



Mini-Circuits®

CERAMIC

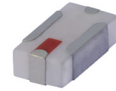
Low Pass Filter

LFCN-8400+

50Ω DC¹ to 8400 MHz

FEATURES

- Excellent power handling, 8W
- Small size
- 7 sections
- Temperature stable
- Hermetically sealed
- LTCC construction
- Protected by U.S. Patent 6,943,646



Generic photo used for illustration purposes only

CASE STYLE: FV1206-4

+RoHS Compliant

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

APPLICATIONS

- Harmonic rejection
- VHF/UHF transmitters/receivers
- Lab use

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

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC-8400	—	1.6	dB
	Freq. Cut-Off	F2	9100	3.0	—	dB
	VSWR	DC-F1	DC-8400	1.6	—	:1
Stop Band	Rejection Loss	F3	10300	20	—	dB
		F4-F5	10300-15000	30	—	dB
	VSWR	F3-F6	10300-15000	17	—	:1

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

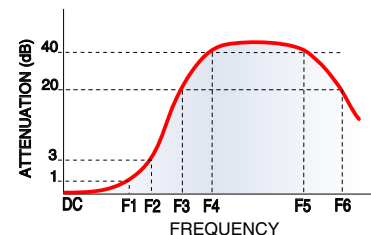
2. Measured on Mini-Circuits Characterization Test Board TB-618+.

MAXIMUM RATINGS

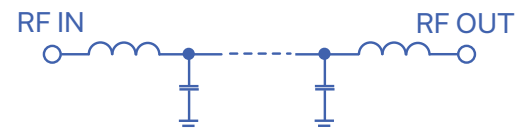
Parameter	Ratings
Operating temperature	-55°C to 100°C
Storage temperature	-55°C to 100°C
RF Power Input ³	8 W max. at 25°C

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC



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REV. D
ECO-011891
LFCN-8400+
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220209

PAGE 1 OF 3



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Low Pass Filter

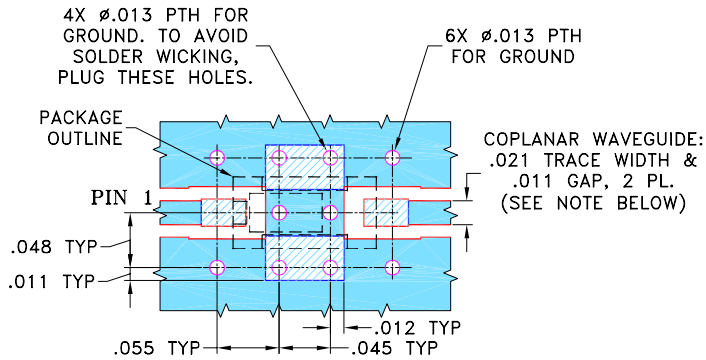
LFCN-8400+

PIN CONNECTIONS

RF IN	1
RF OUT	3
GROUND	2,4

PRODUCT MARKING: AG

DEMO BOARD MCL P/N: TB-618
SUGGESTED PCB LAYOUT (PL-363)

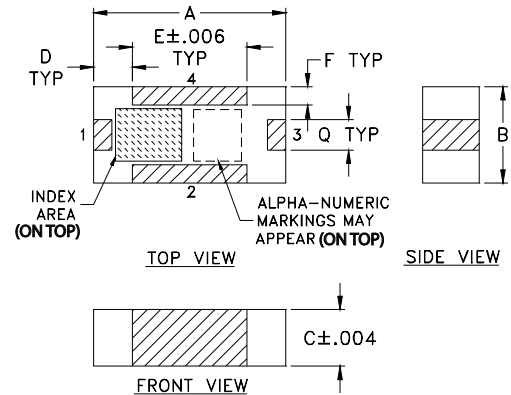


- NOTE:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $.010'' \pm .001''$. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

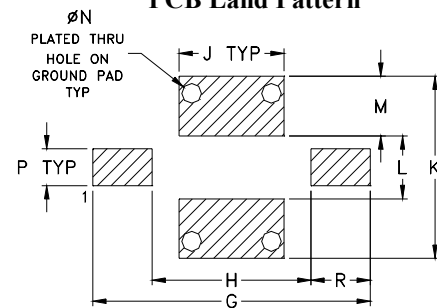
 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

