

Ceramic

Low Pass Filter

LFCN-1500

50Ω DC⁽¹⁾ to 1500 MHz



Generic photo used for illustration purposes only

CASE STYLE: FV1206

Maximum Ratings

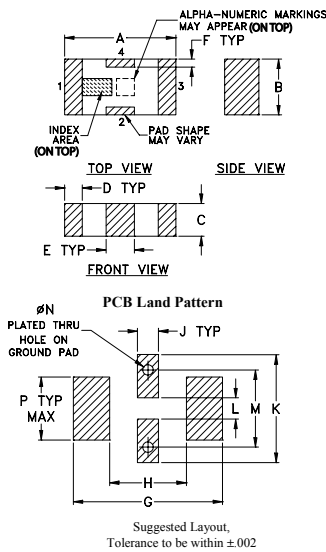
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	10W max. at 25°C

* Passband rating, derate linearly to 3.5W at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

Pin Connections

RF IN	1
RF OUT	3
GROUND	2,4

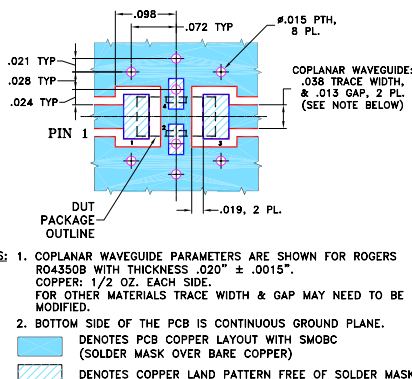
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	
.126	.063	.037	.020	.032	.009	.169	
3.20	1.60	0.94	0.51	0.81	0.23	4.29	
H	J	K	L	M	N	P	wt
.087	.024	.122	.024	.087	.012	.071	grams
2.21	0.61	3.10	0.61	2.21	0.30	1.80	.020

Demo Board MCL P/N: TB-270 Suggested PCB Layout (PL-137)



Features

- excellent power handling, 10W
- small size
- 7 sections
- temperature stable
- LTCC construction
- protected by U.S Patent 6,943,646

Applications

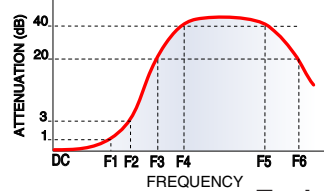
- harmonic rejection
- VHF/UHF transmitters/receivers
- lab use

Electrical Specifications^(1,2) at 25°C

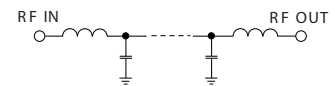
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC-1500	—	—	1.0	dB
	Freq. Cut-Off	F2	1825	—	3.0	—	dB
	VSWR	DC-F1	DC-1500	—	1.2	—	:1
Stop Band	Rejection Loss	F3	2100	20	—	—	dB
		F4-F5	2150-6600	—	30	—	dB
		F6	6800	—	20	—	dB
	VSWR	F3-F6	2100-6800	—	20	—	:1

- (1) In Applications where DC isolation to ground is required, coupling capacitors are recommended to avoid DC leakage. Alternatively, if DC pass IN-OUT is required, Mini-Circuits' "D" suffix version of this model will support DC IN-OUT, and provide >100 MOhm isolation to ground.
- (2) Measured on Mini-Circuits Characterization Test Board TB-270.

Typical Frequency Response

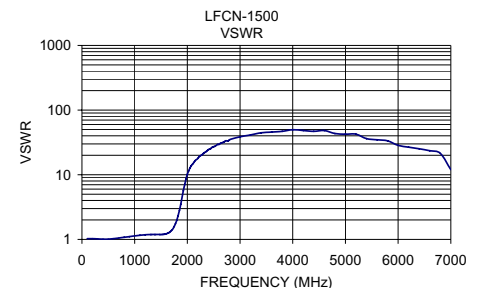
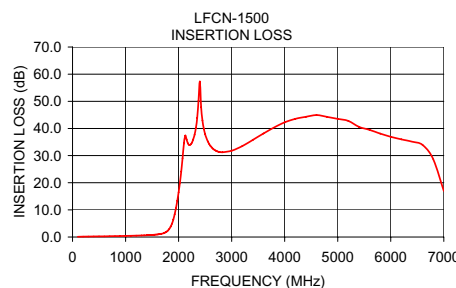


