LTCC SURFACE MOUNT

Low Pass Filter

LFCG-1525+

50Ω DC to 1525 MHz

THE BIG DEAL

- Insertion Loss, Typ. 1.0 dB
- Stopband Rejection, Typ. 50 dB
- Passband Return Loss, Typ. 18 dB
- 0805 Surface Mount Footprint
- Power Handling: 5.5 Watts

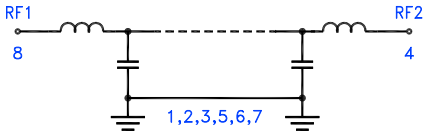


Generic photo used for illustration purposes only

APPLICATIONS

- Military Radio Applications
- Police Mobile Radio

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' LFCG-1525+ is a miniature low temperature co-fired ceramic (LTCC) low pass filter with a DC to 1525 MHz passband supporting a variety of applications. This model provides 1.0 dB typical insertion loss over a wide band due to its rugged monolithic construction. Housed in an 0805 ceramic form factor which is ideal for dense signal chain PCB layouts where it complements MMIC size and performance. The LTCC fabrication process assures minimal RF performance variation while delivering a product that is well suited for environmental extremes of high humidity and temperature.

KEY FEATURES

Features	Advantages
Ultra-wide Stopband	The LTCC lowpass filter provides a very good stopband rejection until 12 GHz suitable for wide band applications.
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Small Size, 0805	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Rugged Power Handling, 5.5 Watts	Handles up to 5.5 Watts in a small 0805 package.

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ELECTRICAL SPECIFICATIONS[1,2,3] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC - 1525	—	1.0	1.8	dB
	Freq. Cut-Off[4]	Fc	1760	—	3.0	—	dB
	Return Loss	DC-F1	DC - 1525	—	18	—	dB
Stopband	Rejection	F2-F3	2125 - 2350	20	40	—	dB
		F3-F4	2350 - 7000	40	50	—	
		F4-F5	7000 - 12000	—	30	—	

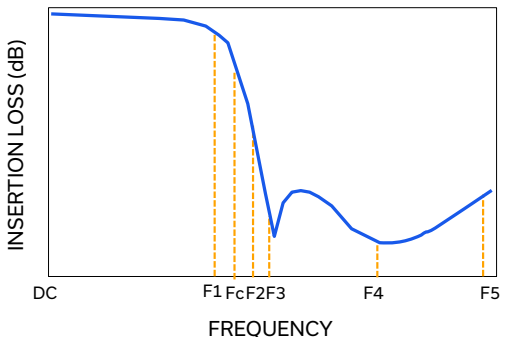
1. Tested in Evaluation Board P/N TB-LFCG-1525+.
2. This filter is bi-directional, RF1 and RF2 ports may be interchanged. See S-Parameters for actual performance.
3. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
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]	5.5 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 W at +125°C.

