.45	18.02	25.94	1.86	1.43	1.23	1.46
2150	5.14	5.31	5.07	0.23	3.30	25.12	18.79	27.98	1.79	1.44	1.25	1.47
2200	5.10	5.26	5.02	0.24	3.35	27.19	19.68	30.37	1.72	1.47	1.26	1.48
2250	5.05	5.21	4.98	0.24	3.39	29.44	20.68	32.21	1.64	1.48	1.27	1.48
2300	5.01	5.18	4.94	0.24	3.42	31.28	21.72	32.06	1.57	1.49	1.29	1.49
2350	4.97	5.14	4.91	0.23	3.43	31.84	22.98	30.23	1.50	1.49	1.30	1.51
2400	4.94	5.11	4.88	0.23	3.43	29.96	24.53	27.71	1.43	1.50	1.30	1.50
2450	4.91	5.09	4.85	0.24	3.49	27.66	26.13	25.66	1.38	1.51	1.31	1.51
2500	4.88	5.08	4.84	0.24	3.52	25.67	28.16	23.91	1.32	1.52	1.33	1.52
2550	4.87	5.07	4.83	0.24	3.50	23.81	30.43	22.36	1.28	1.53	1.32	1.52
2600	4.85	5.07	4.82	0.25	3.45	22.28	32.28	21.08	1.25	1.54	1.34	1.53
2650	4.85	5.09	4.83	0.26	3.47	21.00	32.58	19.99	1.25	1.55	1.35	1.53
2700	4.85	5.12	4.84	0.28	3.51	19.88	31.24	19.01	1.26	1.55	1.37	1.55
2750	4.87	5.15	4.87	0.29	3.44	18.83	29.04	18.10	1.30	1.58	1.38	1.57
2800	4.88	5.20	4.90	0.32	3.45	17.95	27.02	17.34	1.36	1.58	1.40	1.58
2850	4.92	5.26	4.94	0.34	3.50	17.19	25.41	16.68	1.42	1.61	1.43	1.60
2900	4.96	5.31	4.99	0.36	3.43	16.49	23.93	16.03	1.50	1.65	1.43	1.62
2950	4.99	5.39	5.06	0.40	3.38	15.86	22.72	15.52	1.59	1.66	1.48	1.67
3000	5.05	5.48	5.11	0.43	3.33	15.33	21.74	15.04	1.68	1.69	1.50	1.68
3100	5.17	5.70	5.28	0.53	3.07	14.38	20.04	14.20	1.90	1.76	1.58	1.77
3200	5.32	5.96	5.47	0.64	2.97	13.65	18.76	13.58	2.16	1.86	1.70	1.89
3250	5.44	6.11	5.58	0.68	2.97	13.29	18.16	13.28	2.32	1.93	1.75	1.93
3300	5.53	6.29	5.72	0.76	2.87	13.01	17.69	13.07	2.50	2.00	1.83	2.02
3400	5.77	6.67	6.01	0.91	2.51	12.59	16.99	12.75	2.88	2.15	2.00	2.20
3500	6.04	7.15	6.37	1.12	2.45	12.30	16.43	12.58	3.36	2.33	2.21	2.43
4000	8.59	11.19	9.26	2.60	3.29	12.76	16.12	13.70	8.86	3.92	4.10	4.33