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



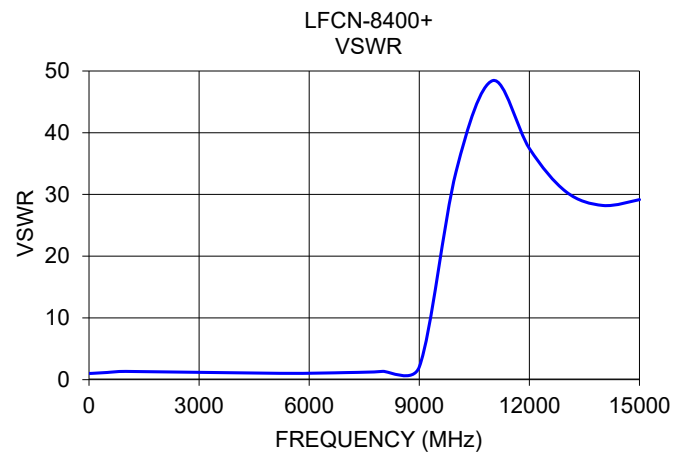
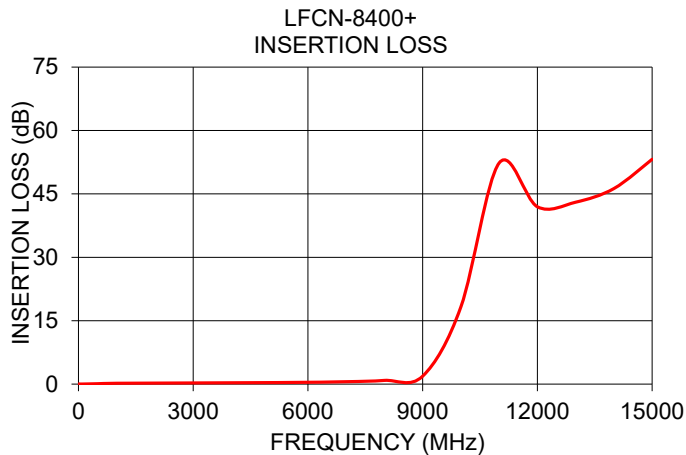
CERAMIC

Low Pass Filter

LFCN-8400+

TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	0.07	1.01
50	0.03	1.01
100	0.03	1.03
500	0.11	1.17
1000	0.21	1.34
5200	0.38	1.03
7000	0.58	1.15
8000	0.89	1.34
9000	1.89	2.08
10000	18.30	33.66
11000	52.31	48.44
12000	41.95	37.44
13000	43.04	30.42
14000	46.26	28.21
15000	53.19	29.16



