CERAMIC

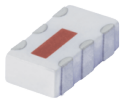
High Pass Filter

HFCN-672AT+

50Ω 6700 to 13000 MHz

THE BIG DEAL

- Small size (0.12 x 0.06 X .04")
- Temperature stable
- Excellent power handling, 7W
- Hermetically sealed
- Low cost
- LTCC construction
- 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

PRODUCT OVERVIEW

The HFCN-672AT+ is an LTCC high pass filter with a wide passband from the 6700 to 13000 MHz. This model provides 2.0 dB passband insertion loss and 27 dB stopband rejection, and is capable of handling up to 7W RF input power. Utilizing LTCC multi-layer construction, the filter achieves excellent repeatability of performance and comes in a tiny 1206 ceramic package with wraparound terminations, minimizing performance variations due to parasitics and saving space in dense PCB layouts. The unit has an operating temperature range from -40 to +105°C, and its rugged, ceramic construction provides makes it an excellent candidate for harsh operating environments.

KEY FEATURES

Feature	Advantages
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Tiny size (0.12 x 0.06 x .04")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Wrap-around terminations	Provides excellent solderability and easy visual inspection
Wide operating temperature range, -40 to +105°C	Enables reliable performance in extreme environments

REV. OR
NPO-005308
HFCN-672AT+
MCL NY
250606

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50Ω 6700 to 13000 MHz

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

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Stop Band	Rejection Loss	DC-F1	DC-4435	27	32	—	dB
		F1-F2	4435-5500	16	27	—	
	Freq. Cut-Off	F3	6275	—	3.0	—	dB
	VSWR	DC-F2	DC-5500	—	30	—	:1
Pass Band	Insertion Loss[3]	F4-F7	6700-13000	—	2.0	4.0	dB
		F5-F6	6900-12770	—	2.0	3.5	dB
	VSWR	F4-F7	6700-13000	—	1.9	—	:1

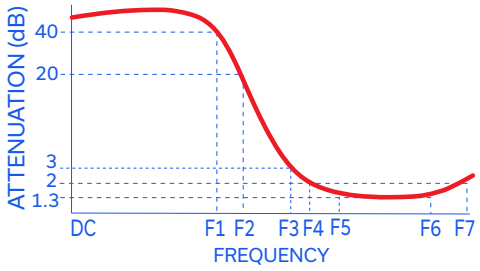
1. In Application where DC voltage is present at either input or output ports, coupling capacitors are required.
2. Electrical performance measured on TB-270 using HFCN-672+.
3. Referenced to mid-band insertion loss, 0.5 dB typ.

ABSOLUTE MAXIMUM RATINGS

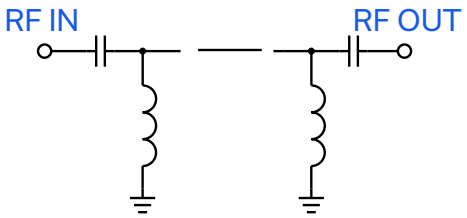
Parameter	Ratings
Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +105°C
RF Power Input[4]	7 W max. at +25°C

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC



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High Pass Filter

HFCN-672AT+

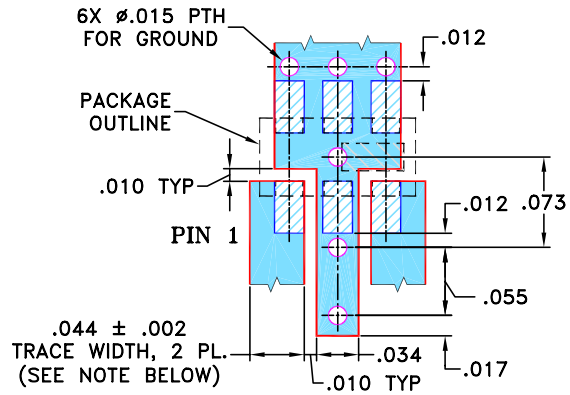
50Ω 6700 to 13000 MHz

PIN CONNECTIONS

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

PRODUCT MARKING: XP

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

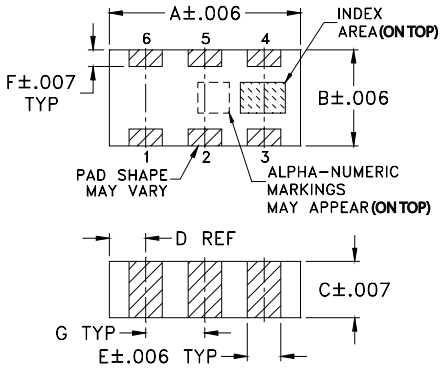


NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS: .020 ± .0015; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

