

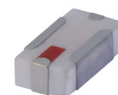


FEATURES

- Excellent Power Handling, 8 W
- Small Size 0.12x0.06"
- Temperature Stable
- Hermetically Sealed
- LTCC Construction
- Protected by U.S. Patent 6,943,646

APPLICATIONS

- Harmonic Rejection
- VHF/UHF Transmitters/Receivers
- Lab Use



Generic photo used for illustration purposes only

CASE STYLE: FV1206-4

+RoHS Compliant

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

PRODUCT OVERVIEW

The LFCN-1282+ Low Pass Filter gives microwave communication system designers the ability to reject unwanted harmonics using defined RF parameters. The multilayer construction gives high repeatability of performance. Small wrap-around terminations minimize variations in performance due to parasitics. Covering DC-12800 MHz, these units offer low insertion loss and good rejection.

KEY FEATURES

Feature	Advantages
Small Size (3.20x1.6 mm)	Allows for high layout density of circuit boards, while minimizing effects of parasitics.
Rejection Peaks at Harmonic Frequencies	Provides good rejection of signals at harmonic frequencies, for improved system performance.
Wrap-Around Termination	Provides excellent solderability and easy visual inspection capability.
LTCC Construction	Provides a rugged package that is well suited for tough environments including high humidity and high temperature extremes.



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CERAMIC

Low Pass Filter

LFCN-1282+

50Ω DC¹ to 12800 MHz

ELECTRICAL SPECIFICATIONS^{1,2} AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC-12800		1.2	4.0	dB
	Freq. Cut-Off	F2	13900		3.0		dB
	VSWR	DC-F1	DC-12800		1.7		:1
Stopband	Rejection Loss	F3-F6	16200-19500	20	30		dB
		F4-F5	16500-20000		40		
	VSWR	F3-F6	16200-20330		40		:1

1. In Application where DC voltage is present at either input or output ports, coupling capacitors are required.

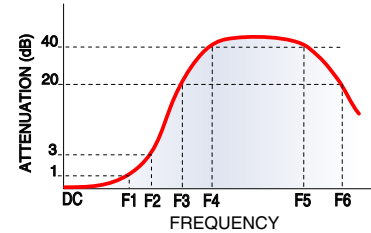
2. Measured on Mini-Circuits Characterization Test Board TB-LFCN-1282+.

ABSOLUTE MAXIMUM RATINGS

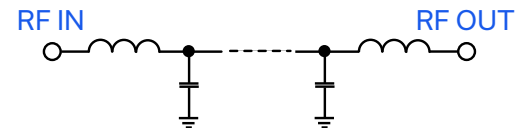
Parameter	Ratings
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
RF Power Input ³	8 W max. at +25°C

3. Passband rating, derate linearly to 3 W at +100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC





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Low Pass Filter

LFCN-1282+

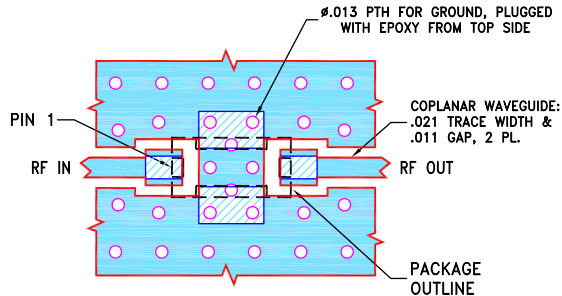
50Ω

DC¹ to 12800 MHz

PIN CONNECTIONS

RF IN	1
RF OUT	3
GROUND	2,4

PRODUCT MARKING: EX

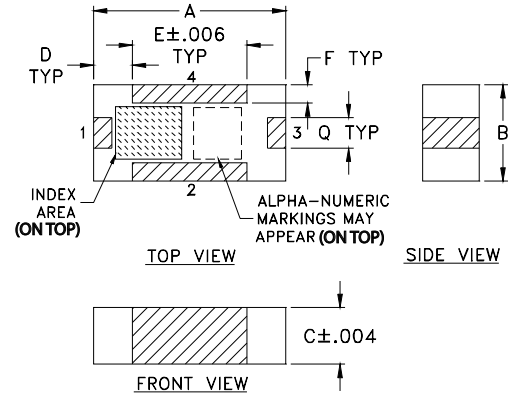
DEMO BOARD MCL P/N: TB-LFCN-1282+
SUGGESTED PCB LAYOUT (PL-546)