Electrical Schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
100.00	0.09	1.03
1000.00	0.41	1.13
1500.00	0.77	1.19
1700.00	1.31	1.38
1825.00	2.99	2.33
2000.00	16.47	10.13
2100.00	34.49	14.62
2150.00	35.94	16.56
2500.00	37.94	27.16
3000.00	31.80	38.61
4000.00	42.25	49.64
5000.00	43.54	42.38
6000.00	36.93	28.49
6800.00	28.71	21.46
7000.00	16.97	12.01



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.
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Ceramic Low Pass Filter

LFCN-1500

Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURNLOSS (dB)		
	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C
50	0.05	0.06	0.08	34.84	33.48	32.53	34.24	33.19	32.40
100	0.06	0.08	0.10	35.51	34.17	33.18	35.28	34.08	33.14
500	0.13	0.18	0.22	31.61	33.22	35.87	28.57	28.81	29.30
1000	0.25	0.33	0.40	23.38	23.39	23.17	22.28	22.05	21.53
1500	0.55	0.68	0.80	17.62	18.02	18.27	17.34	17.45	17.49
1560	0.61	0.75	0.89	18.14	18.59	18.95	17.50	17.62	17.77
1650	0.77	0.95	1.11	17.94	18.20	18.46	16.55	16.57	16.71
1710	1.00	1.23	1.43	15.58	15.41	15.37	14.41	14.27	14.30
1825	2.43	2.88	3.32	7.82	7.49	7.25	7.91	7.76	7.69
1870	3.92	4.56	5.20	5.10	4.90	4.75	5.50	5.46	5.44
1940	8.40	9.38	10.41	2.29	2.32	2.36	2.91	3.02	3.11
2025	18.00	19.44	20.96	1.01	1.17	1.32	1.63	1.80	1.93
2055	22.75	24.45	26.24	0.84	1.00	1.16	1.43	1.59	1.72
2100	32.68	35.08	37.39	0.69	0.86	1.02	1.21	1.36	1.48
2120	39.16	41.11	41.44	0.63	0.80	0.97	1.13	1.28	1.40
2150	41.82	39.80	38.56	0.57	0.75	0.90	1.05	1.19	1.31
2210	35.67	35.72	35.89	0.49	0.66	0.81	0.91	1.04	1.15
2345	46.21	47.40	47.92	0.37	0.53	0.68	0.69	0.81	0.92
2365	49.38	48.69	47.36	0.36	0.52	0.67	0.67	0.79	0.90
2415	42.76	41.69	40.69	0.34	0.50	0.65	0.63	0.75	0.86
2495	36.26	35.85	35.55	0.31	0.47	0.61	0.56	0.68	0.80
2850	30.44	30.58	30.68	0.24	0.40	0.54	0.41	0.54	0.67
3830	37.61	37.93	38.31	0.23	0.40	0.56	0.30	0.44	0.55
4020	39.16	39.51	39.87	0.18	0.35	0.49	0.34	0.47	0.57
4210	40.53	40.84	41.16	0.21	0.38	0.53	0.30	0.42	0.52
4400	40.77	41.14	41.31	0.22	0.38	0.51	0.32	0.44	0.53
4470	39.40	39.78	40.14	0.26	0.42	0.55	0.31	0.42	0.51
4640	40.37	39.98	40.40	0.23	0.41	0.52	0.32	0.44	0.52
5060	39.05	38.43	38.57	0.25	0.44	0.59	0.32	0.44	0.52
6600	27.62	27.68	28.03	0.57	0.81	1.13	0.45	0.64	0.82
6800	26.22	25.93	25.61	0.55	0.81	1.10	0.50	0.72	0.94
6940	21.91	21.22	20.00	0.70	0.94	1.31	0.83	1.06	1.51
7000	19.32	17.67	16.40	0.77	1.13	1.53	1.28	1.81	2.59
7070	14.26	12.47	11.88	1.25	1.83	2.20	2.81	4.58	6.10
7750	20.28	20.49	20.57	0.71	0.88	1.12	0.66	0.86	1.19
8440	19.28	19.39	19.37	0.71	0.98	1.31	0.77	0.96	1.20
10000	16.07	16.40	16.70	0.60	0.91	1.10	0.73	0.90	1.05
12380	8.42	8.52	9.16	1.61	2.50	3.54	1.95	2.57	3.27
12620	12.66	14.71	14.90	2.37	2.17	2.44	2.77	2.19	2.07
14000	8.53	8.81	9.19	2.60	3.25	4.00	2.44	2.88	3.32
15000	8.84	8.80	9.48	2.76	3.65	4.32	7.21	9.95	13.89