NOTES

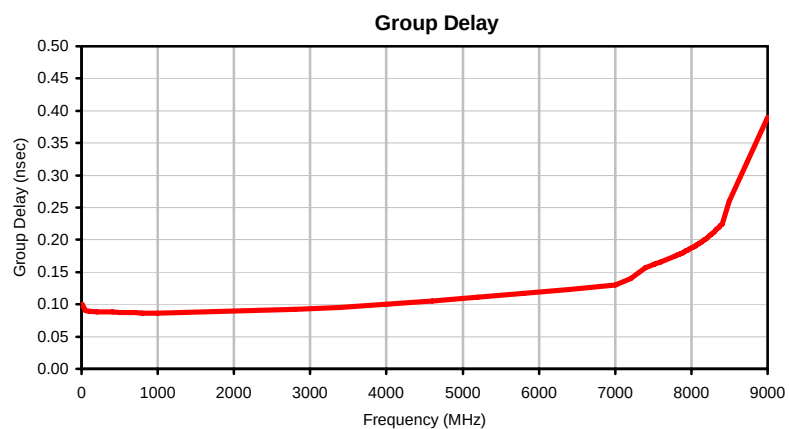
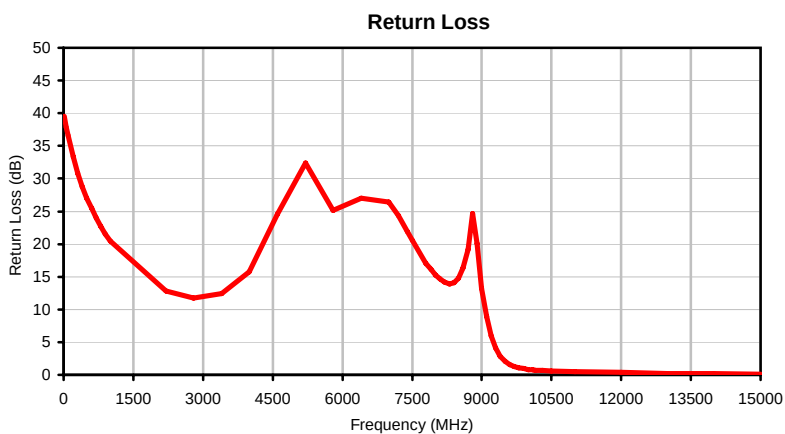
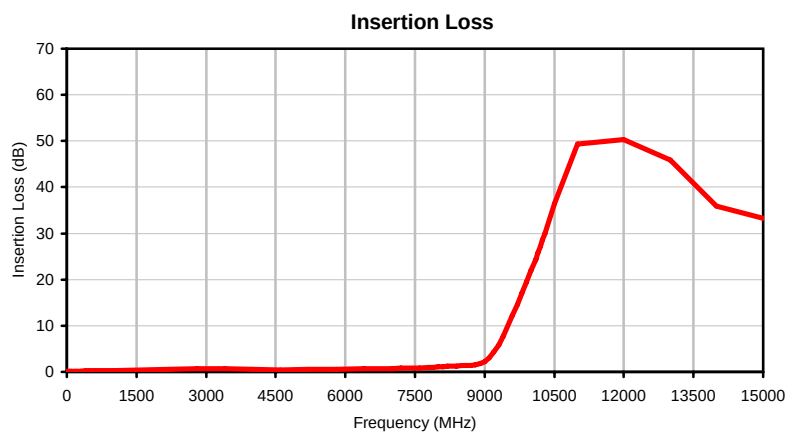
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Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)	FREQUENCY (MHz)	GROUP DELAY (nsec)
10.0	0.14	39.48	10.0	0.10
50.0	0.17	37.83	50.0	0.09
100.0	0.18	36.59	100.0	0.09
200.0	0.19	33.35	200.0	0.09
300.0	0.21	30.81	300.0	0.09
400.0	0.22	28.75	400.0	0.09
500.0	0.23	27.05	500.0	0.09
600.0	0.25	25.45	600.0	0.09
700.0	0.26	23.99	700.0	0.09
800.0	0.27	22.70	800.0	0.09
900.0	0.29	21.51	900.0	0.09
1000.0	0.31	20.41	1000.0	0.09
2200.0	0.61	12.82	2200.0	0.09
2800.0	0.72	11.76	2800.0	0.09
3400.0	0.69	12.47	3400.0	0.10
4000.0	0.57	15.76	4000.0	0.10
4600.0	0.48	24.59	4600.0	0.11
5200.0	0.50	32.39	5200.0	0.11
5800.0	0.57	25.14	5800.0	0.12
6400.0	0.64	26.96	6400.0	0.12
7000.0	0.73	26.47	7000.0	0.13
7200.0	0.77	24.32	7200.0	0.14
7400.0	0.82	21.91	7400.0	0.16
7508.0	0.85	20.52	7508.0	0.16
7600.0	0.89	19.33	7520.0	0.16
7800.0	0.98	17.01	7600.0	0.17
7900.0	1.03	16.12	7780.0	0.17
8000.0	1.08	15.30	7800.0	0.18
8100.0	1.14	14.69	7820.0	0.18
8200.0	1.19	14.20	7840.0	0.18
8300.0	1.25	13.94	7860.0	0.18
8400.0	1.29	14.11	7880.0	0.18
8500.0	1.33	14.75	7900.0	0.18
8600.0	1.36	16.29	7920.0	0.18
8700.0	1.42	19.22	7940.0	0.18
8800.0	1.52	24.62	7960.0	0.18
8900.0	1.75	20.09	7980.0	0.19
9000.0	2.21	13.25	8000.0	0.19
9100.0	3.01	8.87	8020.0	0.19
9200.0	4.23	5.98	8040.0	0.19
9300.0	5.87	4.07	8060.0	0.19
9400.0	7.82	2.85	8080.0	0.19
9500.0	9.98	2.08	8100.0	0.19
9600.0	12.26	1.61	8120.0	0.20
9700.0	14.60	1.30	8140.0	0.20
9800.0	17.00	1.09	8160.0	0.20
9900.0	19.43	0.94	8180.0	0.20
10000.0	21.91	0.83	8200.0	0.20
10050.0	23.18	0.79	8220.0	0.20
10100.0	24.46	0.76	8240.0	0.21
10150.0	25.78	0.72	8260.0	0.21
10200.0	27.12	0.70	8280.0	0.21
10250.0	28.50	0.67	8300.0	0.21
10300.0	29.94	0.66	8320.0	0.22
10500.0	36.43	0.60	8340.0	0.22
11000.0	49.41	0.48	8360.0	0.22
12000.0	50.31	0.39	8380.0	0.22
13000.0	45.91	0.22	8400.0	0.22
14000.0	35.94	0.16	8500.0	0.26
15000.0	33.24	0.07	9000.0	0.39