NOTES:

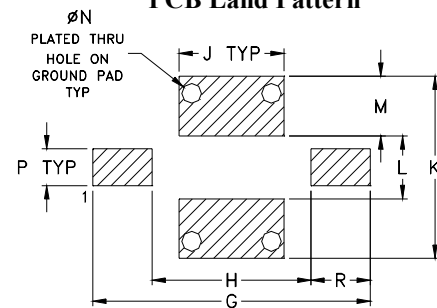
1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010±.001. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

OUTLINE DRAWING



PCB Land Pattern

Suggested Layout,
Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E	F	G	H	J
.126	.063	.037	.026	.075	.012	.182	.104	.069
3.20	1.60	0.94	0.66	1.91	0.30	4.62	2.64	1.75
K	L	M	N	P	Q	R		wt
.119	.041	.039	.013	.024	.020	.039		grams
3.02	1.04	0.99	0.33	0.61	0.51	0.99		.020

TAPE & REEL INFORMATION: F75



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CERAMIC

Low Pass Filter

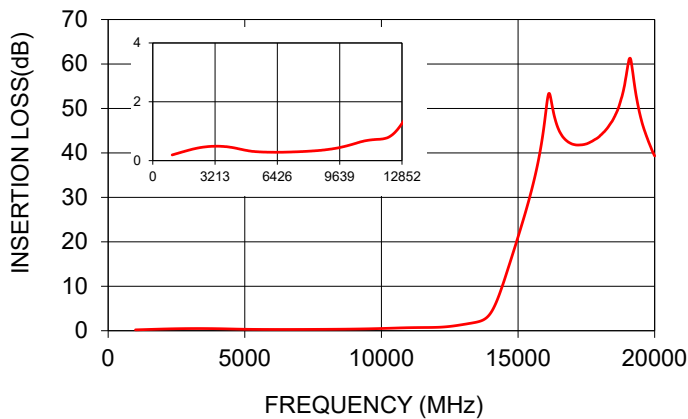
LFCN-1282+

50Ω DC¹ to 12800 MHz

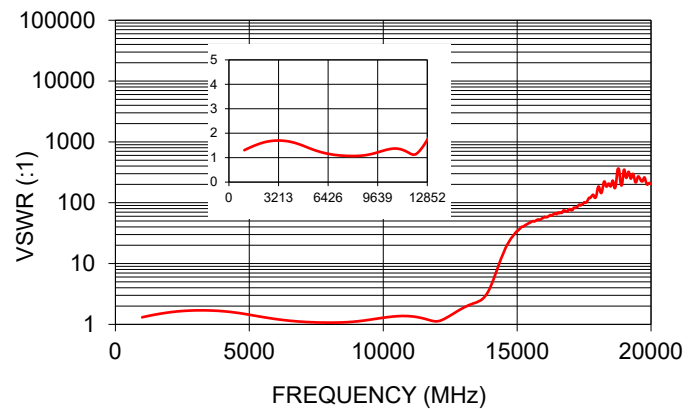
TYPICAL PERFORMANCE DATA AT +25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1000	0.19	1.31
2000	0.38	1.57
5000	0.33	1.44
10000	0.50	1.29
12800	1.21	1.68
13900	3.23	3.34
15800	40.08	52.68
16000	48.40	57.61
18000	43.84	164.64
20000	39.31	206.37