REV. X1
LFCN-1500
080722
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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant
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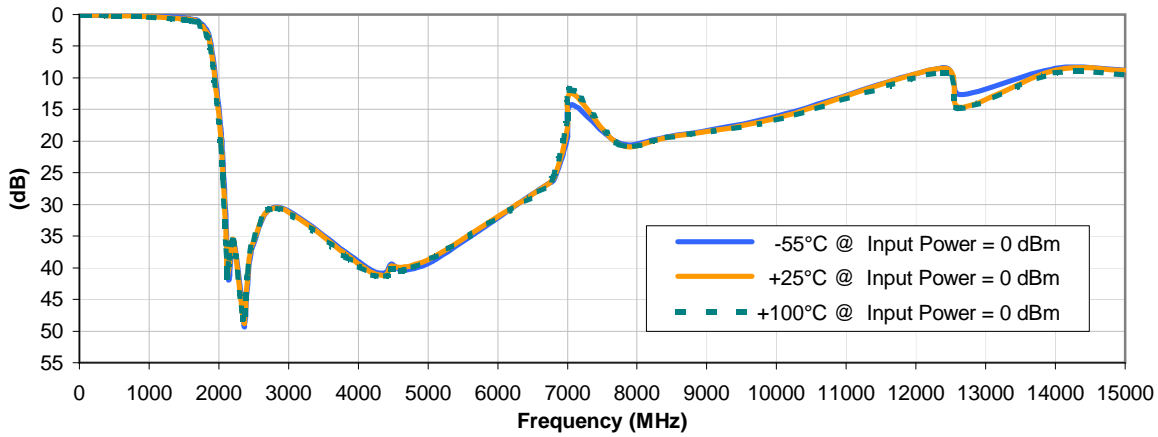