Typical Performance Curves



Tape & Reel Packaging

TR-F75

DEVICE ORIENTATION IN T&R

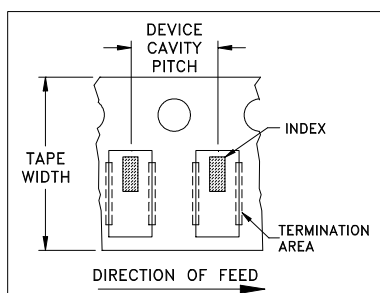


ILLUSTRATION 1

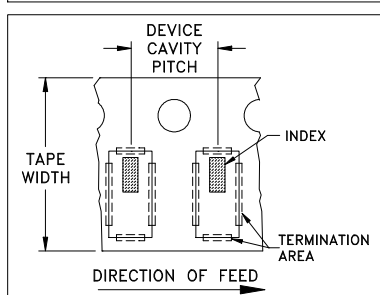


ILLUSTRATION 2

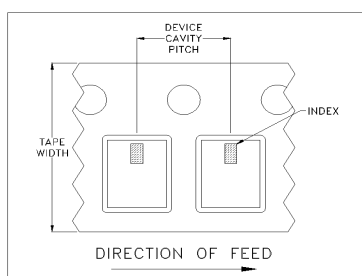


ILLUSTRATION 3

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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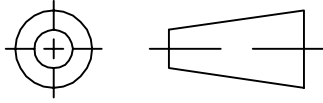
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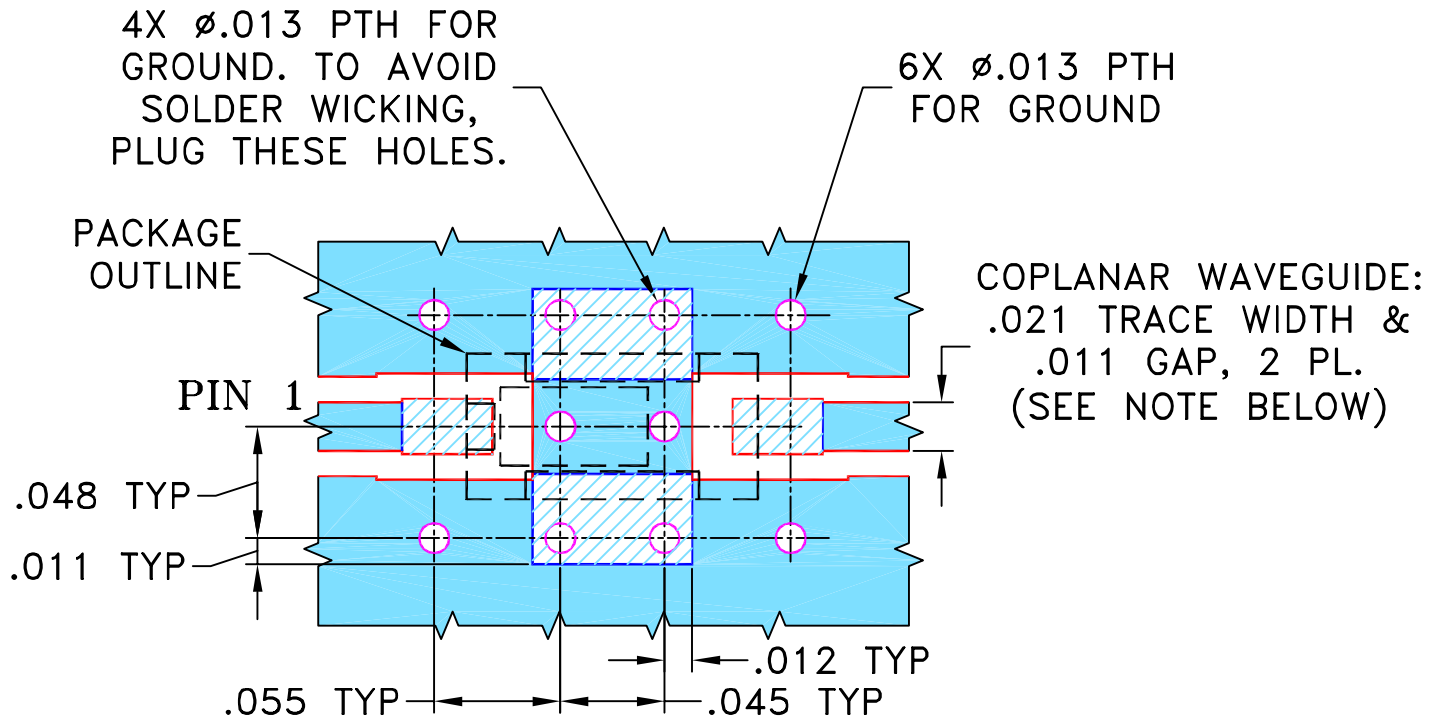
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M136022	NEW RELEASE	03/07/12	GF	ABD

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



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .010" $\pm$.001".

