LTCC SURFACE MOUNT

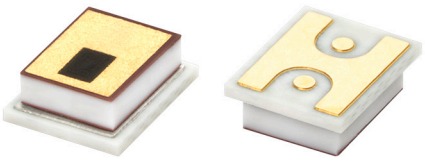
Low Pass Filter

LFHKI-2500+

50Ω DC to 2.5 GHz

THE BIG DEAL

- Integrated CPWG Interposer for Easy SMT Integration
- Insertion Loss, Typ. 1.9 dB
- Strong Stopband Rejection
- Power Handling: 7.5 W
- Protected by US Patents 11,638,370 and 11,744,057

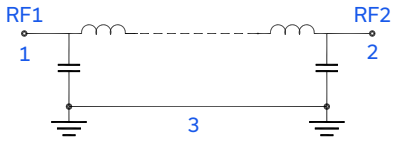


Generic photo used for illustration purposes only

APPLICATIONS

- Test and Measurement Equipment
- Microwave Transmitters and Receivers
- Harmonic Rejection
- Satellite Communications

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' LFHKI-2500+ is a passive RF low pass filter featuring a CPWG interposer that simplifies board-level implementation and supports compact RF designs. The device provides low insertion loss, good return loss and excellent suppression of harmonics and unwanted signals across a broad frequency range. Its shielded LTCC construction helps prevent de-tuning and EMI while maintaining stable performance over temperature. The compact 2.95 × 2.46 mm package is optimized for high-density RF and microwave applications.

ELECTRICAL SPECIFICATIONS[1,2,3] AT +25 °C, Z_0 = 50Ω

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC–F1	DC–2.5	-	1.9	2.2	dB
	Freq. Cut-Off[4]	Fc	2.8	-	3	-	dB
	Return Loss	DC–F1	DC–2.5	10	12.5	-	dB
Stopband	Rejection	F2–F3	3.4–4.7	-	23	-	dB
		F3–F4	4.7–10	45	55	-	
		F4–F5	10–18.5	45	55	-	
		F5–F6	18.5–40	20	24	-	
		F6–F7	40–50	-	24	-	

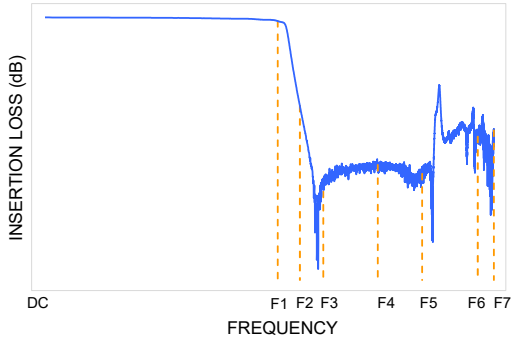
1. Tested in Evaluation Board P/N TB-LFHKI-2500C+ with the connector and feedline effects de-embedded using the 2X Thru IEEE P370 method.
2. This filter is bi-directional; RF1 and RF2 ports may be interchanged. See S-Parameters for actual performance.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
4. Typical variation: ± 5 %

ABSOLUTE MAXIMUM RATINGS[5]

Operating Temperature	-55 °C to +125 °C
Storage Temperature	-55 °C to +125 °C
Input Power[6]	7.5 W @ +25 °C

5. Permanent damage may occur if any of these limits are exceeded.
6. Power rating applies only to signals within the passband. Power rating above +25 °C operating temperature decreases linearly to 1.3 W at +125 °C.

