CERAMIC

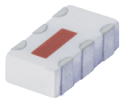
High Pass Filter

HFCN-7971+

50Ω 8560 to 12800 MHz

FEATURES

- Small Size
- Temperature Stable
- Excellent Power Handling, 7 W
- Hermetically Sealed
- Low Cost
- LTCC Construction
- Protected by US Patent 7,760,485



Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

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

APPLICATIONS

- Sub-Harmonic Rejection
- Transmitters/Receivers
- Point-to-Point Radio

ELECTRICAL SPECIFICATIONS [1,2] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Stopband	Rejection Loss	DC-F1	DC-5500	25	30		dB
		F1-F2	5500-6945	17	22		
	Freq. Cut-Off	F3	8000		3.4		dB
	VSWR	DC-F2	DC-6945		40		:1
Passband	Insertion Loss	F4-F7	8560-12800		1.4	4.0	dB
		F5-F6	9975-12350		1.0	2.0	dB
	VSWR	F4-F7	8560-12800		1.7		:1

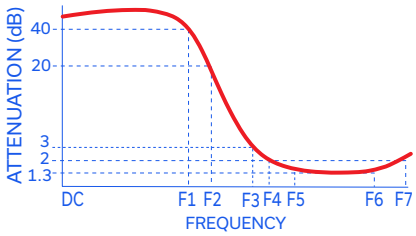
1. In Application where DC voltage is present at either input or output ports, coupling capacitors are required.
2. Measured on Mini-Circuits Characterization Test Board TB-HFCN-7971+.

ABSOLUTE MAXIMUM RATINGS

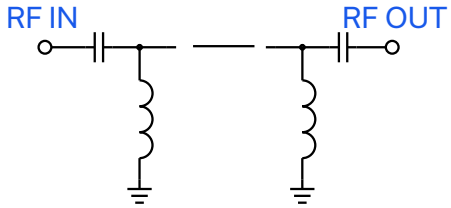
Parameter	Ratings
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
RF Power Input[3]	7 W max. at +25°C

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



CERAMIC

High Pass Filter

HFCN-7971+

50Ω 8560 to 12800 MHz

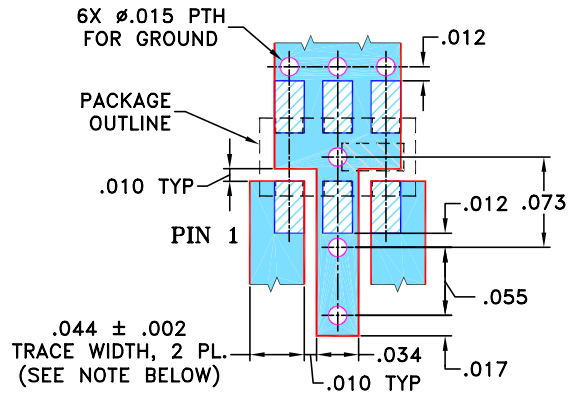
PIN CONNECTIONS

RF IN	1
RF OUT	3
GROUND	2,4,5,6

PRODUCT MARKING: H7

DEMO BOARD MCL P/N: TB-HFCN-7971+

SUGGESTED PCB LAYOUT (PL-158)

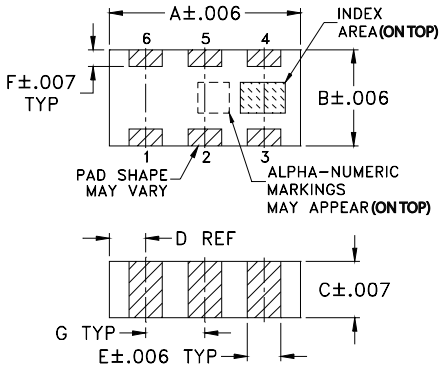


NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS: .020 ± .0015; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

