



CERAMIC

# High Pass Filter

## HFCW-8400+

50Ω 9200 to 18000 MHz

### THE BIG DEAL

- Low loss, 0.9 dB typ.
- Return loss, 11 dB typ.
- Stop Band Rejection, 36 dB typ.
- Small size 0603 (0.063" x 0.032" x 0.024")



Generic photo used for illustration purposes only

CASE STYLE: JC0603C

#### +RoHS Compliant

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

### APPLICATIONS

- Test and measurements
- Military applications
- Telecommunications and broadband wireless systems

### PRODUCT OVERVIEW

HFCW-8400+ is a high pass filter with passband from 9200 MHz to 18000 MHz supporting a variety of applications. This model provides good insertion loss over a wide band due to strategically constructed layout. Housed in a tiny 0603 ceramic form factor with wraparound terminations, the filter is ideal for dense PCB layouts.

### KEY FEATURES

Feature	Advantages
Wide passband	This filter has a very wide passband from 9.2 GHz to 18 GHz.
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Small size, 0603 (0.063" X 0.032" X 0.024")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Wrap-around terminations	Provides excellent solderability and easy visual inspection.

REV. OR  
ECO-015161  
HFCW-8400+  
EDU4353  
URJ  
220924





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### ELECTRICAL SPECIFICATIONS<sup>1,2</sup> AT 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Stopband	Rejection Loss	DC-F1	DC - 5200	29	36	—	dB
		F1-F2	5200 - 6500	23	37	—	dB
	Freq. Cut-Off	F3*	8400	—	3	—	dB
Passband	Insertion Loss	F4-F5	9200 - 11500	—	1.8	—	dB
		F5-F6	11500 - 17000	—	0.9	1.6	dB
		F6-F7	17000 - 18000	—	1.8	—	dB
	Return Loss	F4-F5	9200 - 11500	—	11	—	dB
		F5-F6	11500 - 17000	—	11	—	dB
		F6-F7	17000 - 18000	—	8	—	dB

1 This component should not be employed as a DC-block. DC de-coupling capacitors are required in Applications where DC voltage and/or current is present at either input or output ports. Please contact Mini-Circuits for further support.

2 Measured on Mini-Circuits Characterization Test Board TB-HFCW-8400+

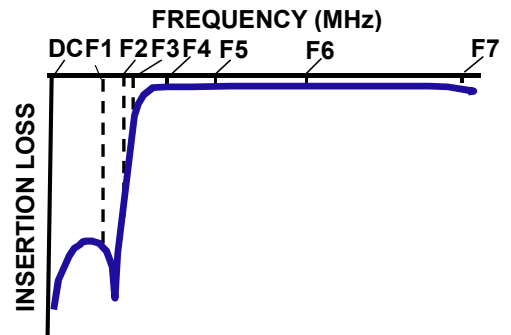
\* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

### MAXIMUM RATINGS

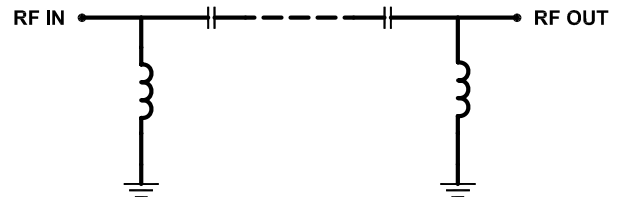
Parameter	Ratings
Operating temperature	-55°C to 125°C
Storage temperature	-55°C to 125°C
RF Power Input*	2.5W @25°C

\*Passband rating, derate linearly to 0.6W at 125°C ambient  
Permanent damage may occur if any of these limits are exceeded.

### TYPICAL FREQUENCY RESPONSE



### FUNCTIONAL SCHEMATIC





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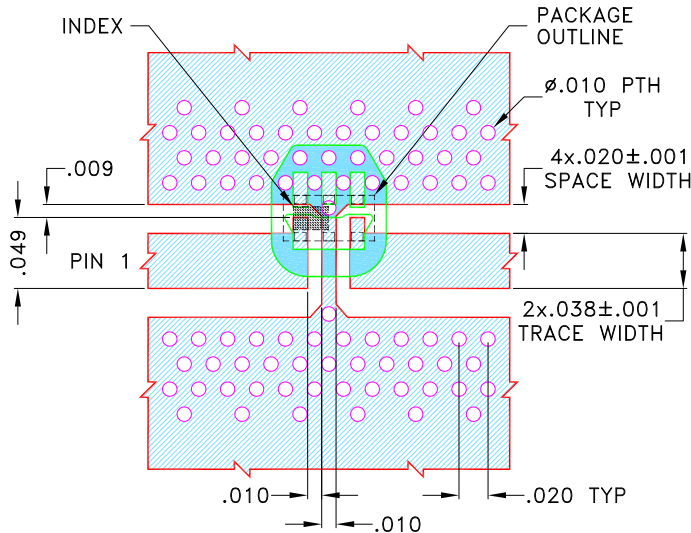
## HFCW-8400+

### PAD CONNECTIONS



INPUT	1
OUTPUT	3
GROUND	2,4,5,6

PRODUCT MARKING: VB

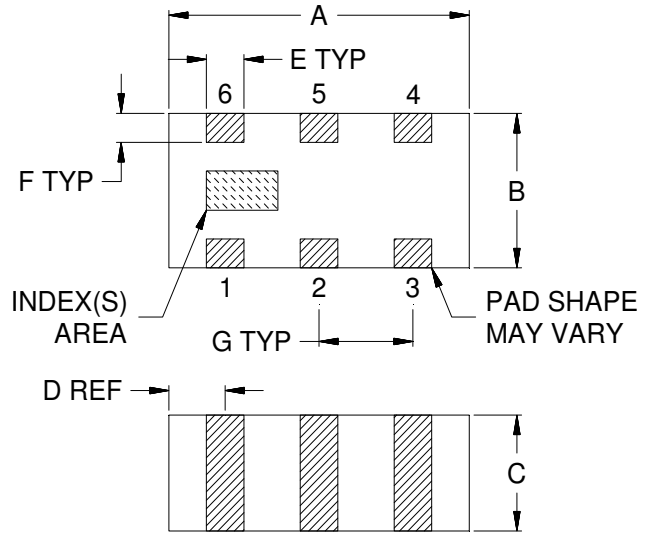
DEMO BOARD MCL P/N: TB-HFCW-8400+  
SUGGESTED PCB LAYOUT (PL-704)



#### NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS (R03003) WITH DIELECTRIC THICKNESS  $.020 \pm .001$  COPPER: 1/2 Oz. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
  2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
-  DENOTES PCB COPPER PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
 DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

### OUTLINE DRAWING



### OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E	F	G	Wt.
.063	.032	.024	.012	.008	.006	.020	grams
1.60	0.80	0.60	0.30	0.20	0.15	0.50	.005

Note: Please refer to case style drawing for details