INSERTION LOSS



VSWR



NOTES

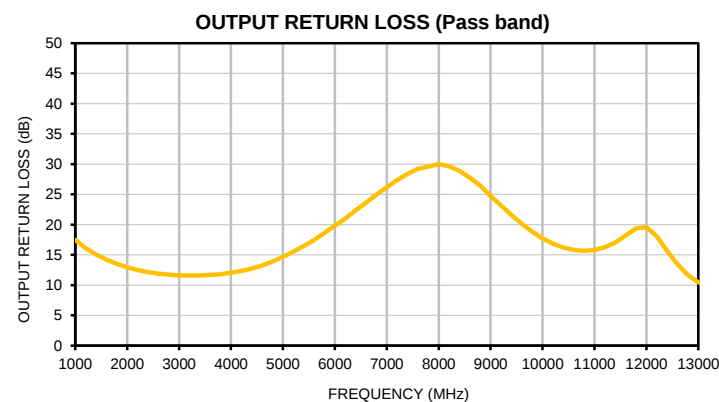
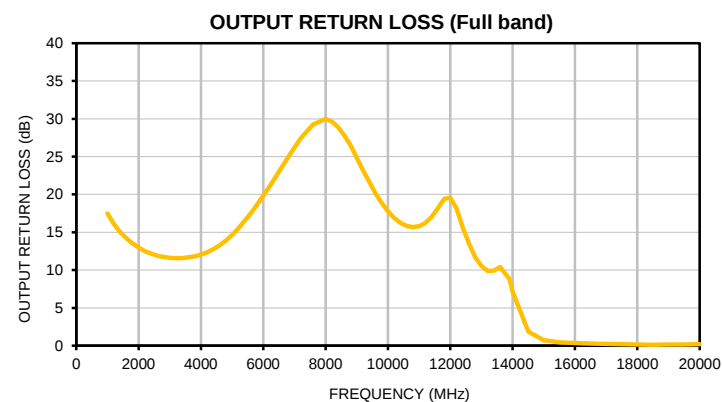
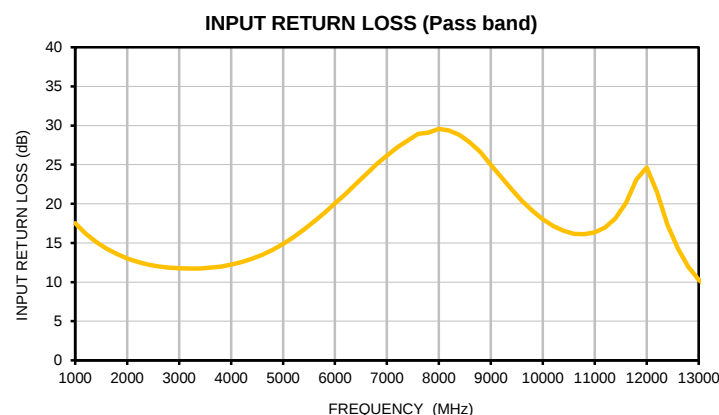
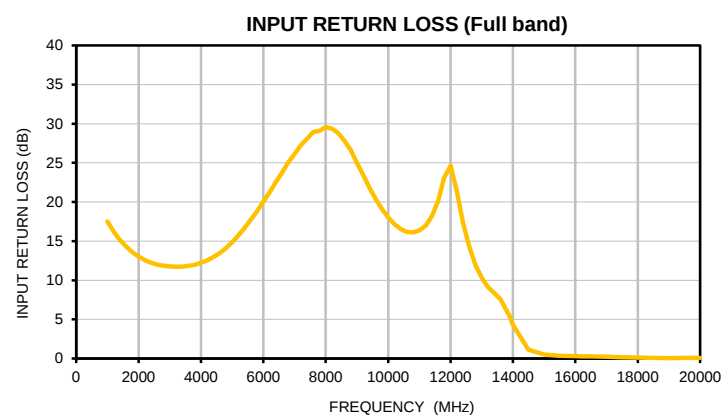
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Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	OUTPUT RETURN LOSS (dB)
1000	0.19	17.53	17.49
1200	0.23	16.19	16.13
1400	0.27	15.14	15.07
1600	0.31	14.28	14.21
1800	0.34	13.61	13.54
2000	0.38	13.03	12.97
2200	0.41	12.60	12.51
2400	0.44	12.26	12.16
2600	0.46	12.01	11.90
2800	0.47	11.85	11.73
3000	0.48	11.75	11.61
3200	0.49	11.73	11.59
3400	0.49	11.74	11.59
3600	0.48	11.85	11.68
3800	0.47	11.99	11.81
4000	0.45	12.24	12.05
4200	0.43	12.54	12.35
4400	0.40	12.97	12.77
4600	0.38	13.47	13.27
4800	0.35	14.11	13.91
5000	0.33	14.87	14.65
5200	0.31	15.74	15.50
5400	0.30	16.71	16.48
5600	0.29	17.74	17.51
5800	0.29	18.84	18.62
6000	0.29	20.05	19.86
6200	0.29	21.24	21.01
6400	0.28	22.53	22.34
6600	0.28	23.78	23.63
6800	0.29	25.06	24.97
7000	0.29	26.14	26.18