Ceramic Low Pass Filter

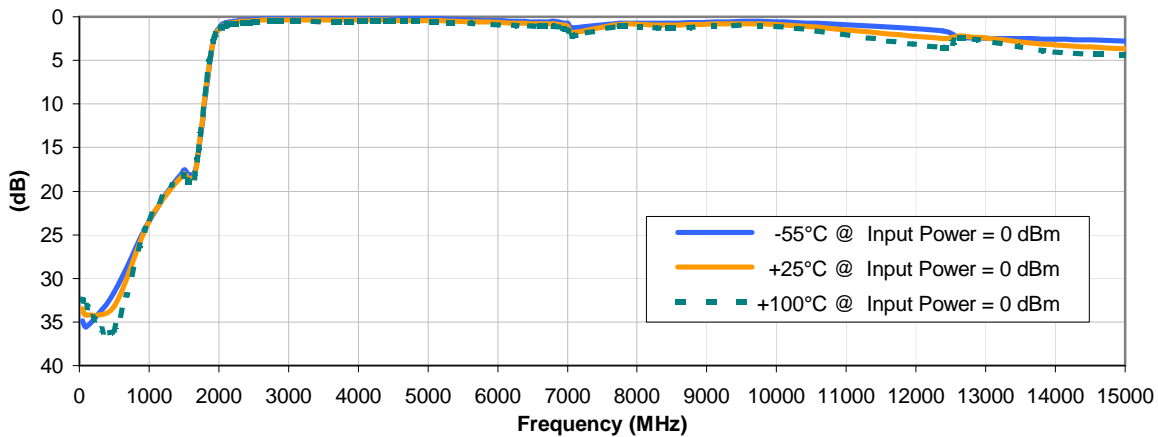
Typical Performance Curves

LFCN-1500

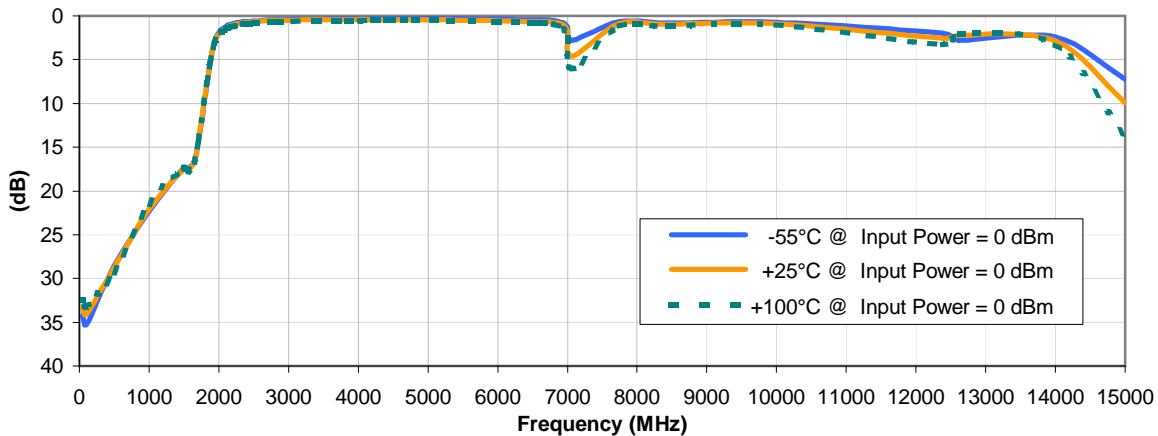
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE



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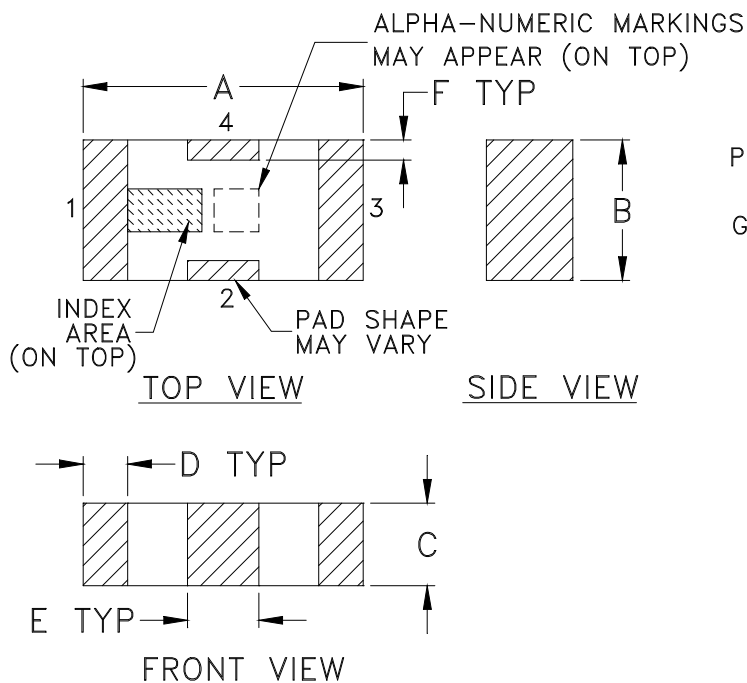
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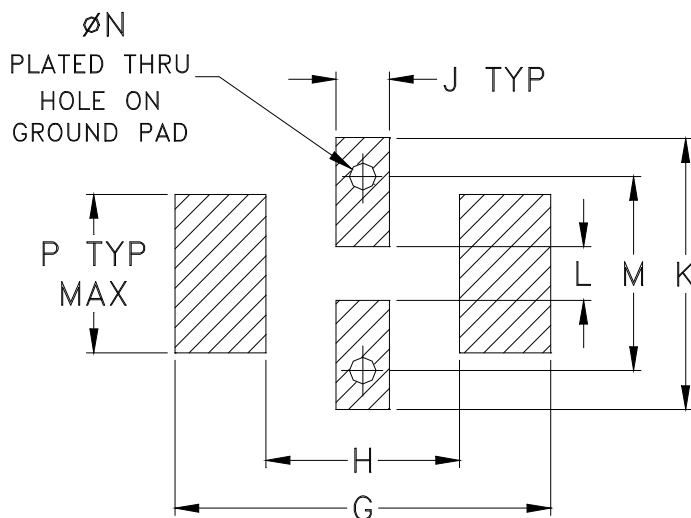
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Outline Dimensions



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	.126 (3.20)	.063 (1.60)	.037 (0.94)	.020 (0.51)	.032 (0.81)	.009 (0.23)	.169 (4.29)	.087 (2.21)	.024 (0.61)	.122 (3.10)	.024 (0.61)	.087 (2.21)	.012 (0.30)	.071 (1.80)	.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.