¹ Total Loss = Insertion Loss+ 4.8dB Splitter Loss

3 Way-0° Power Splitter/Combiner

SCN-3-28+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +100°C

FREQ. (MHz)	TOTAL LOSS ¹ (dB)			AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)			
	S-1	S-2	S-3			1-2	1-3	2-3	S	1	2	3
10	6.07	6.07	6.04	0.03	0.42	6.12	6.09	6.06	2.99	2.94	2.94	2.92
50	6.09	6.05	6.00	0.09	0.62	6.14	6.10	6.10	2.97	2.92	2.92	2.89
100	6.17	6.12	6.09	0.08	0.45	6.13	6.13	6.12	3.05	2.84	2.84	2.81
200	6.13	6.12	6.09	0.04	0.52	6.30	6.38	6.38	2.97	2.70	2.75	2.69
300	6.10	6.12	6.06	0.06	0.33	6.53	6.71	6.69	2.92	2.53	2.62	2.50
400	6.11	6.15	6.08	0.07	0.45	6.79	7.07	7.02	2.93	2.32	2.43	2.28
500	6.10	6.16	6.05	0.11	0.44	7.15	7.50	7.47	2.88	2.12	2.26	2.07
600	6.09	6.20	6.03	0.17	0.33	7.56	7.96	7.98	2.86	1.92	2.08	1.88
700	6.09	6.21	6.01	0.20	0.27	8.01	8.42	8.52	2.83	1.75	1.91	1.70
800	6.07	6.22	5.99	0.23	0.39	8.53	8.90	9.13	2.79	1.60	1.76	1.55
900	6.05	6.22	5.97	0.25	0.59	9.09	9.39	9.78	2.76	1.46	1.62	1.43
1000	6.03	6.22	5.94	0.28	0.87	9.71	9.87	10.47	2.71	1.35	1.51	1.32
1100	6.00	6.19	5.91	0.28	1.19	10.38	10.38	11.19	2.66	1.25	1.40	1.23
1200	5.98	6.17	5.88	0.29	1.47	11.08	10.90	11.97	2.60	1.17	1.31	1.15
1300	5.94	6.14	5.85	0.29	1.68	11.86	11.45	12.81	2.53	1.10	1.23	1.10
1400	5.90	6.11	5.81	0.30	1.91	12.68	12.00	13.69	2.46	1.06	1.16	1.08
1500	5.86	6.06	5.76	0.30	2.13	13.59	12.59	14.67	2.38	1.07	1.10	1.10
1600	5.80	6.01	5.71	0.30	2.33	14.58	13.23	15.72	2.29	1.12	1.05	1.14
1650	5.78	5.98	5.68	0.30	2.42	15.10	13.56	16.30	2.24	1.14	1.03	1.17
1700	5.75	5.96	5.66	0.30	2.50	15.66	13.92	16.91	2.20	1.17	1.02	1.19
1750	5.72	5.93	5.63	0.30	2.63	16.24	14.27	17.54	2.15	1.19	1.03	1.22
1800	5.69	5.90	5.60	0.30	2.74	16.87	14.66	18.23	2.10	1.22	1.04	1.24
1850	5.66	5.86	5.58	0.28	2.88	17.54	15.07	18.97	2.05	1.24	1.06	1.26
1900	5.64	5.84	5.55	0.29	2.99	18.26	15.49	19.77	2.00	1.27	1.08	1.29
1950	5.61	5.80	5.52	0.28	3.06	19.05	15.96	20.66	1.94	1.29	1.10	1.31