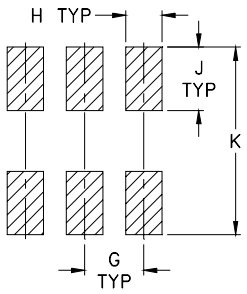
DENOTES PCB COPPER LAYOUT

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

TAPE & REEL INFORMATION: F75

CERAMIC

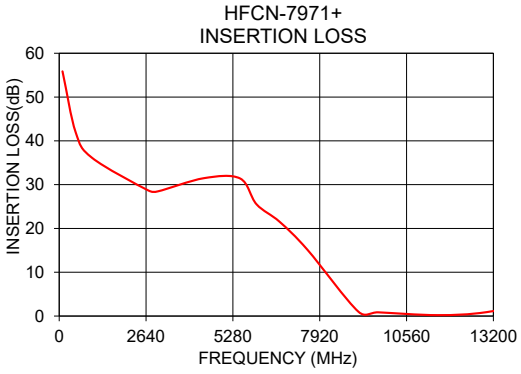
High Pass Filter

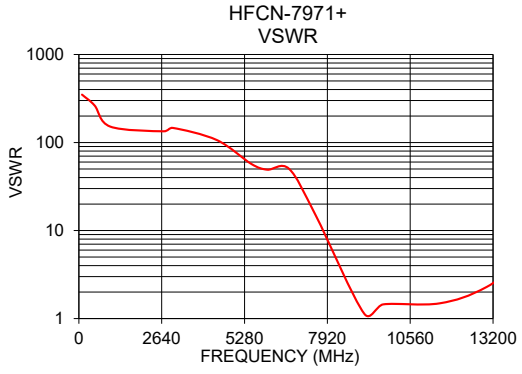
HFCN-7971+

50Ω 8560 to 12800 MHz

TYPICAL PERFORMANCE DATA AT +25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
100	55.87	349.91
500	41.96	263.62
1000	36.12	151.68
2700	28.71	134.14
3000	28.47	146.42
4400	31.48	106.56
5500	31.41	57.00
6000	25.51	49.15
6700	21.53	50.21
7550	15.11	14.83
9100	0.97	1.13
9700	0.85	1.45
11500	0.21	1.49
13000	0.9	2.29
15000	3.9	6.85
16500	3.29	5.81
17000	1.78	4.01
17100	1.41	3.5





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-Circuits' 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/terms/viewterm.html

