



Mini-Circuits®

CERAMIC

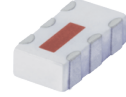
High Pass Filter

HFCN-8400AT+

50Ω 9000 to 13000 MHz

THE BIG DEAL

- Small size
- 5 sections
- Temperature stable
- Excellent power handling, 7W
- Hermetically sealed
- LTCC construction
- Low cost
- Protected by US Patent 7,760,485
- AEC-Q200 qualified component family



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

- Automotive

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

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Stop Band	Rejection Loss	5700	—	30	—
		6000	20	—	—
	Freq. Cut-Off	8400	—	3.0	—
	VSWR	5700-6000	—	20	—
Pass Band	Insertion Loss	9000-13000	—	3.0	—
		9500-13000	—	2.5	—
	VSWR	9000-13000	—	1.5	—

1. In Application where DC voltage is present at either input or output ports, coupling capacitors are required. Alternatively, Mini-Circuits' "D" suffix version of this model will provide >100 MOhm isolation to ground.

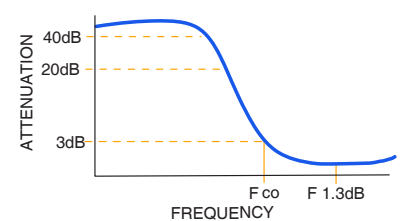
2. Electrical performance measured on TB-270 using HFCN-8400+.

ABSOLUTE MAXIMUM RATINGS

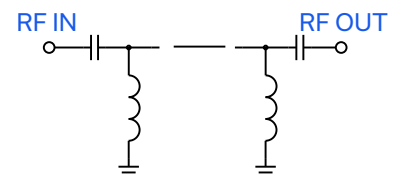
Parameter	Ratings
Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +105°C
RF Power Input ³	7 W max. at +25°C

3. Passband rating, derate linearly to 3W at +105°C ambient.
Permanent damage may occur if any of these limits are exceeded.

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC



REV. OR
NPO-005308
HFCN-8400AT+
MCL NY
250606

Mini-Circuits®



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High Pass Filter

HFCN-8400AT+

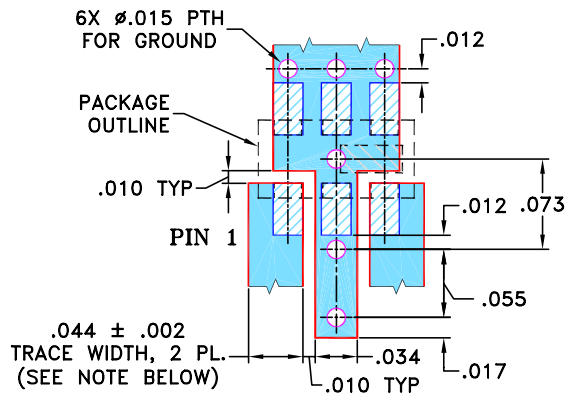
50Ω 9000 to 13000 MHz

PIN CONNECTIONS

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

PRODUCT MARKING: MT

DEMO BOARD MCL P/N: TB-285
SUGGESTED PCB LAYOUT (PL-158)



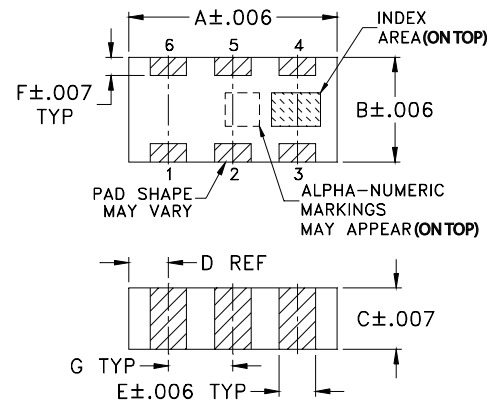
- NOTE:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350 WITH DIELECTRIC THICKNESS: .020 ± .0015; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.