7200	0.30	27.25	27.40
7400	0.30	28.10	28.38
7600	0.31	28.92	29.25
7800	0.31	29.11	29.61
8000	0.32	29.58	30.01
8400	0.34	28.77	28.89
8600	0.35	27.82	27.78
8800	0.36	26.60	26.48
9000	0.38	24.99	24.79
9200	0.39	23.43	23.21
9400	0.41	21.83	21.61
9600	0.44	20.37	20.14
9800	0.47	19.12	18.86
10000	0.50	18.04	17.75
10200	0.54	17.16	16.88
10400	0.58	16.54	16.24
10600	0.62	16.18	15.85
10800	0.65	16.10	15.68
11000	0.68	16.35	15.81
11400	0.71	18.15	17.04
11800	0.73	23.10	19.40
12000	0.76	24.65	19.58
12200	0.81	21.50	18.10
12400	0.91	17.33	15.65
12600	1.04	14.24	13.45
12800	1.21	11.93	11.70
13000	1.41	10.29	10.51
13200	1.62	9.14	9.87
13400	1.83	8.36	9.91
13600	2.12	7.59	10.41
13900	3.23	5.37	8.79
14000	4.00	4.33	7.17
14500	11.42	1.14	1.85
15000	21.09	0.51	0.73
15500	31.74	0.36	0.45
16000	48.40	0.30	0.34
16200	52.20	0.28	0.30
16500	45.06	0.26	0.27
17000	41.95	0.23	0.23
17500	42.02	0.17	0.19
18000	43.84	0.11	0.14
18500	47.74	0.09	0.12
19000	58.95	0.05	0.14
19500	47.70	0.07	0.16
20000	39.31	0.08	0.20