Ceramic High Pass Filter HFCN-7971+

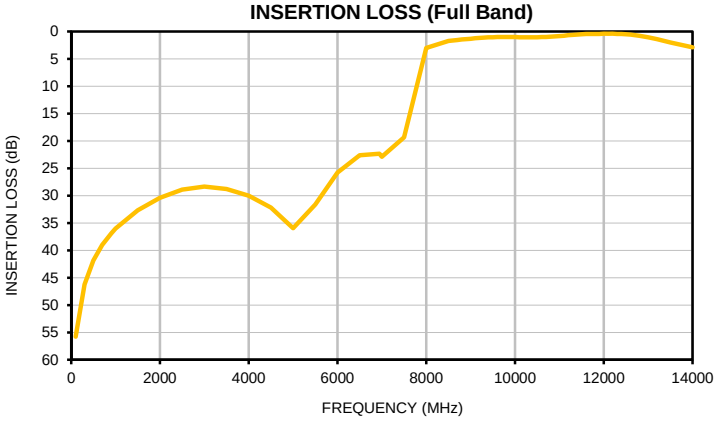
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	OUTPUT RETURN LOSS (dB)
100	55.79	0.02	0.05
300	46.24	0.01	0.04
500	41.87	0.01	0.03
700	39.00	0.02	0.03
900	36.90	0.04	0.04
1000	36.02	0.05	0.03
1500	32.68	0.10	0.04
2000	30.39	0.12	0.05
2500	28.90	0.09	0.08
3000	28.32	0.08	0.09
3500	28.77	0.09	0.10
4000	30.01	0.12	0.11
4500	32.20	0.18	0.14
5000	35.98	0.28	0.20
5500	31.60	0.34	0.22
6000	25.81	0.39	0.29
6500	22.61	0.40	0.39
6945	22.32	0.42	0.46
7000	22.90	0.43	0.47
7500	19.37	0.85	0.83
8000	3.02	11.47	9.18
8500	1.73	17.43	14.56
8560	1.68	17.24	14.88
8700	1.54	17.16	16.09
8800	1.47	17.40	17.27
8900	1.39	17.81	18.82
9000	1.31	18.38	21.00
9100	1.25	18.88	23.99
9200	1.18	19.33	28.71
9300	1.13	19.51	40.27
9400	1.08	19.34	32.90
9500	1.05	18.70	25.89
9600	1.02	17.83	21.96
9700	1.00	16.79	19.21
9800	1.00	15.73	17.30
9975	1.02	14.28	15.17
10000	1.03	13.87	14.64
10100	1.05	13.08	13.66
10200	1.07	12.46	12.90
10300	1.08	11.92	12.27
10400	1.07	11.50	11.83
10500	1.05	11.20	11.57
10600	1.02	11.02	11.47
10700	0.99	11.00	11.49
10800	0.94	11.09	11.53
10900	0.90	11.30	11.65
11000	0.84	11.69	11.90
11100	0.77	12.17	12.21
11200	0.70	12.78	12.70
11300	0.62	13.49	13.26
11400	0.57	14.28	14.05
11500	0.52	15.25	14.94
11600	0.48	16.29	15.97
11700	0.45	17.48	17.17
11800	0.43	18.89	18.56
11900	0.42	20.48	20.32
12000	0.41	22.67	22.63
12100	0.41	25.75	25.98
12200	0.42	30.76	32.50
12300	0.44	54.09	46.94
12400	0.47	30.86	28.37
12500	0.51	24.40	23.01
12600	0.58	20.07	19.15
12700	0.66	17.16	16.51
12800	0.77	14.76	14.31
13000	1.05	11.25	11.07
13200	1.39	8.80	8.78
13500	1.99	6.38	6.53
14000	2.89	4.29	4.07

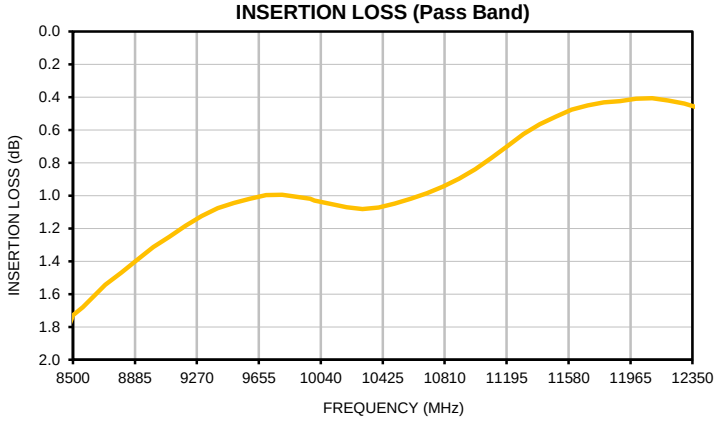
Ceramic High Pass Filter HFCN-7971+

Typical Performance Curves

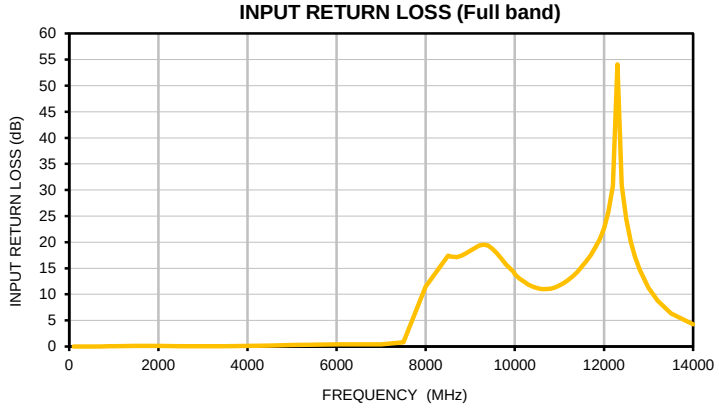
INSERTION LOSS (Full Band)