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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F71

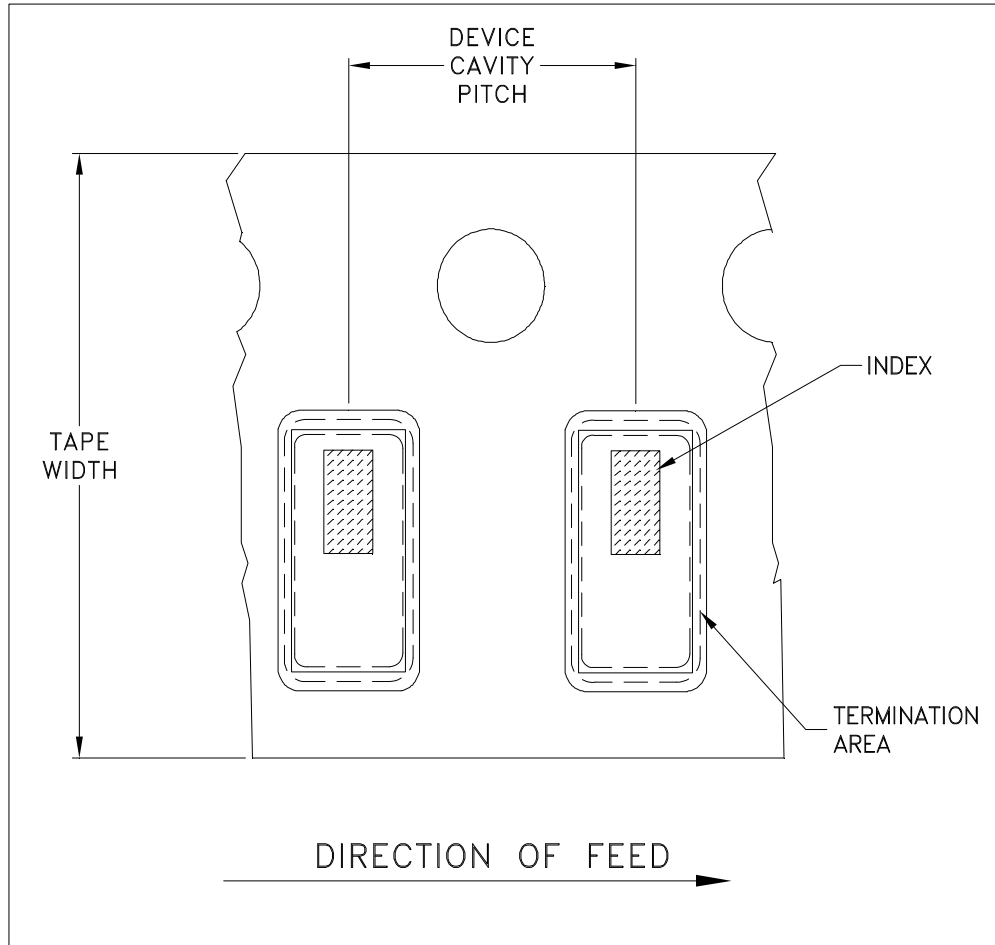


ILLUSTRATION 1

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



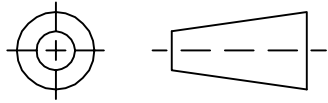
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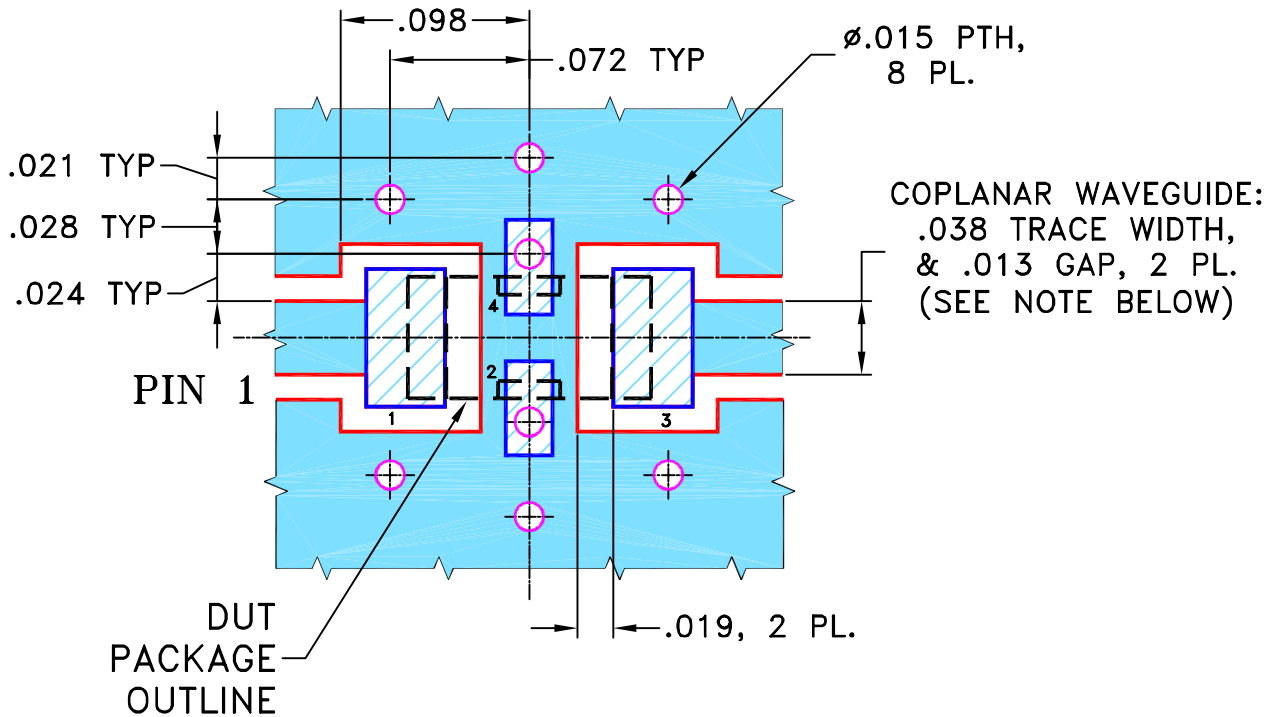
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M88634	NEW RELEASE	08/28/03	GF	ABD
A	M102713	ADDED "...WITH SMOBC"	01/17/06	MMG	IL

SUGGESTED MOUNTING CONFIGURATION
FOR FV1206 CASE STYLE, "nx" PIN CONNECTION

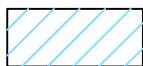


- NOTES:**
- COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH THICKNESS .020" ± .0015".
 COPPER: 1/2 OZ. EACH SIDE.
 FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.

2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.



DENOTES PCB COPPER LAYOUT WITH SMOBC
 (SOLDER MASK OVER BARE COPPER)



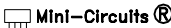
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED	INITIALS	DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± .005 ANGLES ± FRACTIONS ±	DRAWN	GF 08/27/03
	CHECKED	AV 08/28/03
	APPROVED	ABD 08/28/03