Typical Performance Curves



DEVICE ORIENTATION IN T&R

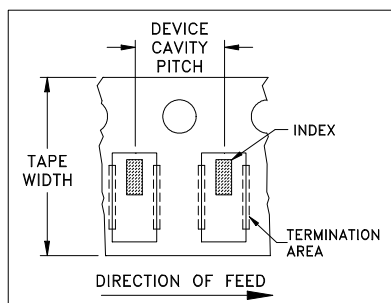


ILLUSTRATION 1

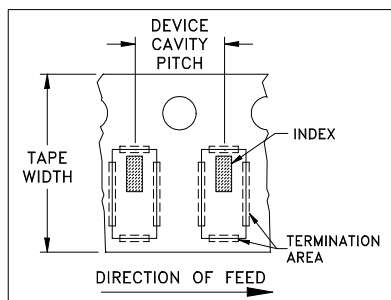


ILLUSTRATION 2

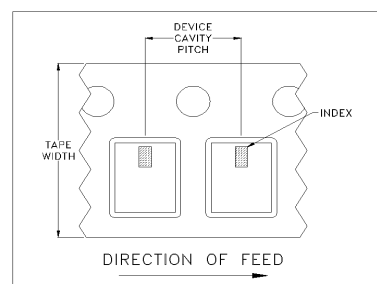


ILLUSTRATION 3

Applicable Case Styles

FV1206-1
FV1206-3

Applicable Case Styles

FV1206-4
FV1206-5
FV1206-6
FV1206-7
FV1206-9

Applicable Case Styles

FV1206-11
FV1206-12
GE0805C-18
NL1008C-6
NL1008C-7
NL1008C-9
NL1008C-10
NL1008C-12

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

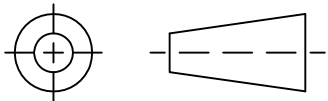


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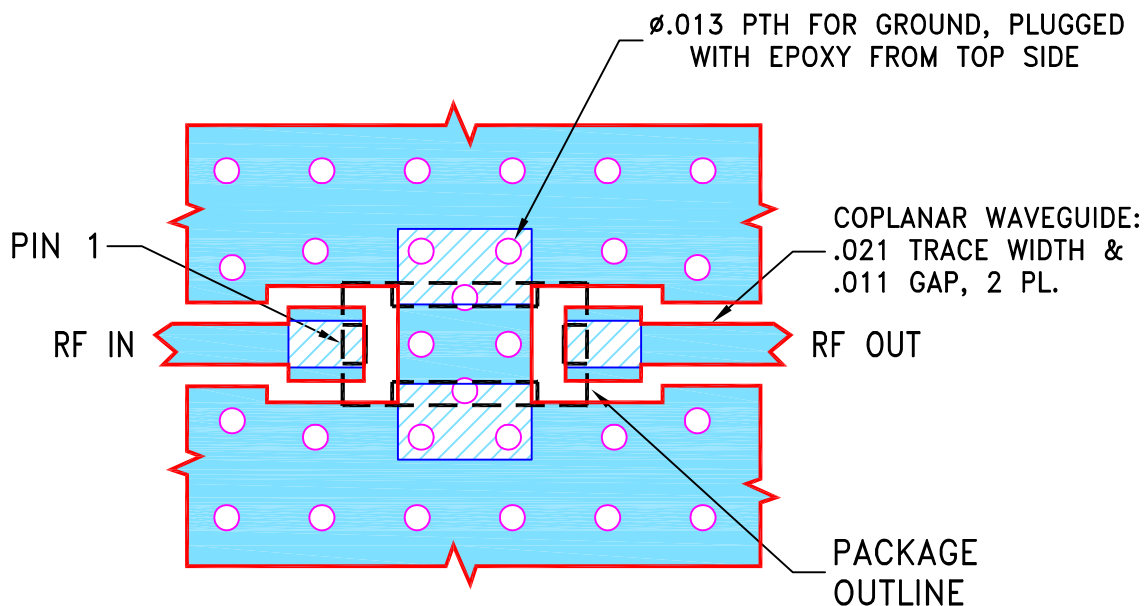
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M166277	NEW RELEASE	02/20/18	ITG	BK

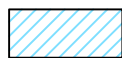
SUGGESTED MOUNTING CONFIGURATION
FOR FV1206-4 CASE STYLE, "04FL01" PIN CODE

**NOTES:**

1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $.010 \pm .001$. 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 $\pm$ 3 PL DECIMALS $\pm$.005ANGLES $\pm$ FRACTIONS $\pm$

DRAWN

ITG

02/12/18

CHECKED

GF

02/20/18

APPROVED

BK

02/20/18

**Mini-Circuits®**13 Neptune Avenue
Brooklyn NY 11235**PL, 04FL01, FV1206-4, TB-810+**

SIZE

A

CODE IDENT

15542

DRAWING NO:

98-PL-546

REV:

OR

FILE:

98PL546

SCALE:

10:1

SHEET:

