LTCC SURFACE MOUNT

High Pass Filter

HFHKI-6600+

50Ω 7.2 to 17 GHz

THE BIG DEAL

- Integrated CPWG Interposer for Easy SMT Integration
- Insertion Loss, Typ. 1.6 dB
- Strong Stopband Rejection
- Power Handling: 6 W
- Protected by US Patents 11,638,370 and 11,744,057

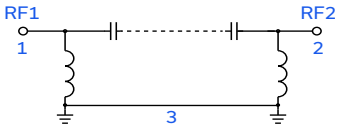


Generic photo used for illustration purposes only

APPLICATIONS

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

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' HFHKI-6600+ is a passive RF high 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 adjacent bands 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 = 50 Ω

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	F4–F5	7.2–8.7	—	2.5	—	dB
		F5–F6	8.7–15.5	—	1.6	2.3	
		F6–F7	15.5–17	—	3.1	—	
	Freq. Cut-Off[4]	Fc	6.6	—	3	—	dB
	Return Loss	F4-F5	7.2–8.7	-	8.5	—	dB
		F5-F6	8.7–15.5	8.5	11	—	dB
		F6-F7	15.5–17	—	7	—	dB
Stopband	Rejection	DC–F1	DC–1.75	50	60	—	dB
		F1–F2	1.75–3.5	37	47	—	
		F2–F3	3.5–4.9	20	27	—	

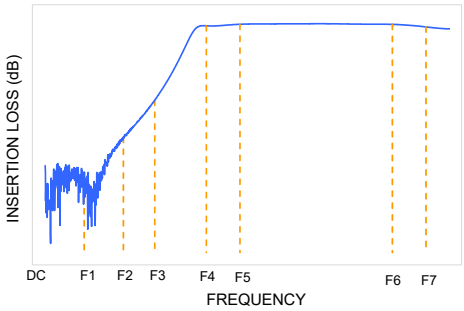
1. Tested in Evaluation Board P/N TB-HFHKI-6600C+ with the connector and feedline effects de-embedded using the 2X Thru IEEE P370 method.
2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
3. This component should not be used as a DC-block. 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]

Parameter	Ratings
Operating Temperature	-55 °C to +125 °C
Storage Temperature	-55 °C to +125 °C
Input Power[6]	6 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 W at +125 °C.