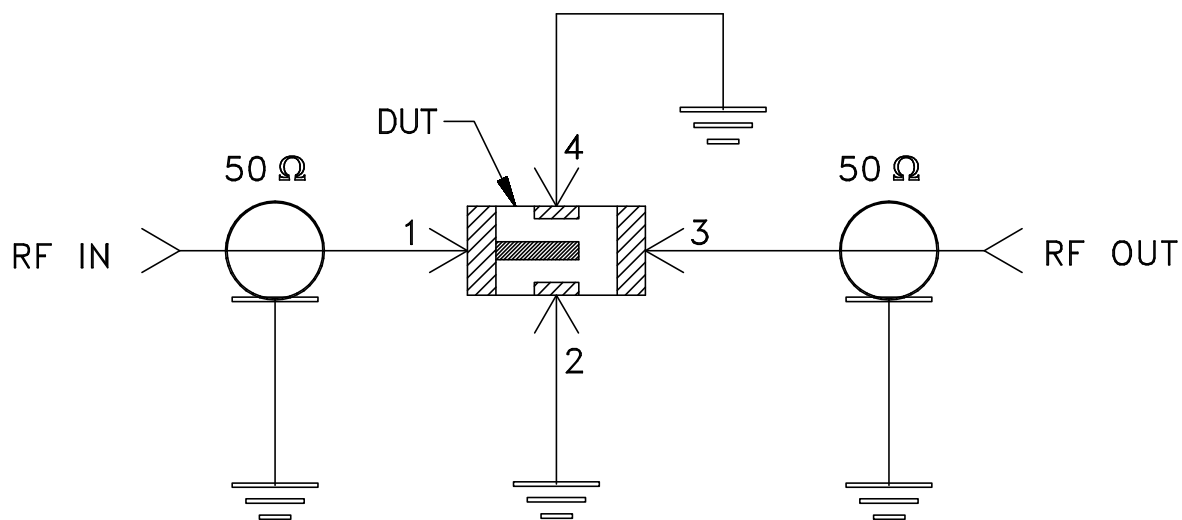
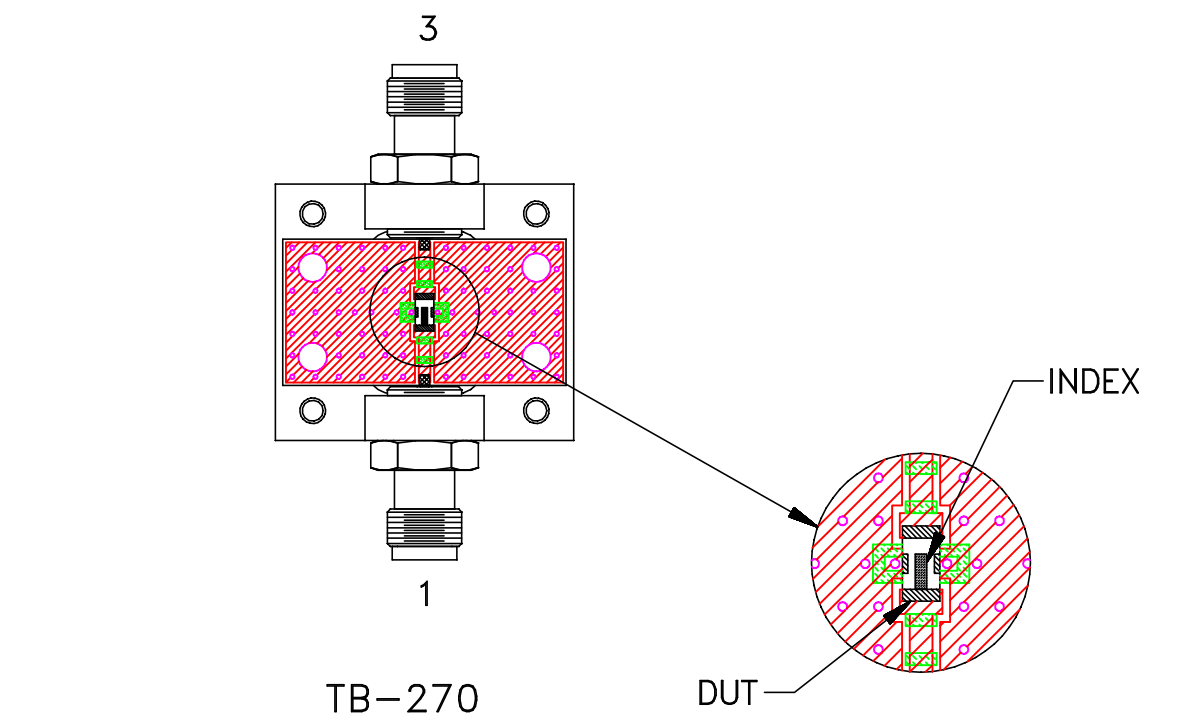
 **Mini-Circuits®** 13 Neptune Avenue
 Brooklyn NY 11235

PL, nx, FV1206, LFCN/HFCN, TB-270

SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-137	REV: A
FILE:	98PL137	SCALE: 10:1	SHEET: 1 OF 1

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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.

 **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