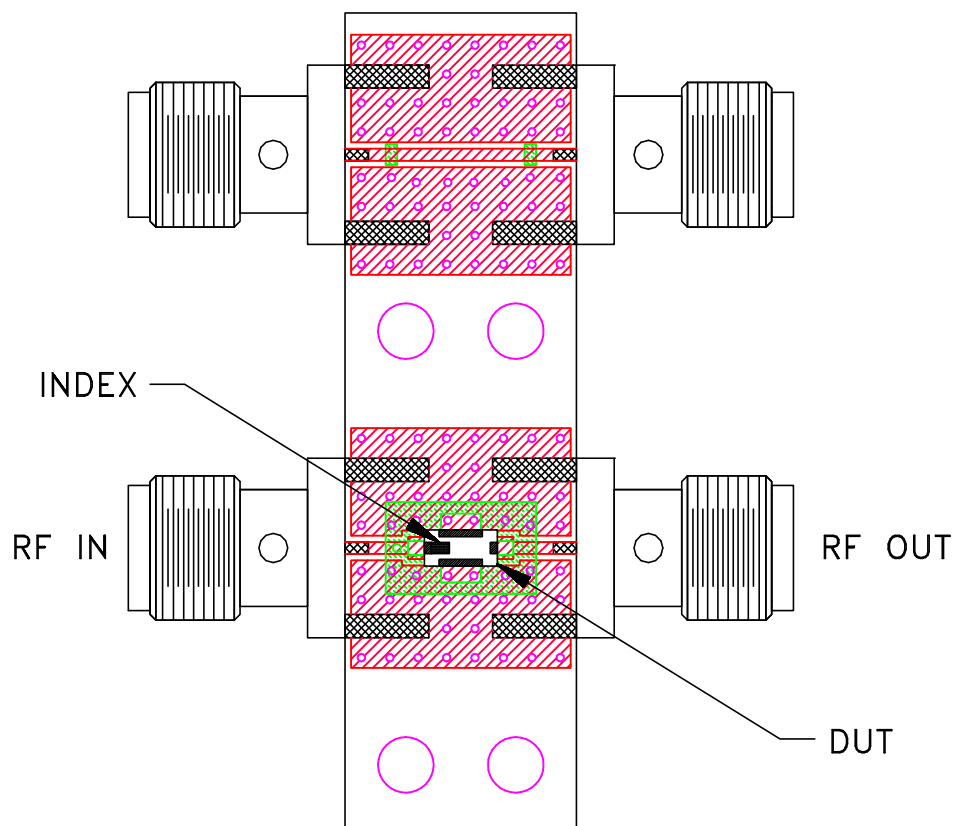
1 OF 1

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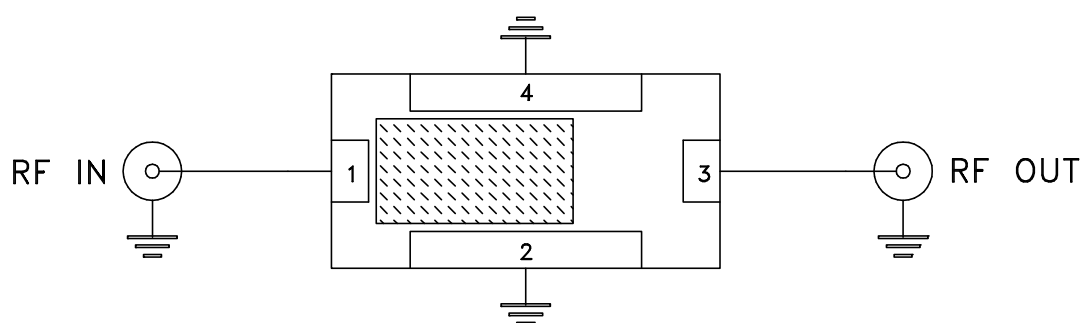
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ASHEETA1.DWG REV:A DATE:01/12/95

Evaluation Board and Circuit



TB-810-1282+



Schematic Diagram

Note:

PCB Material: R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.0010 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