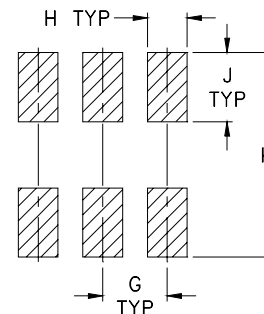
DENOTES PCB COPPER LAYOUT

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-8400AT+

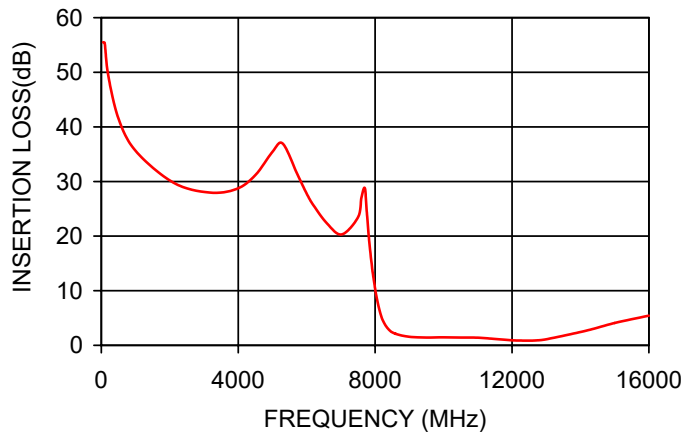
Mini-Circuits

50Ω 9000 to 13000 MHz

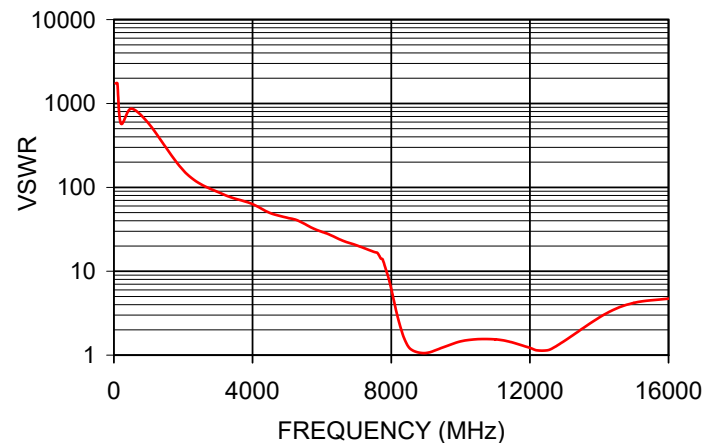
TYPICAL PERFORMANCE DATA AT +25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
50	55.48	1737.18
500	41.57	868.59
4500	31.17	49.64
5700	36.69	31.60
6000	27.78	29.46
7500	23.46	17.05
8020	9.65	5.68
8400	2.88	1.50
8600	2.11	1.15
9000	1.57	1.06
9500	1.43	1.24
10000	1.47	1.46
12000	0.92	1.22
13000	1.10	1.48
16000	5.43	4.72

INSERTION LOSS



VSWR

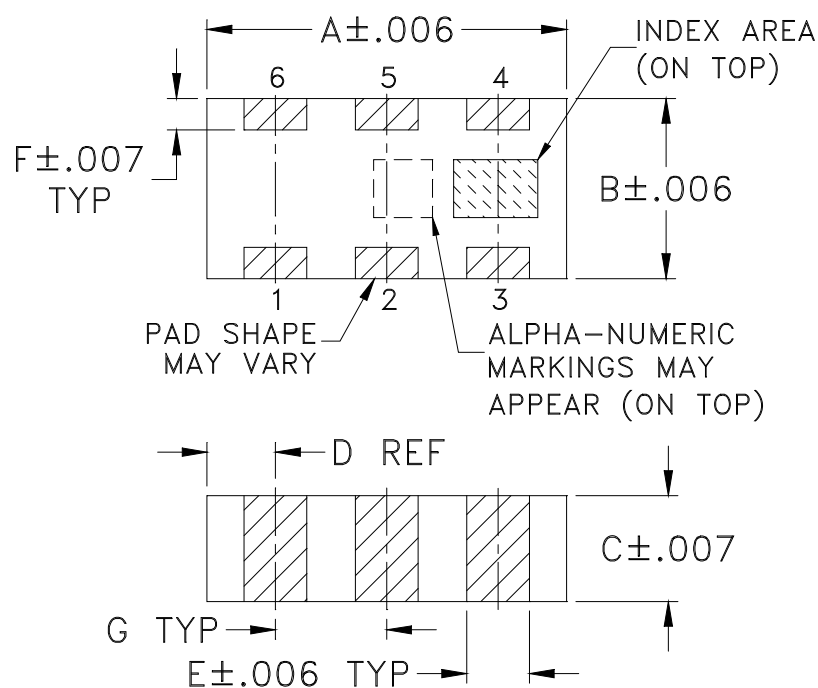


NOTES

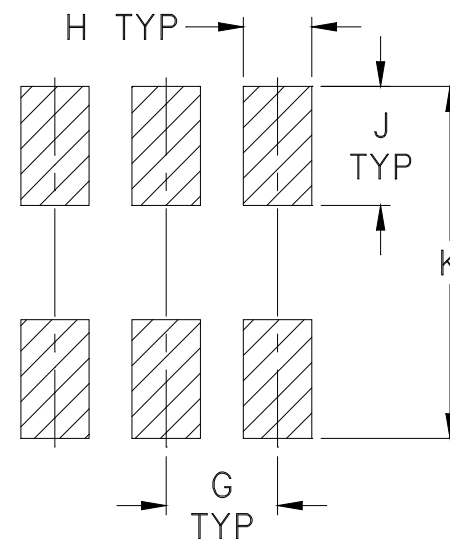
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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