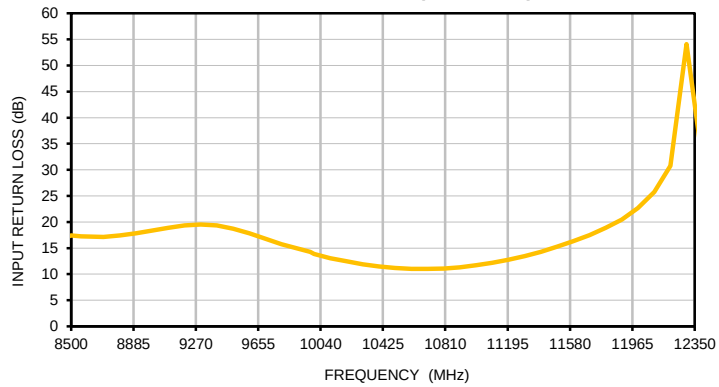
INSERTION LOSS (Pass Band)



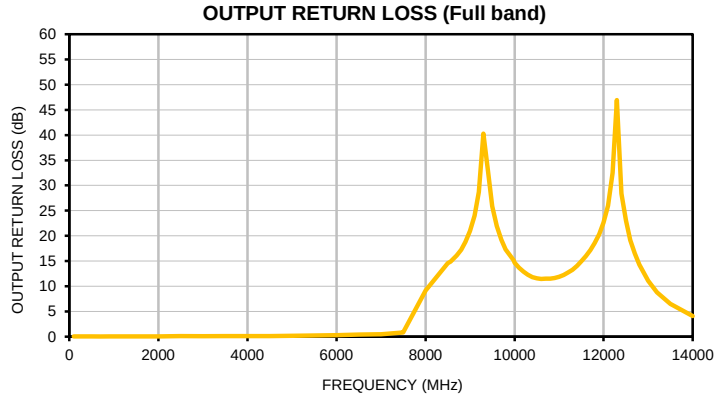
INPUT RETURN LOSS (Full band)



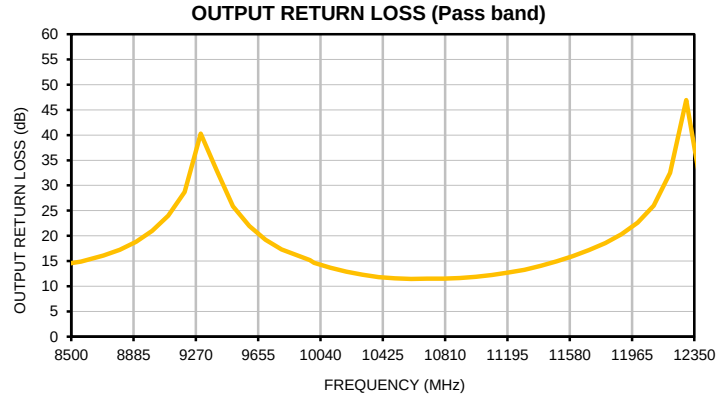
INPUT RETURN LOSS (Pass band)



OUTPUT RETURN LOSS (Full band)