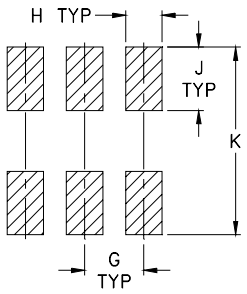
DENOTES PCB COPPER LAYOUT

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inches / mm)

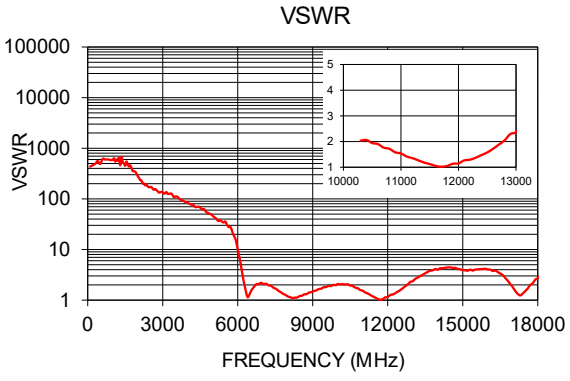
A	B	C	D	E	F
.126	.063	.035	.024	.022	.011
3.20	1.60	0.89	0.61	0.56	0.28

G	H	J	K		wt
.039	.024	.042	.123		grams
0.99	0.61	1.07	3.12		.020

TAPE & REEL INFORMATION: F75

TYPICAL PERFORMANCE DATA AT +25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR :1
100	56.76	435.00
500	42.89	487.79
1000	37.15	591.02
2700	31.94	156.03
3000	32.72	134.81
4400	35.68	69.56
5500	29.76	35.88
6000	11.10	10.02
6700	2.14	1.97
7550	1.41	1.65
9100	1.07	1.53
9700	1.11	1.89
11500	0.43	1.13
13000	1.76	2.36
15000	4.35	3.90
16500	2.73	3.34
17000	1.77	1.81
17100	1.77	1.52



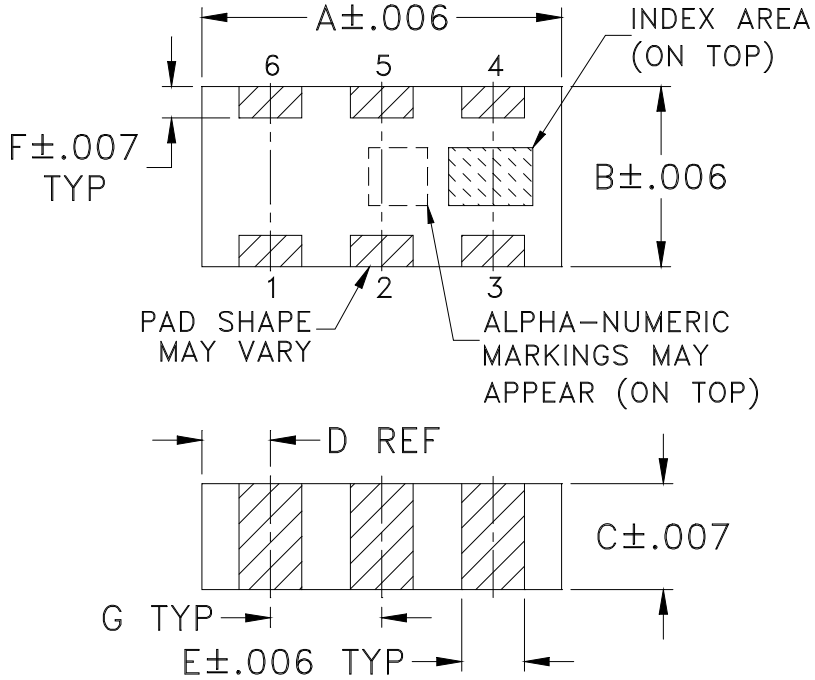
NOTES

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-Circuit's 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

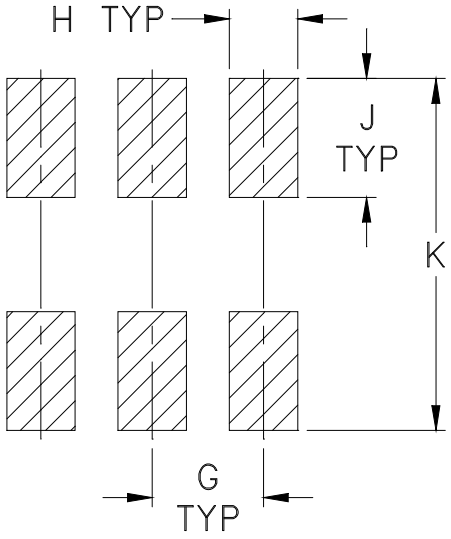
Case Style FV

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.

