

Ceramic Low Pass Filter

LFCW-612+

50Ω 10 to 6100 MHz

The Big Deal

- Very good rejection, 36 dB typical
- Rugged, ceramic construction
- Tiny size, 0.063" x 0.032" x 0.024" (0603)
- Good power handling



CASE STYLE: JC0603C-1

Product Overview

Mini-Circuits' LFCW-612+ is a LTCC low pass filter with a passband from 10 to 6100 MHz, supporting a variety of applications. This model provides 1.0 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It provides a wide operating temperature range from -55 to +125°C. Housed in a tiny 0603 ceramic form factor with wrap-around terminations, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

Key Features

Feature	Advantages
Ultra-wide stopband	The LTCC lowpass filter provides a very good stopband rejection suitable for high end applications.
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Tiny size (0.063 x 0.032 x 0.024")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Good power handling	Supports a wide range of system power requirements.
Wrap-around terminations	Provides excellent solderability and easy visual inspection

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/MCLStore/terms.jsp



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Generic photo used for illustration purposes only

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Features

- Miniature size 0603
- Low cost
- Aqueous washable

Applications

- ISM Band
- WLAN
- Bluetooth
- 5G sub 6GHz

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

Electrical Specifications^{1,2} at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC - 6100	—	1.0	1.5	dB
	Freq. Cut-Off	F2	6700	—	2.0	—	dB
	Return Loss	DC-F1	DC - 6100	9.5	—	—	dB
Stop Band	Rejection Loss	F3-F4	9300 - 12600	25	36	—	dB

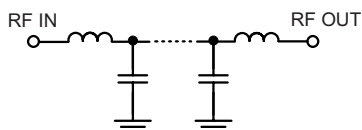
1. Tested on Evaluation Board TB-LFCW-612+
2. In application where DC voltage is present at either input or poutput port, coupling capacitors are required.

Maximum Ratings

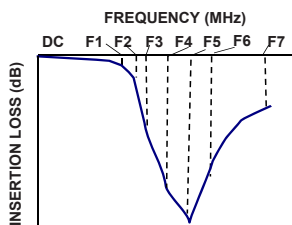
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input ³	3W at 25°C

2. Refer to product storage temperature after installation
Suggestion for T&R unused product storage condition:
+5 ~ +35 °C, Humidity 45~75%RH, 12 month Max
3. Derate linearly to 0.5W at 125°C.
Permanent damage may occur if any of these limits exceeded.

Functional Schematic



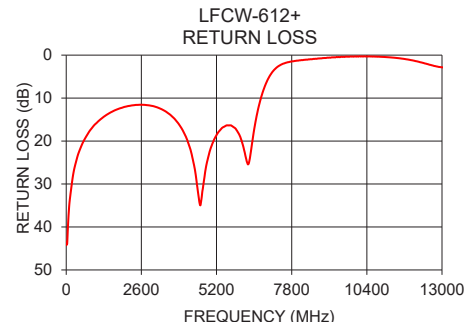
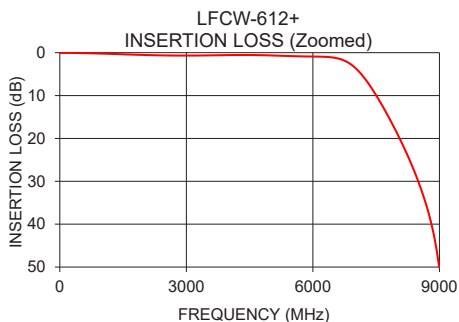
Typical Frequency Response



Typical Performance Data⁴ at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.06	44.22
100	0.06	35.34
1000	0.22	16.09
1500	0.38	13.47
2000	0.53	12.08
2500	0.64	11.57
3000	0.68	11.86
4000	0.56	17.14
5000	0.64	21.62
6000	0.90	18.71
7000	3.50	5.33
8000	18.88	1.28
9300	45.85	0.53
10000	41.82	0.30
11000	43.87	0.43
11500	45.57	0.71
12000	49.60	1.25
12100	50.39	1.41
12600	49.00	2.28

4. Measured with Agilent E5071B network analyzer using port extension.



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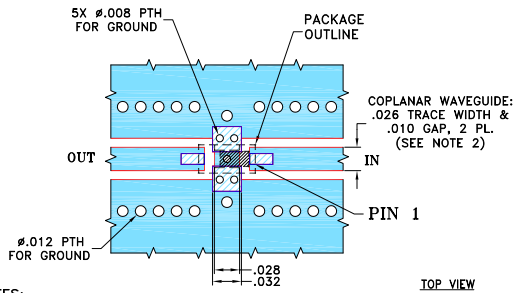
REV. A
ECO-005219
LFCW-612+
RS/CP/AM
201203
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Pad Connections



INPUT	1
OUTPUT	3
GROUND	2,4

Product Marking: N/A

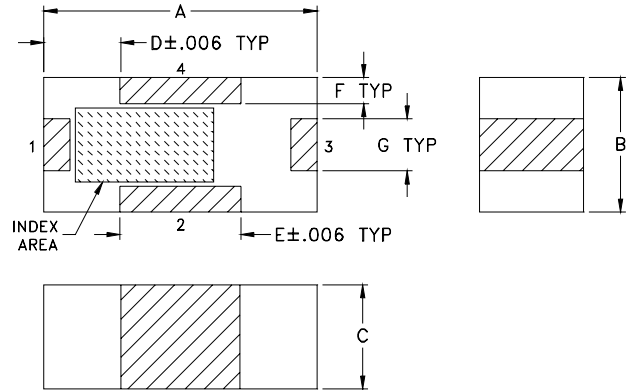
Evaluation Board MCL P/N: TB-LFCW-612+
Suggested PCB Layout (PL-564)



NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
 2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 WITH DIELECTRIC THICKNESS $.003 \pm .0005$; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 3. LAYER 3 AND LAYER 4 OF THE PCB ARE CONTINUOUS GROUND PLANES.
-  DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	wt
.063	.031	.024	.018	.028	.006	.012	grams
1.60	0.79	0.61	0.46	0.71	0.15	0.30	0.005

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