TYPICAL FREQUENCY RESPONSE



REV. OR
ECO-030925
LFHKI-2500+
MCL NY
260824

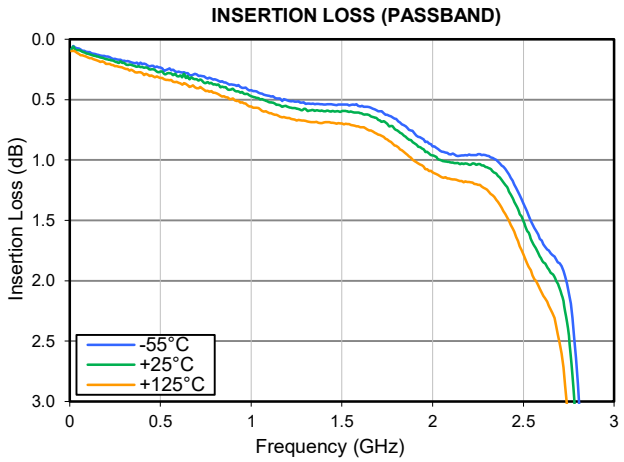
Low Pass Filter

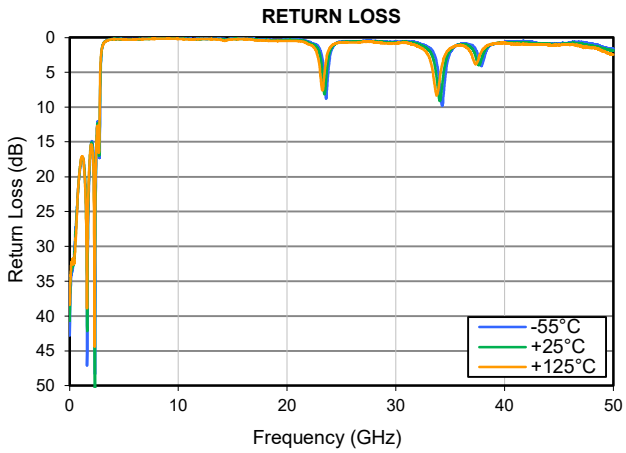
LFHKI-2500+

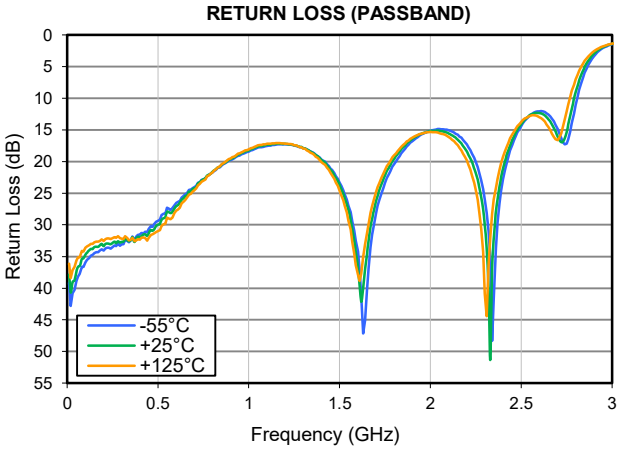
50Ω DC to 2.5 GHz

TYPICAL PERFORMANCE GRAPHS









LTCC SURFACE MOUNT

Low Pass Filter

LFHKI-2500+

50Ω DC to 2.5 GHz

FUNCTIONAL DIAGRAM

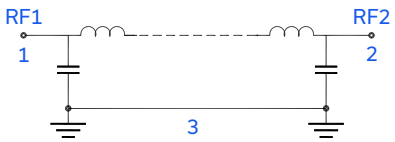
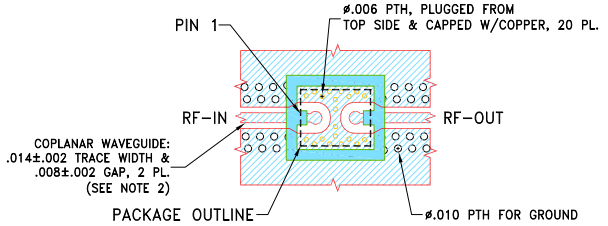


Figure 1. LFHKI-2500+ Functional Diagram

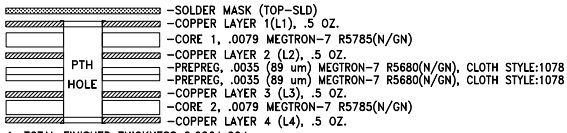
PAD DESCRIPTION

Function	Pad Number	Description
RF1[2]	1	Connects to RF Input Port
RF2[2]	2	Connects to RF Output Port
GROUND	3	Connects to Ground on PCB, (See drawing PL-836)

SUGGESTED PCB LAYOUT (PL-836)



STACK-UP DIAGRAM



1. TOTAL FINISHED THICKNESS 0.026±.004.
2. PTH PRESENT FROM COPPER LAYER 1 TO COPPER LAYER 4.
3. INDICATED ON TOP VIEW PTH's ARE PLUGGED WITH EPOXY AND CAPPED WITH COPPER FROM TOP SIDE.
4. L2, L3, AND L4 ARE CONTINUOUS GROUND PLANES.

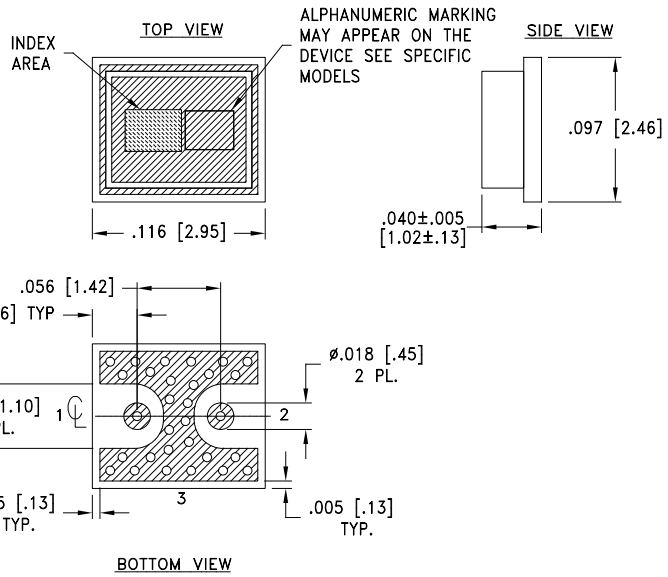
NOTES:
1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP ARE SHOWN FOR MEGTRON-7 R5785(N/GN) WITH DIELECTRIC THICKNESS .0079", COPPER: .5 OZ. EACH LAYER. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
3. LAYERS L2, L3 & L4 OF PCB ARE CONTINUOUS GROUND PLANES.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. Suggested PCB Layout

CASE STYLE DRAWING



METALLIZATION

Weight: 0.021 grams
Dimensions are in inches [mm]. Tolerances: 2 Pl. ±0.01; 3 Pl. ±0.015 Inches

PRODUCT MARKING*: U7

*Marking may contain other features or characters for internal lot control.

Low Pass Filter

LFHKI-2500+

50Ω DC to 2.5 GHz

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads
Case Style	NM3723 Lead Finish: Gold Plate over Nickel Plate
RoHS/REACH Status	Compliant
Tape and Reel	F66-2
Suggested Layout for PCB Design	PL-836
Evaluation Board	TB-LFHKI-2500C+ Gerber File
Environmental Rating	ENV06T10

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