Tape & Reel Packaging TR-F75

DEVICE ORIENTATION IN T&R

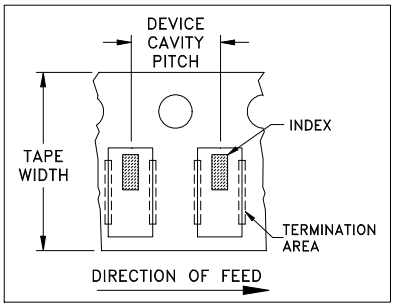


ILLUSTRATION 1

Applicable Case Styles
FV1206-1
FV1206-3

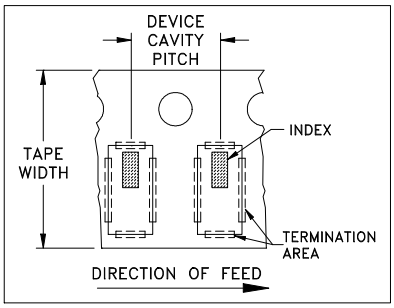


ILLUSTRATION 2

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

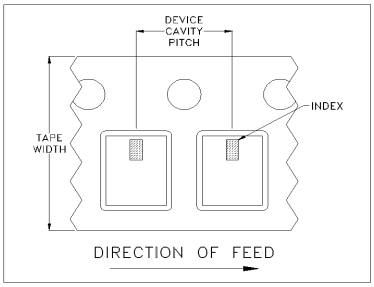


ILLUSTRATION 3

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.

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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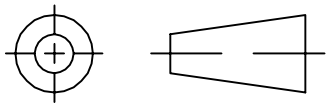
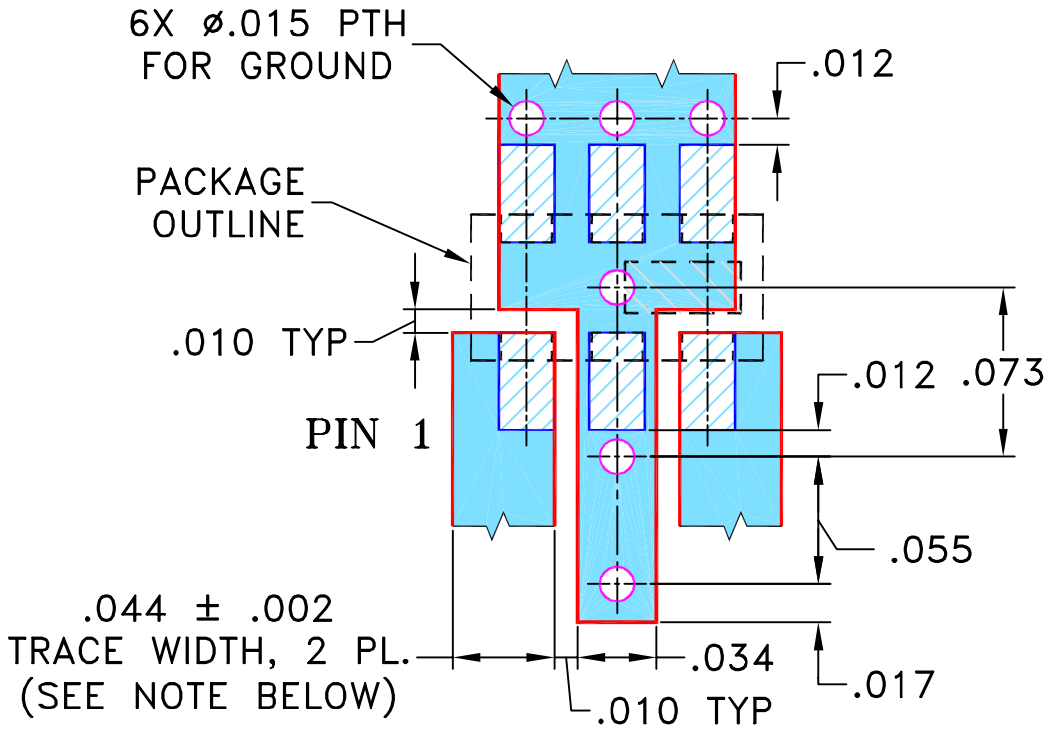
THIRD ANGLE PROJECTION



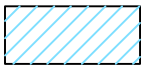
REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M92199	NEW RELEASE	05/24/04	AV	ABD
A	M99247	ADD GROUND PTH	06/05	RZ	RZ
A	R60782	ADD GROUND PTH	06/05	RZ	RZ
B	M102713	ADDED "...WITH SMOBC"	01/12/06	GF	IL

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



NOTE:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .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 ±			

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