2000	5.58	5.77	5.49	0.28	3.19	19.90	16.46	21.65	1.89	1.31	1.12	1.33
2050	5.55	5.73	5.46	0.27	3.26	20.86	16.99	22.69	1.83	1.33	1.13	1.35
2100	5.52	5.70	5.44	0.26	3.38	21.88	17.57	23.85	1.78	1.35	1.15	1.37
2150	5.49	5.67	5.41	0.26	3.43	23.02	18.18	25.10	1.73	1.37	1.17	1.39
2200	5.47	5.64	5.38	0.26	3.50	24.28	18.89	26.47	1.68	1.39	1.19	1.41
2250	5.44	5.61	5.36	0.25	3.57	25.66	19.64	27.79	1.63	1.40	1.21	1.42
2300	5.41	5.59	5.34	0.25	3.62	27.01	20.45	28.67	1.58	1.41	1.22	1.44
2350	5.39	5.57	5.32	0.25	3.67	28.17	21.35	28.95	1.52	1.43	1.24	1.45
2400	5.37	5.55	5.30	0.25	3.68	28.81	22.39	28.45	1.48	1.45	1.26	1.47
2450	5.36	5.53	5.29	0.24	3.75	28.63	23.52	27.36	1.43	1.46	1.28	1.48
2500	5.33	5.52	5.28	0.24	3.77	27.72	24.85	26.08	1.39	1.48	1.29	1.49
2550	5.32	5.51	5.27	0.24	3.78	26.36	26.34	24.68	1.34	1.49	1.31	1.50
2600	5.30	5.51	5.26	0.25	3.79	24.96	28.00	23.43	1.31	1.50	1.32	1.52
2650	5.29	5.51	5.26	0.25	3.82	23.59	29.64	22.24	1.28	1.51	1.34	1.53
2700	5.29	5.53	5.26	0.27	3.79	22.33	30.92	21.15	1.27	1.53	1.36	1.54
2750	5.28	5.54	5.27	0.27	3.77	21.18	31.25	20.19	1.26	1.54	1.38	1.55
2800	5.29	5.57	5.29	0.28	3.81	20.16	30.34	19.33	1.27	1.55	1.40	1.56
2850	5.31	5.61	5.31	0.30	3.85	19.25	28.77	18.55	1.30	1.57	1.42	1.57
2900	5.32	5.65	5.35	0.33	3.81	18.43	27.06	17.81	1.35	1.59	1.44	1.60
2950	5.36	5.71	5.39	0.35	3.77	17.70	25.59	17.18	1.40	1.61	1.46	1.61
3000	5.39	5.78	5.44	0.39	3.71	17.04	24.24	16.63	1.47	1.63	1.49	1.64
3100	5.51	5.98	5.59	0.47	3.67	15.89	21.98	15.60	1.67	1.68	1.57	1.71
3200	5.69	6.23	5.79	0.55	3.61	14.99	20.31	14.81	1.92	1.76	1.65	1.79
3250	5.80	6.39	5.91	0.59	3.54	14.59	19.60	14.47	2.06	1.81	1.69	1.84
3300	5.92	6.57	6.05	0.65	3.47	14.23	18.99	14.19	2.22	1.86	1.75	1.90
3400	6.23	6.99	6.39	0.77	3.27	13.67	18.04	13.72	2.58	1.97	1.87	2.03
3500	6.58	7.48	6.79	0.91	3.09	13.28	17.29	13.39	3.02	2.11	2.02	2.19
4000	8.89	10.90	9.42	2.01	3.69	13.14	16.46	13.79	6.21	3.09	2.98	3.29

