CERAMIC

High Pass Filter

HFCV-145+

50Ω 140 to 1150 MHz

THE BIG DEAL

- Low loss, 1 dB typ.
- Return loss, 11 dB typ.
- Stop Band Rejection, 23 dB typ.
- High power handling, 5W
- Small size 3.2mm x 2.5mm

Generic photo used for illustration purposes only

CASE STYLE: JV1210C

+RoHS Compliant

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

APPLICATIONS

- Sub-harmonic rejection and DC blocking
- Transmitters/Receivers
- Lab use

PRODUCT OVERVIEW

New High Pass Filter HFCV-145+ is an LTCC based 7 section design, that extends the lower frequency cutoff range of the existing HFCN series to 145 MHz. Systems that previously relied on active or lumped element filtering to support these lower frequencies can save power and system complexity by integrating the HFCV-145+ into new designs. These filters are offered in a EIA 1210 package size and have a typical stop band rejection of 23 dB.

KEY FEATURES

Feature	Advantages
Small Size (3.2mm x 2.5mm)	Available in the size of typical resistors or capacitors (EIA 1210), the ultra small HFCV series integrates up to 7 low pass sections in a simple SMT chip form factor.
High Power Handling	The HFCV series can withstand up to 5W CW signal without damage making this filter ideal for use in medium power to transmit paths.
Temperature Stability	Over a 180°C operating temperature range (-55°C to +125°C), the HFCV series ceramic filters typically exhibit less than 0.2 dB pass band insertion loss variation.
High Rejection	Achieving 23dB rejection @ 80 MHz; the HFCV-145+ provides a versatile high pass configuration for many up converter applications.

REV. D
ECO-015193
HFCV-145+
EDU4323
URJ
220913

ELECTRICAL SPECIFICATIONS[1,2] AT 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Stopband	Rejection Loss	DC-F1	DC - 80	20	23	—	dB
		F1-F2	80 - 115	13	18	—	dB
	Freq. Cut-Off	F3*	130	—	3	—	dB
Passband	Insertion Loss	F4-F5	140 - 155	—	1.5	3	dB
		F5-F6	155 - 1050	—	1.0	1.5	dB
		F6-F7	1050 - 1150	—	1.4	3	dB
	Return Loss	F4-F5	140 - 155	—	19	—	dB
		F5-F6	155 - 1050	—	11	—	dB
		F6-F7	1050 - 1150	—	8	—	dB

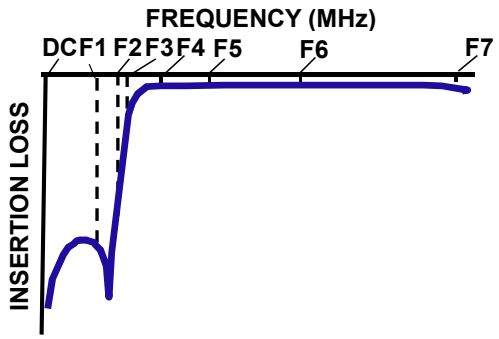
1 This component should not be employed as a DC-block. DC de-coupling capacitors are required in applications where DC voltage and/or current is present at either input or output ports. Please contact Mini-Circuits for further support.
2 Measured on Mini-Circuits Characterization Test Board TB-HFCV-145+
* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

MAXIMUM RATINGS

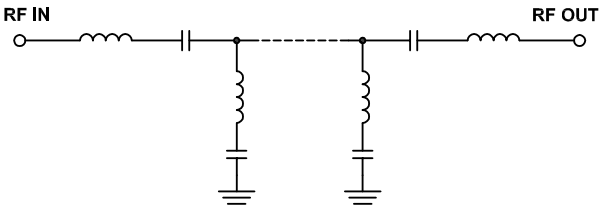
Parameter	Ratings
Operating temperature	-55°C to 125°C
Storage temperature	-55°C to 125°C
RF Power Input*	5W @25°C

*Passband rating, derate linearly to 0.8W at 125°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