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



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

DEVICE ORIENTATION IN T&R

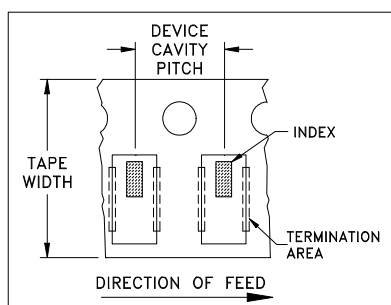


ILLUSTRATION 1

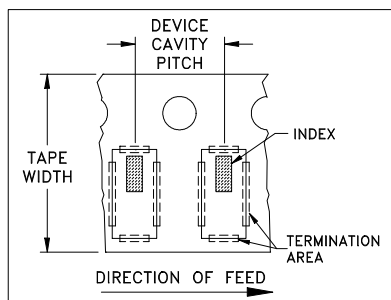


ILLUSTRATION 2

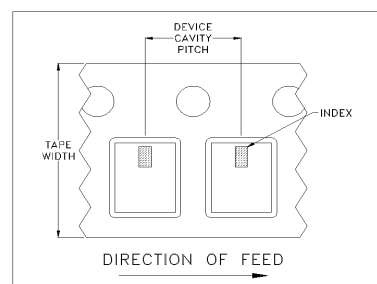


ILLUSTRATION 3

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

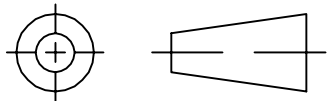


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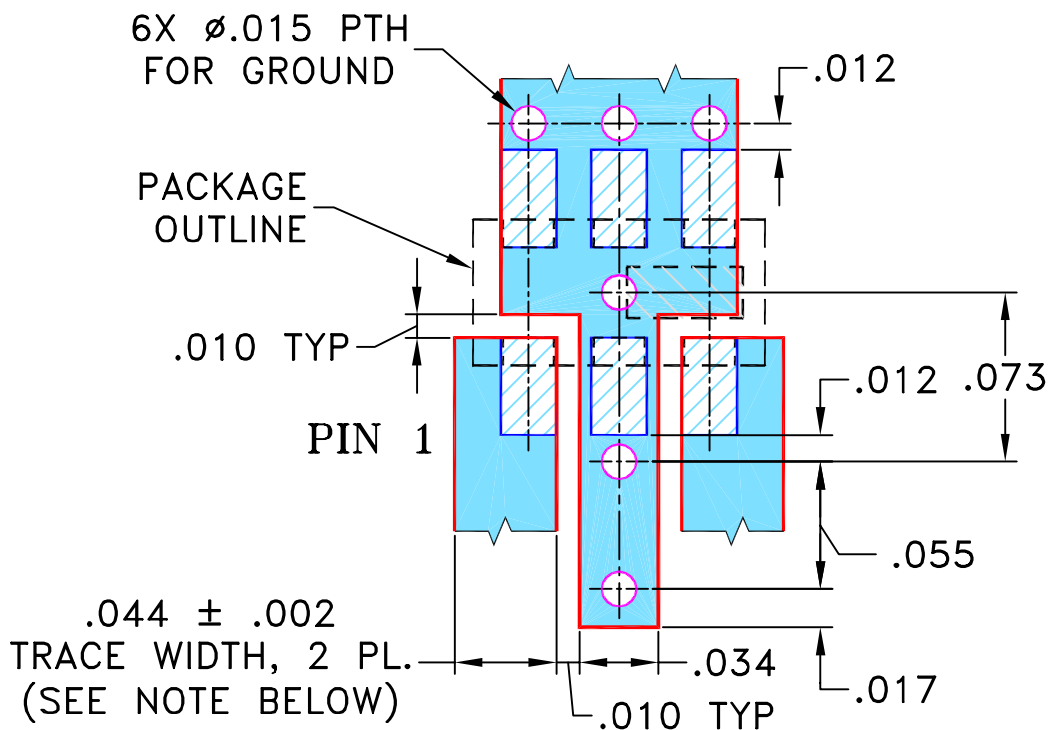
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	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

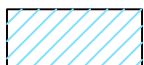
SUGGESTED MOUNTING CONFIGURATION
FOR FV1206-1 CASE STYLE, "pr" PIN CONNECTION.



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" $\pm$.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

AV

05/03/04

CHECKED

IL

05/24/04

APPROVED

ABD

05/24/04

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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

A

CODE IDENT

15542

DRAWING NO:

98-PL-158

REV:

B

FILE:

98PL158

SCALE:

12:1

SHEET:

1 OF 1