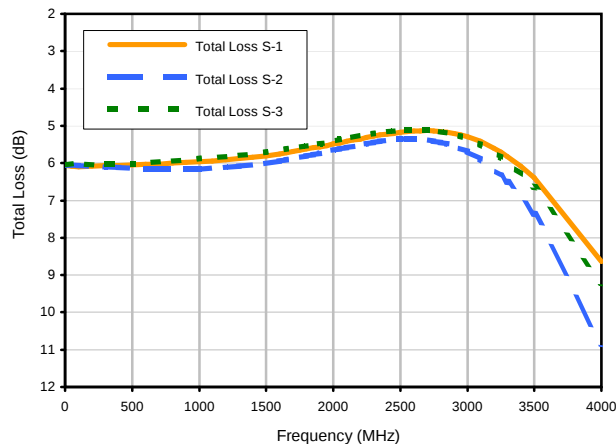
¹ Total Loss = Insertion Loss+ 4.8dB Splitter Loss

3 Way-0° Power Splitter/Combiner

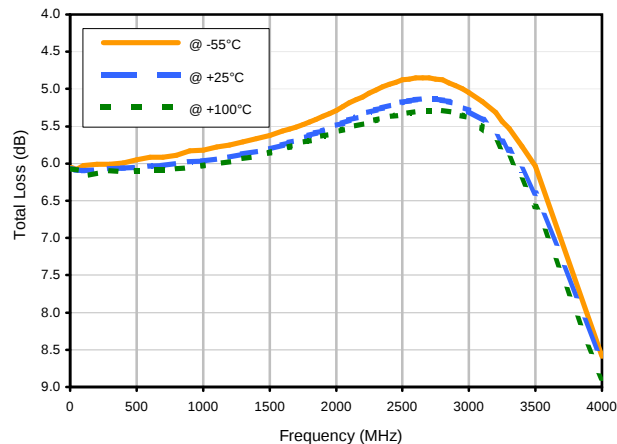
SCN-3-28+

Typical Performance Curves

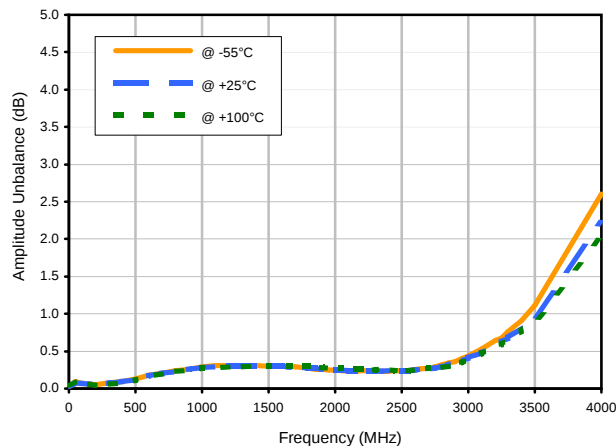
Total Loss



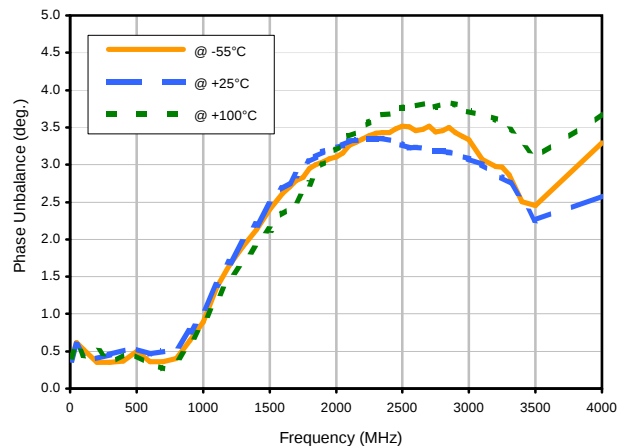
Total Loss S-1 vs. TEMPERATURE



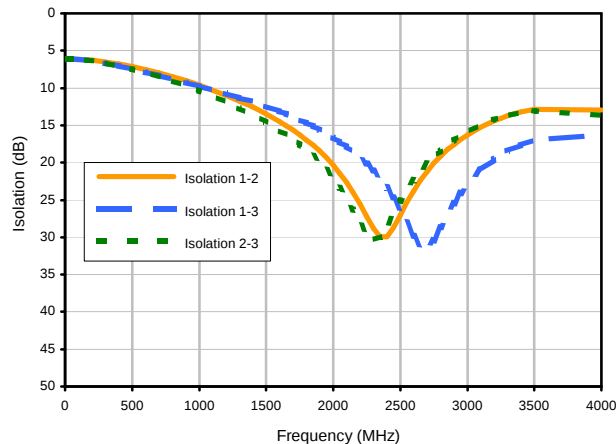
Amplitude Unbalance vs. TEMPERATURE