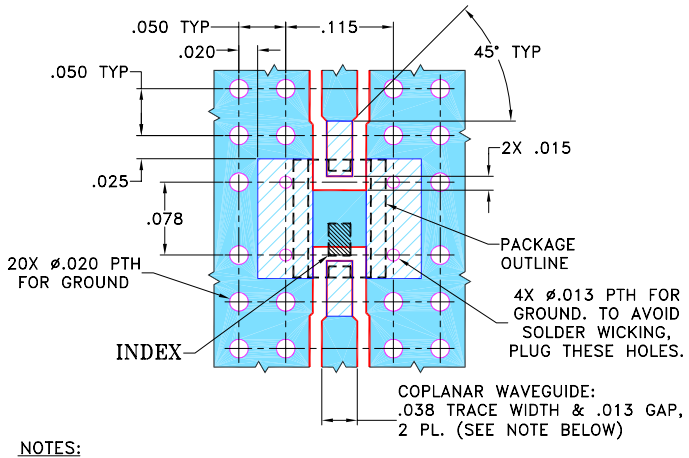
HFCV-145+

PAD CONNECTIONS

INPUT	1
OUTPUT	3
GROUND	2,4

PRODUCT MARKING: UZ

DEMO BOARD MCL P/N: TB-HFCV-145+
SUGGESTED PCB LAYOUT (PL-307)



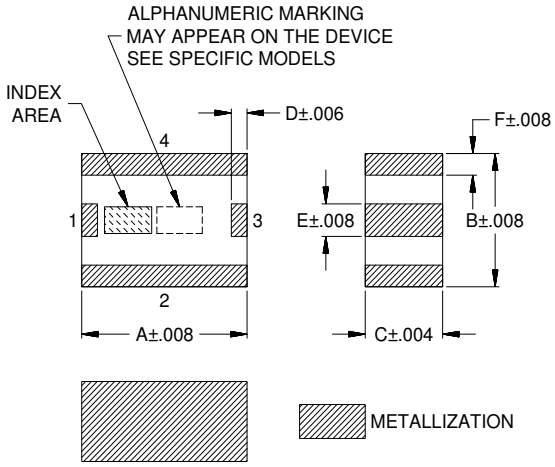
NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; 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 LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

OUTLINE DRAWING



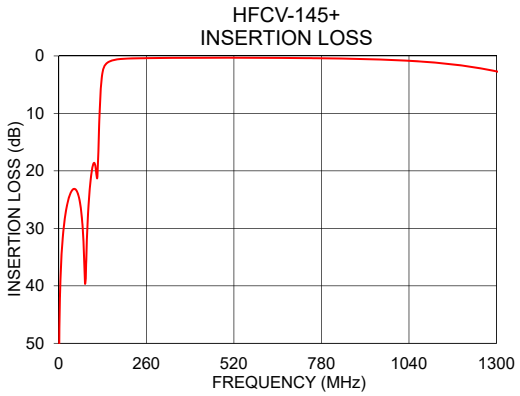
OUTLINE DIMENSIONS (Inches / mm)

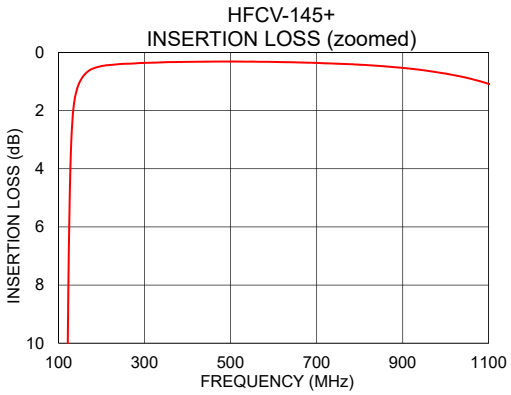
A	B	C	D	E	F	Wt.
.126	**.098**	**.059**	**.012**	**.024**	**.016**	grams
3.2	2.5	1.5	.3	.6	.4	.03

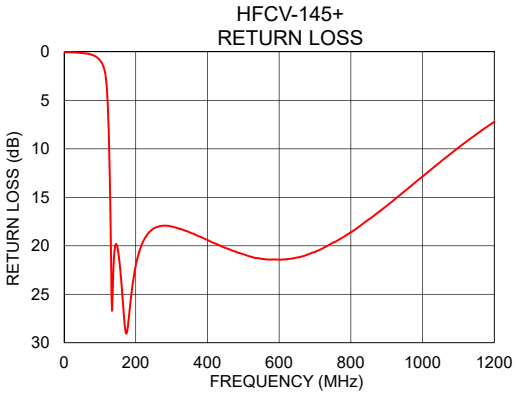
Note: Please refer to case style drawing for details

TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	33.08	0.03
20	27.48	0.05
30	24.69	0.06
50	23.23	0.12
80	38.88	0.33
84	31.31	0.39
115	20.75	2.24
130	2.87	18.07
140	1.41	20.85
145	1.16	19.82
155	0.86	21.75
300	0.36	18.02
500	0.31	20.87
1050	0.88	11.34
1150	1.35	8.50







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