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 $\pm$.005

ANGLES $\pm$
FRACTIONS $\pm$

DRAWN

GF

02/17/12

CHECKED

IL

03/07/12

APPROVED

ABD

03/07/12

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



Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

PL, 04FL01, FV1206-4, TB-618+

SIZE
A

CODE IDENT
15542

DRAWING NO:

98-PL-363

REV:

OR

FILE: 98PL363

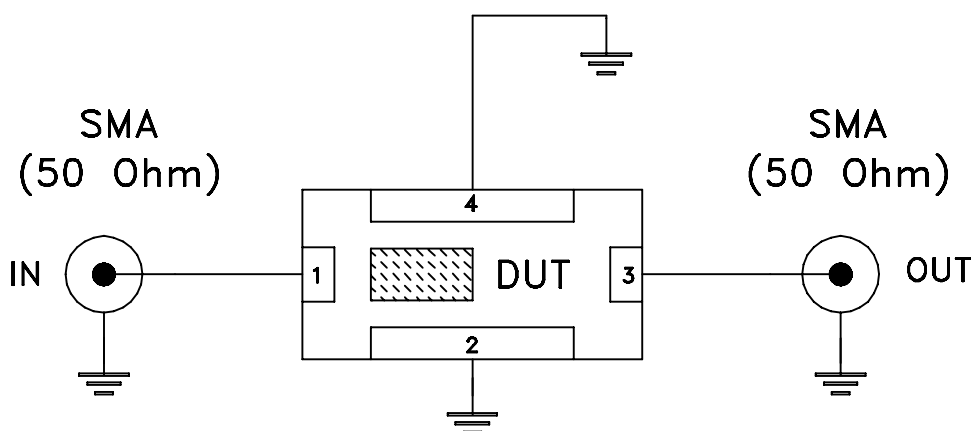
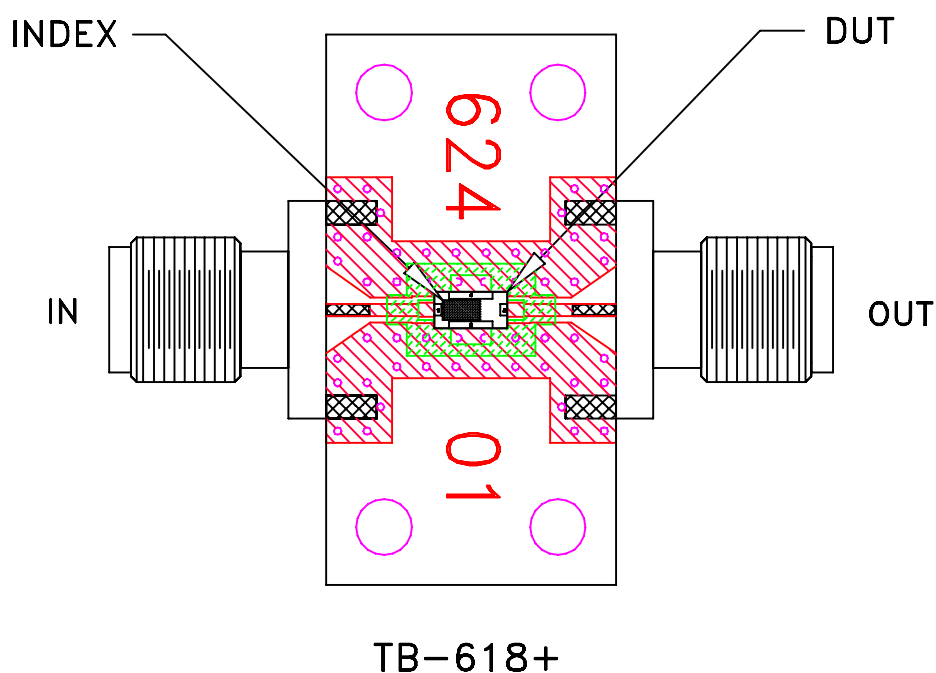
SCALE:

12:1

SHEET:

1 OF 1

Evaluation Board and Circuit



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.010 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
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
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	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I