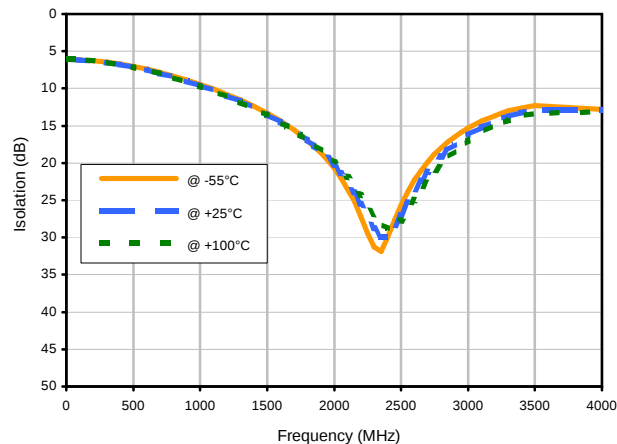
Phase Unbalance vs. TEMPERATURE



Isolation

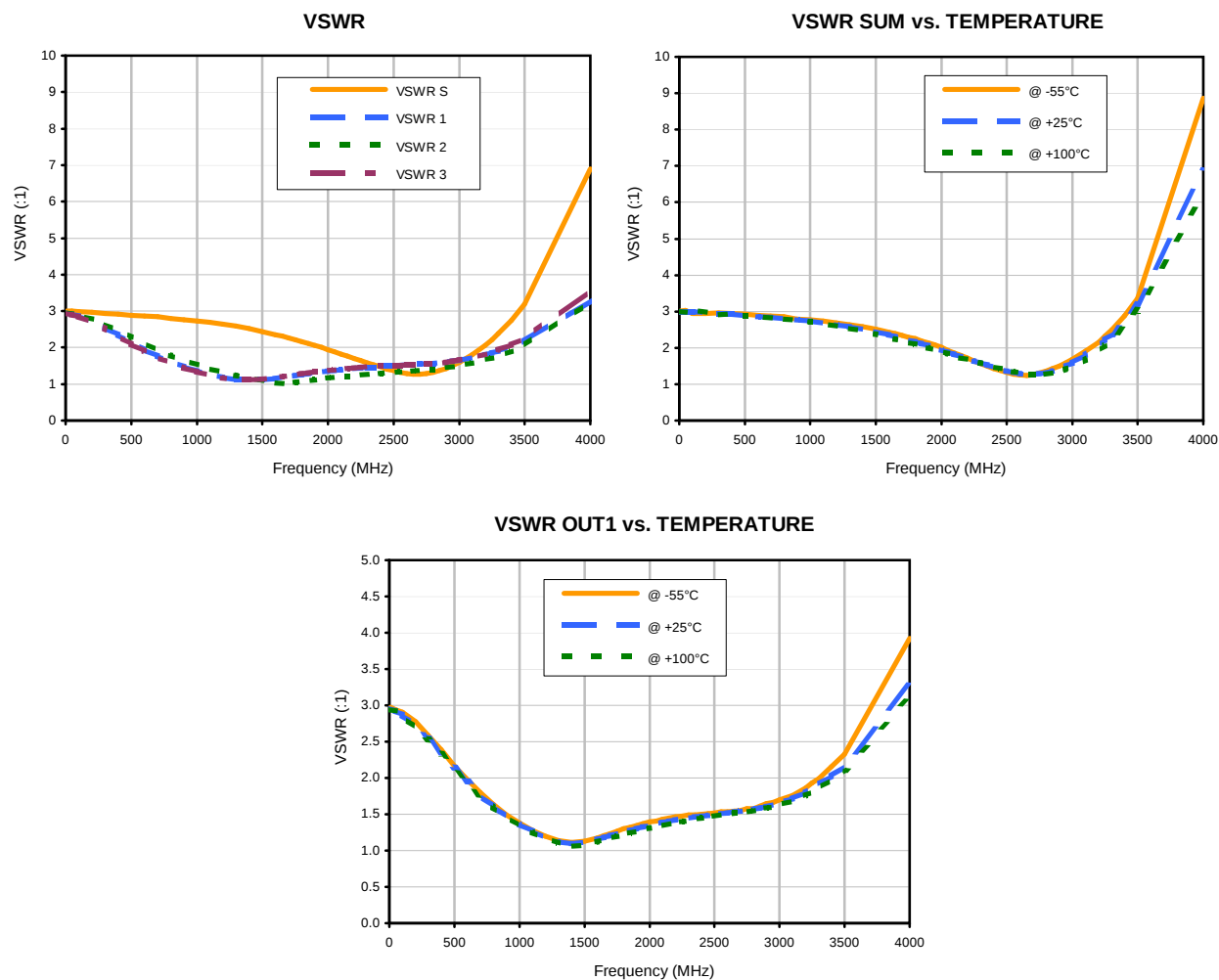


Isolation 1-2 vs. TEMPERATURE

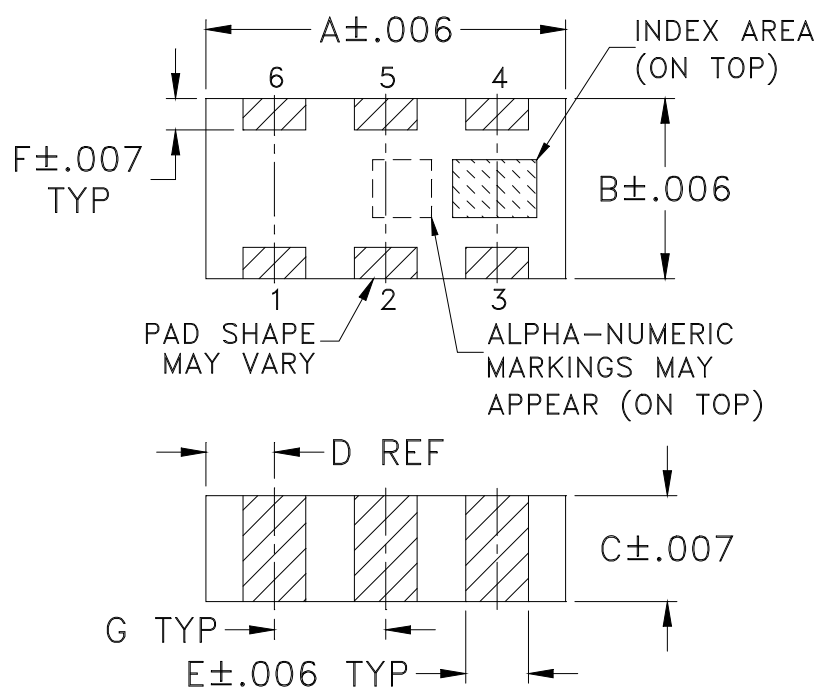


REV. X2
SCN-3-28+
100627
Page 1 of 2

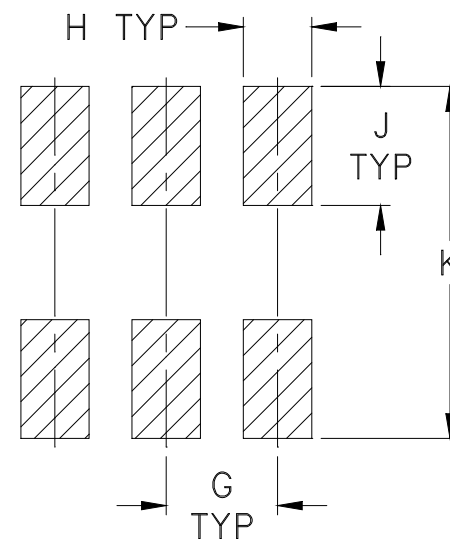
Typical Performance Curves



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	P	WT. GRAM
FV1206-1	.126 (3.20)	.063 (1.60)	.035 (0.89)	.024 (0.61)	.022 (0.56)	.011 (0.28)	.039 (0.99)	.024 (0.61)	.042 (1.07)	.123 (3.12)	--	--	--	--	.020

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

Notes:

- Open style, ceramic base.
- Termination finish: **as shown below or indicated on Data Sheet.**
 For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
 For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging

TR-F75

DEVICE ORIENTATION IN T&R

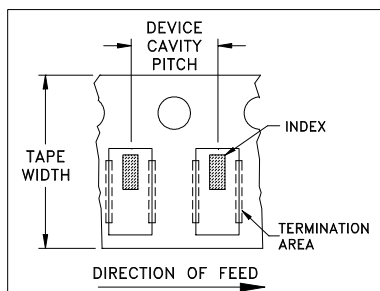


ILLUSTRATION 1

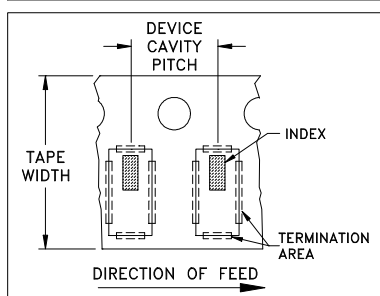


ILLUSTRATION 2

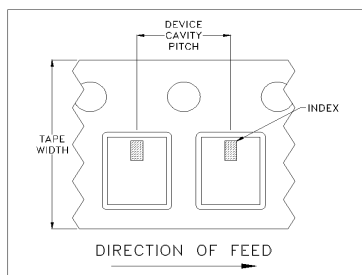


ILLUSTRATION 3

Applicable Case Styles
FV1206-1
FV1206-3

Applicable Case Styles
FV1206-4
FV1206-5
FV1206-6
FV1206-7
FV1206-9
JC0603C-1

Applicable Case Styles
NL1008C-6
FV1206-12
NL1008C-9
NL1008C-10

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

Mini-Circuits ISO 9001 & ISO 14001 Certified

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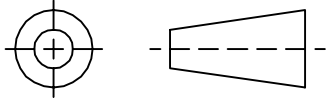
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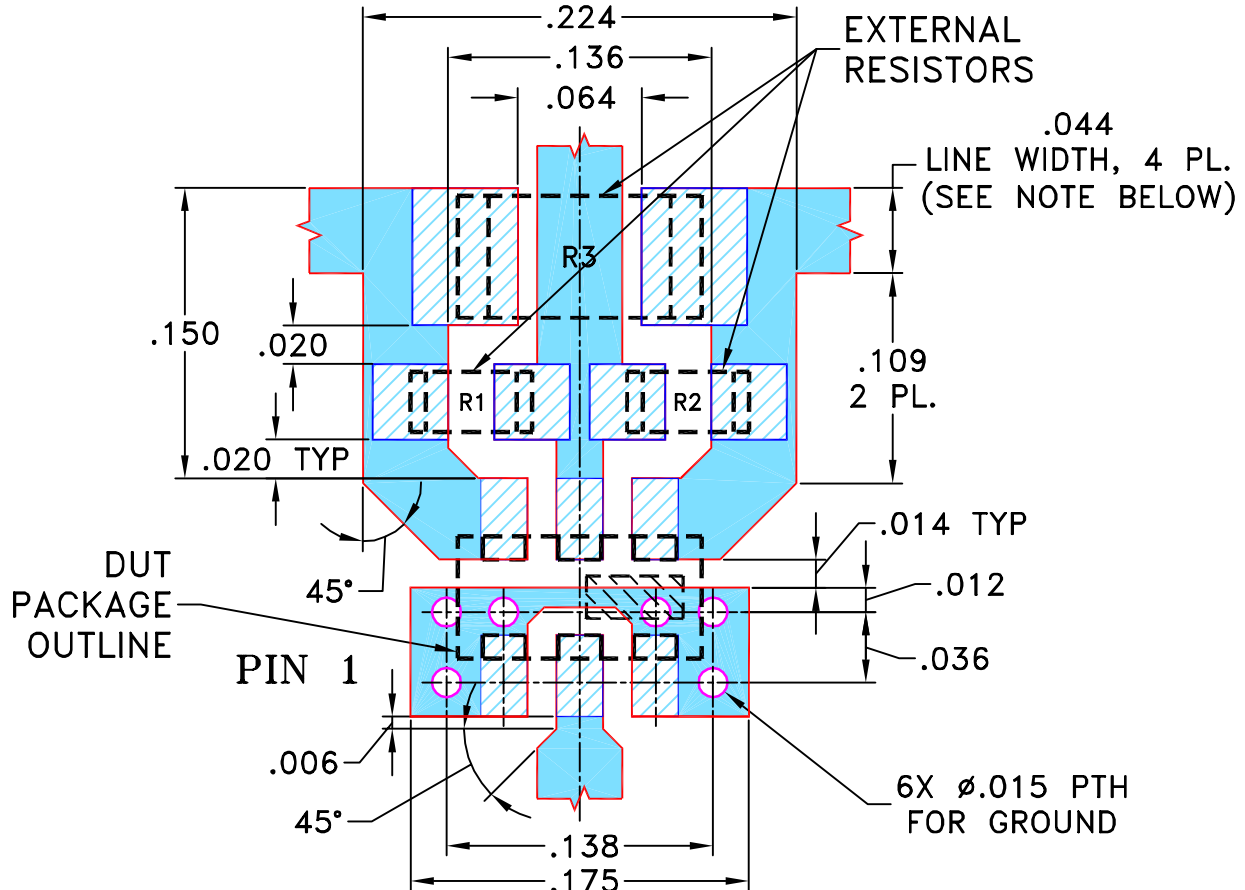
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M94644	NEW RELEASE	10/12/04	MMG	ABD
A	M102713	ADDED "...WITH SMOBC", REMOVED NOTE 2	01/20/06	GT	IL

**SUGGESTED MOUNTING CONFIGURATION
FOR FV1206-1 CASE STYLE, "qc" PIN CONNECTION.**



RESISTORS: R1-R2: 124 Ohm, 0603 SIZE; R3: 127 Ohm, 1206 SIZE.

- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS: .020" $\pm$.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 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 $\pm$ 3 PL DECIMALS $\pm$.005ANGLES $\pm$ FRACTIONS $\pm$

DRAWN

MMG

10/04/04

CHECKED

AV

10/12/04

APPROVED

ABD

10/12/04

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



Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

PL, qc, FV1206-1, SCN-3, TB-303

SIZE
A

CODE IDENT
15542

DRAWING NO:
98-PL-171

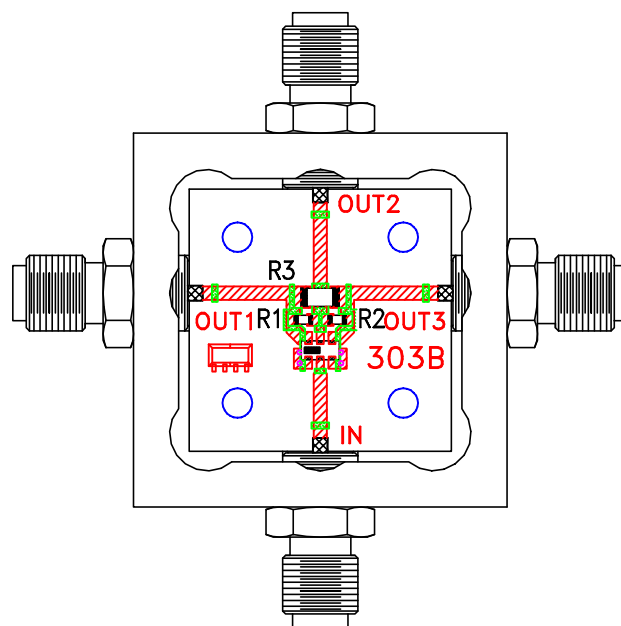
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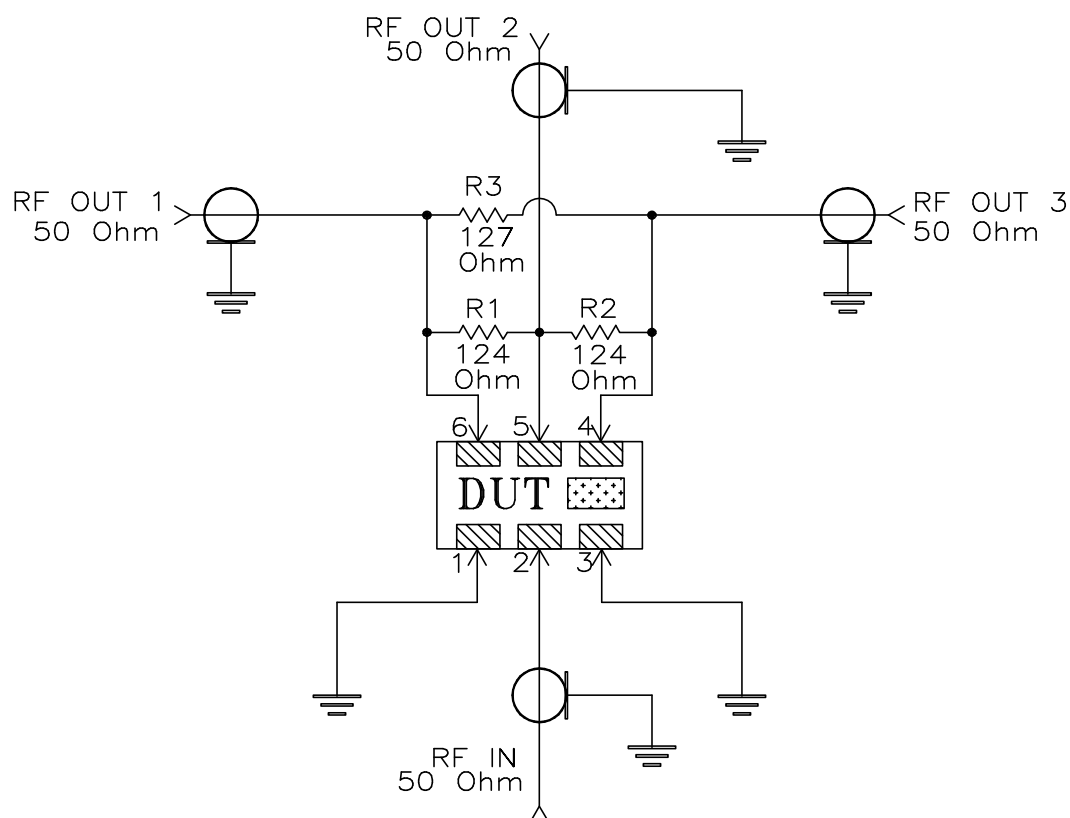
SCALE: 10:1

SHEET: 1 OF 1

Evaluation Board and Circuit



TB-303



Schematic Diagram

Notes:

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

 **Mini-Circuits®**



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	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
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