TYPICAL FREQUENCY RESPONSE



REV. OR
ECO-030940
HFHKI-6600+
MCL NY
260828

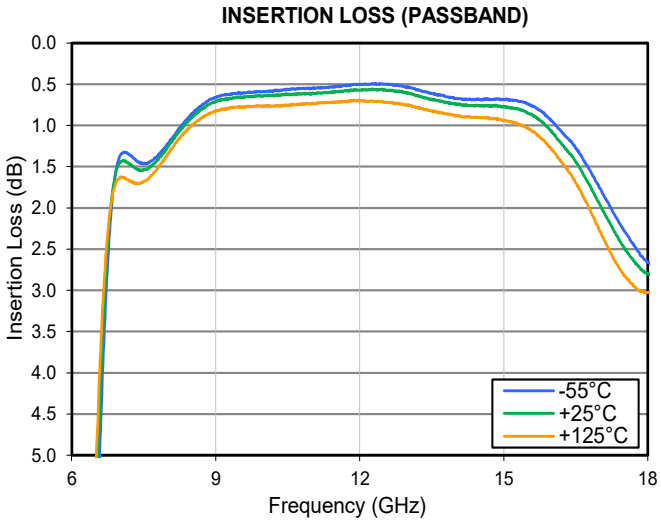
High Pass Filter

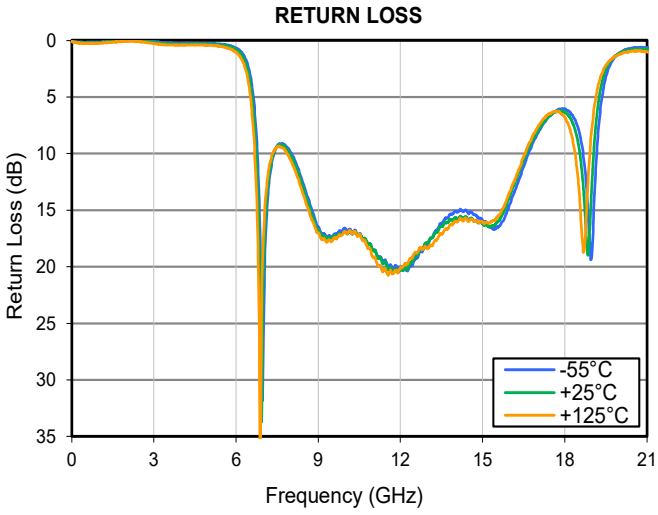
HFHKI-6600+

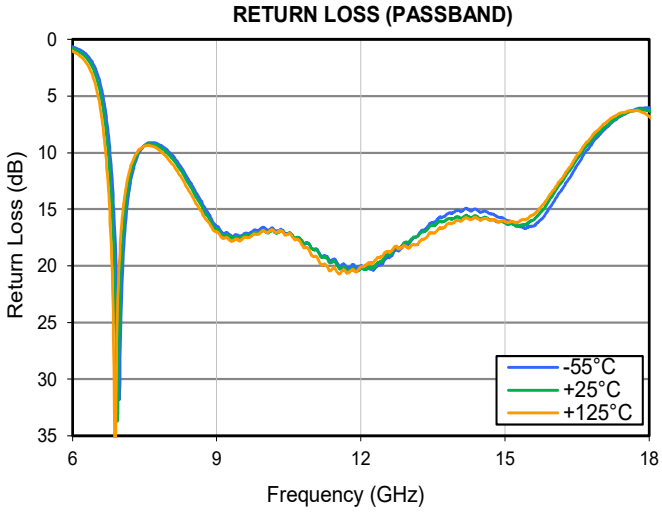
50Ω 7.2 to 17 GHz

TYPICAL PERFORMANCE GRAPHS









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FUNCTIONAL DIAGRAM

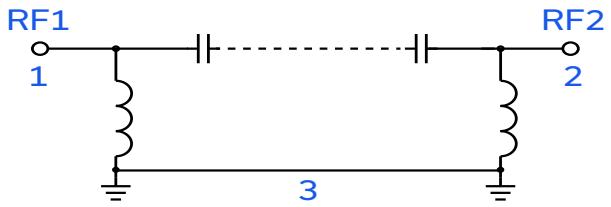
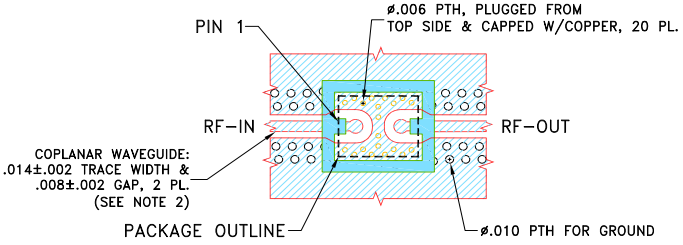


Figure 1. HFHKI-6600+ Functional Diagram

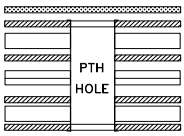
PAD DESCRIPTION

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-837)

SUGGESTED PCB LAYOUT (PL-837)



STACK–UP DIAGRAM



–SOLDER MASK (TOP–SLD)
–COPPER LAYER 1(L1), .5 OZ.
–CORE 1, .0079 MEGTRON–7 R5785(N/GN)
–COPPER LAYER 2 (L2), .5 OZ.
–PREPREG, .0035 (89 um) MEGTRON–7 R5680(N/GN), CLOTH STYLE:1078
–PREPREG, .0035 (89 um) MEGTRON–7 R5680(N/GN), CLOTH STYLE:1078
–COPPER LAYER 3 (L3), .5 OZ.
–CORE 2, .0079 MEGTRON–7 R5785(N/GN)
–COPPER LAYER 4 (L4), .5 OZ.

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.

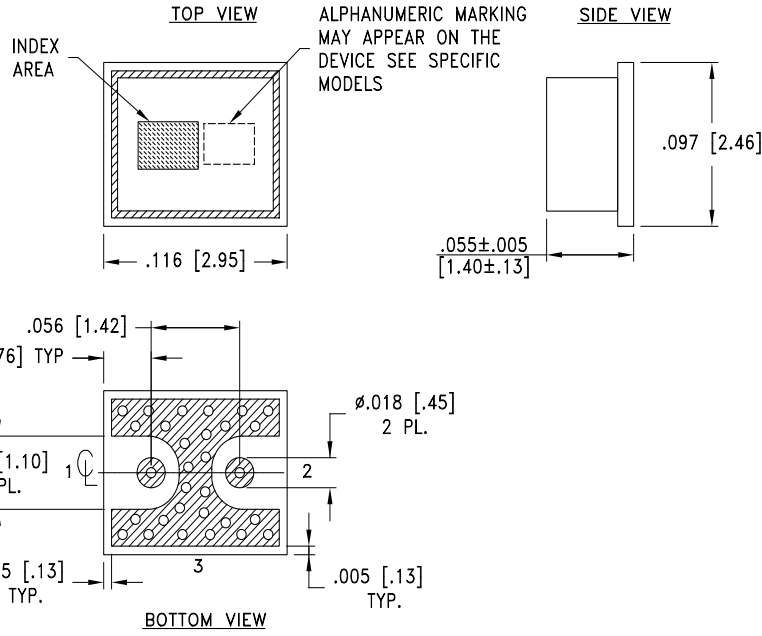
NOTES:
1. PCB IS MULTILAYER PCB, SEE STACK–UP DIAGRAM.
2. TRACE WIDTH & GAP ARE SHOWN FOR MEGTRON–7 R5785(N/GN) WITH DIELECTRIC THICKNESS .0079", COPPER: .5 OZ. EACH LAYER. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
3. LAYERS L2, L3 & L4 OF PCB ARE CONTINUOUS GROUND PLANES.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. HFHKI-6600+ Suggested PCB Layout

CASE STYLE DRAWING



METALLIZATION

Weight: .021 grams
Dimensions are in inches [mm]. Tolerances: 2 Pl.±.01; 3 Pl. ±.005 Inches

PRODUCT MARKING*: W4

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

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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	NM3723-1 Lead Finish: Gold Plate over Nickel Plate
RoHS Status	Compliant
Tape and Reel	F66-3
Suggested Layout for PCB Design	PL-837
Evaluation Board	TB-HFHKI-6600C+ 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