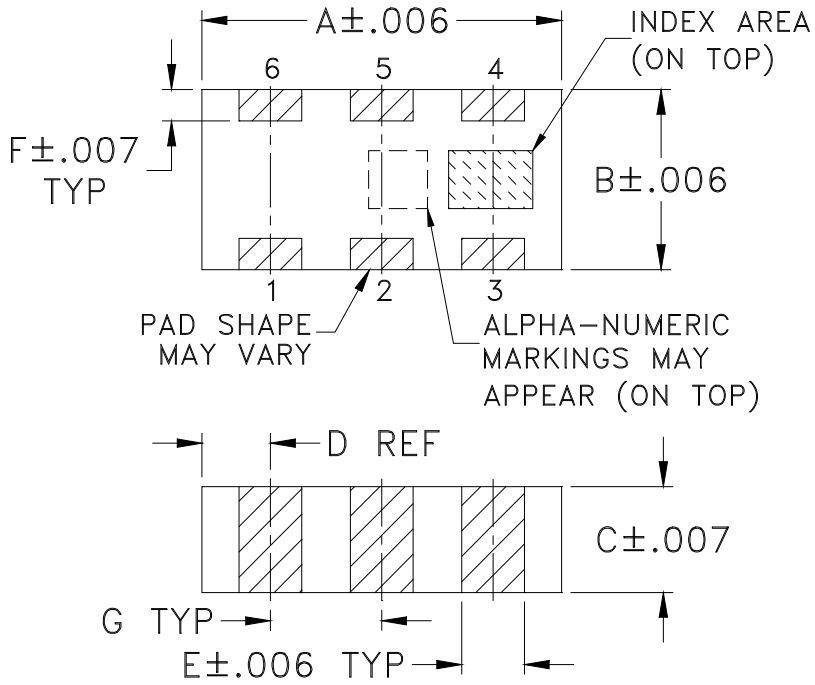
OUTPUT RETURN LOSS (Pass band)



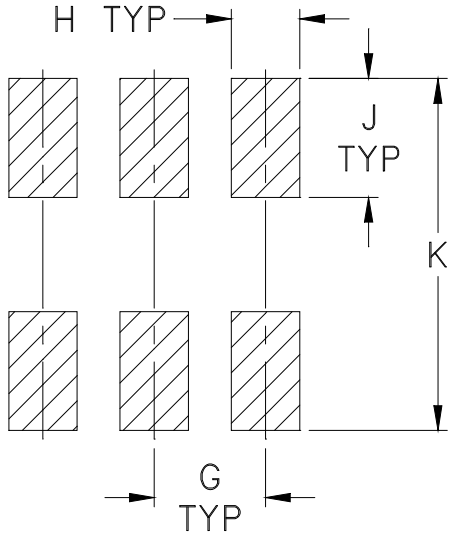
Case Style FV

FV1206-1

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.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. ± .01; 3 Pl. ± .005

Notes:

1. Open style, ceramic base.
2. 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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Tape & Reel Packaging TR-F75

DEVICE ORIENTATION IN T&R

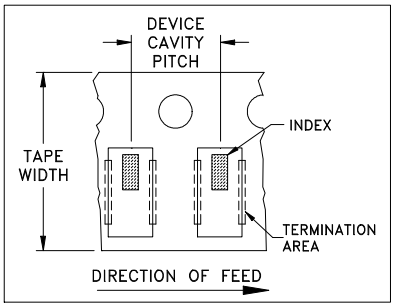


ILLUSTRATION 1

Applicable Case Styles
FV1206-1
FV1206-3

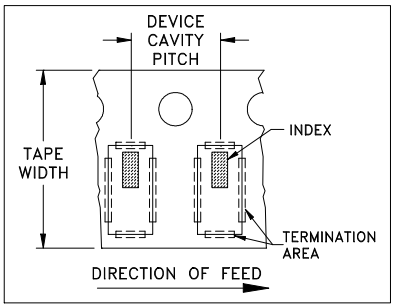


ILLUSTRATION 2

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

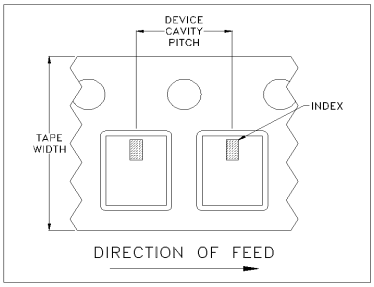


ILLUSTRATION 3

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.

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Go to: www.minicircuits.com/pages/pdfs/tape.pdf

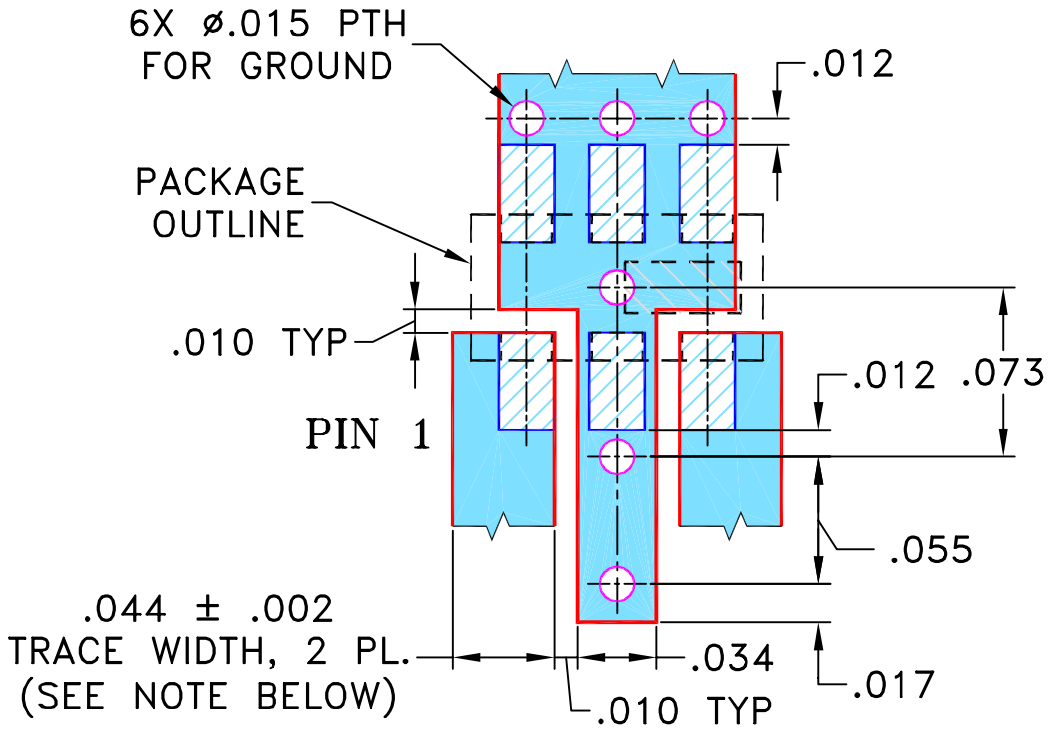
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THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M92199	NEW RELEASE	05/24/04	AV	ABD
A	M99247	ADD GROUND PTH	06/05	RZ	RZ
A	R60782	ADD GROUND PTH	06/05	RZ	RZ
B	M102713	ADDED "...WITH SMOBC"	01/12/06	GF	IL

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



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .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	DRAWN	AV	05/03/04
TOLERANCES ON:	CHECKED	IL	05/24/04
2 PL DECIMALS ±	APPROVED	ABD	05/24/04
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

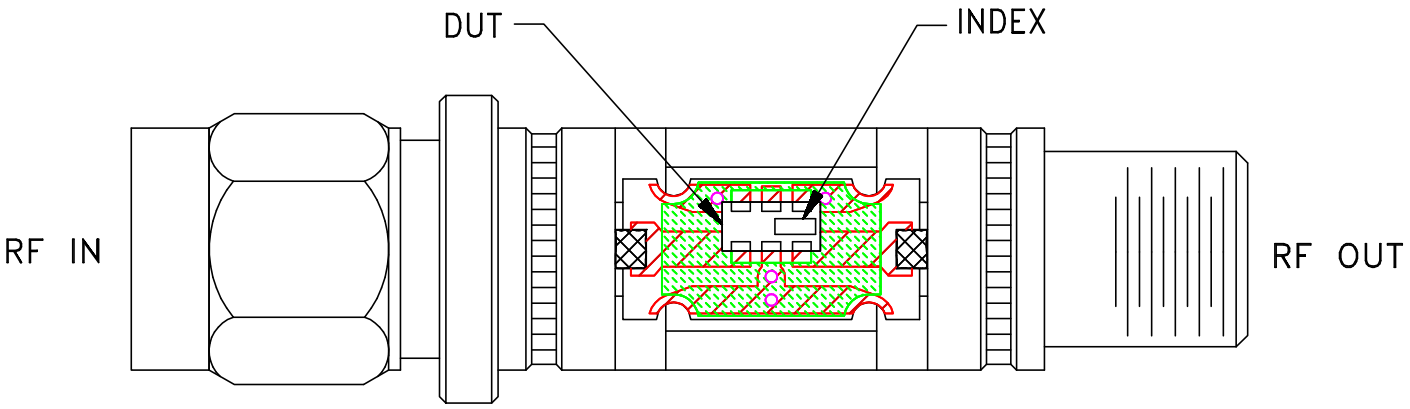
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, pr, FV1206-1, HFCN, TB-285

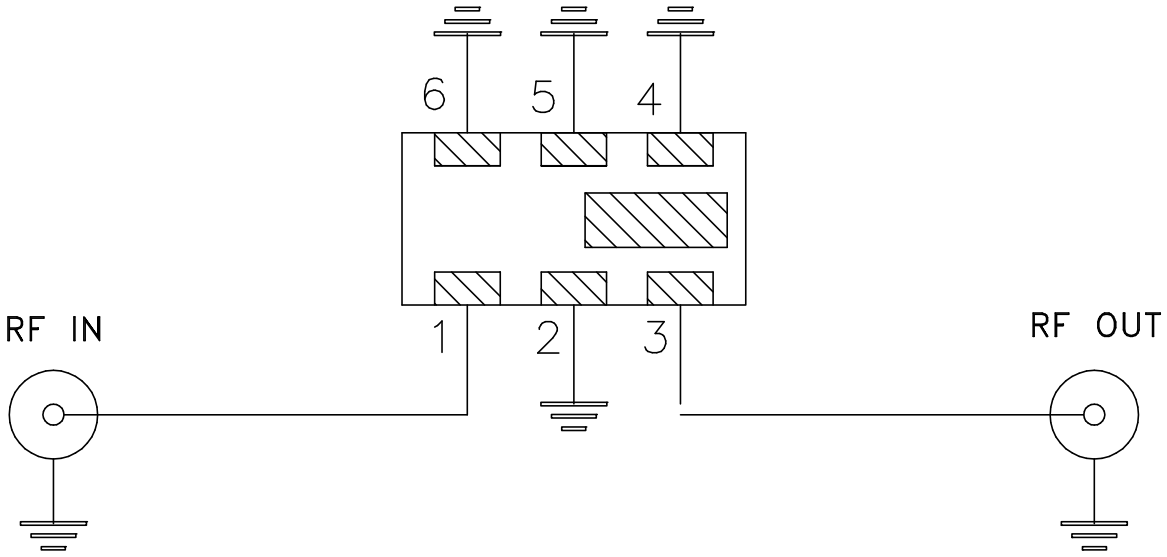
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-158	B

FILE:	SCALE:	SHEET:
98PL158	12:1	1 OF 1

Evaluation Board and Circuit



TB-285



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.020 inch.

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Mini-Circuits

Environmental Specifications ENV06

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

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