TYPICAL FREQUENCY RESPONSE AT +25°C



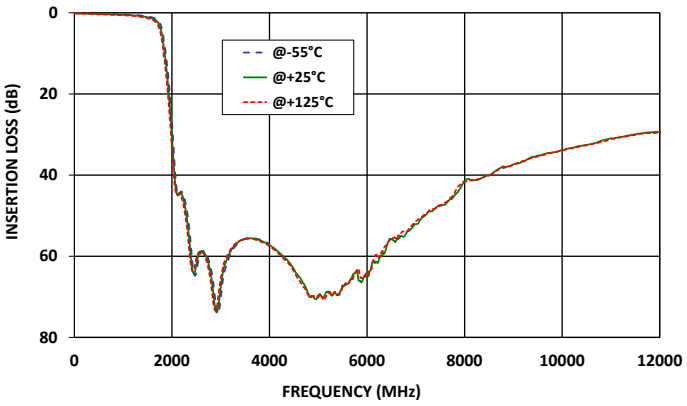
Low Pass Filter

LFCG-1525+

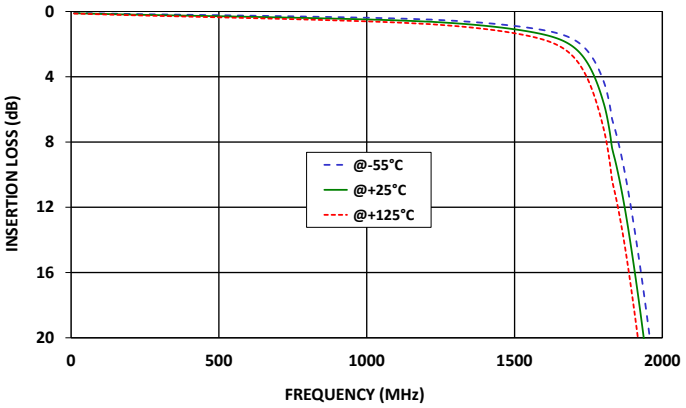
50Ω DC to 1525 MHz

TYPICAL PERFORMANCE GRAPHS

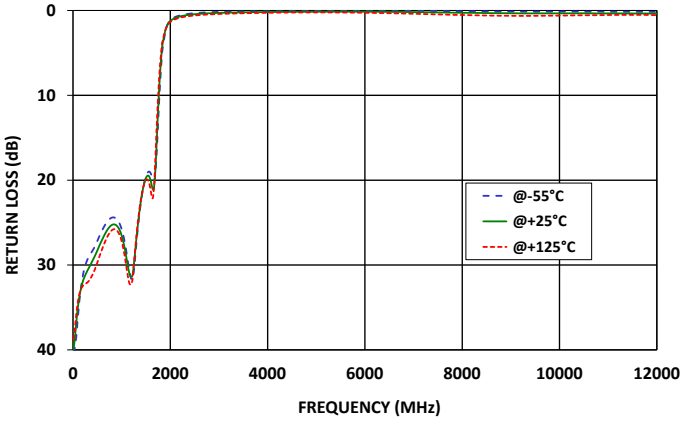
LFCG-1525+
INSERTION LOSS



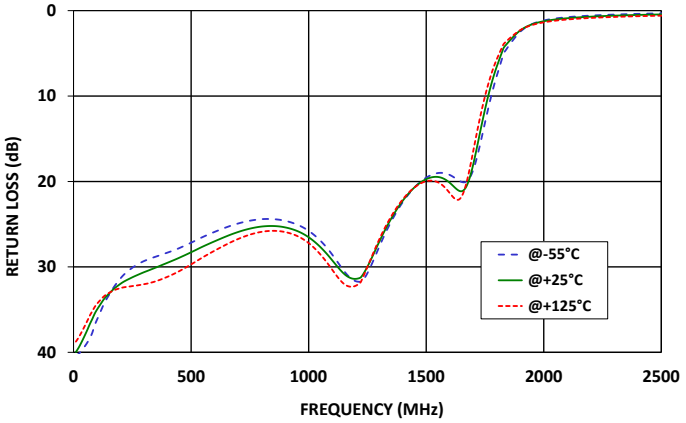
LFCG-1525+
INSERTION LOSS (Zoomed)



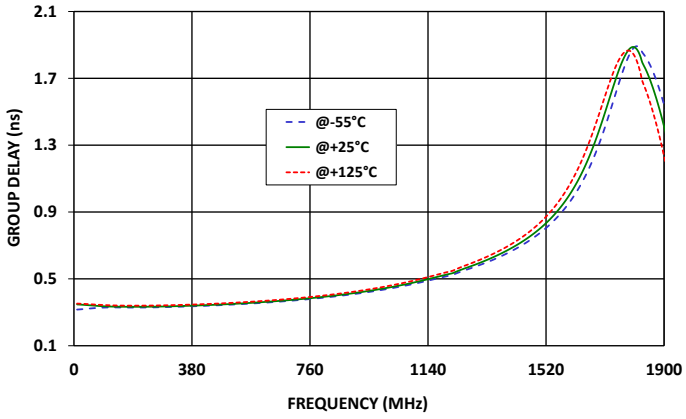
LFCG-1525+
RETURN LOSS



LFCG-1525+
RETURN LOSS (Zoomed)



LFCG-1525+
GROUP DELAY



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FUNCTIONAL DIAGRAM

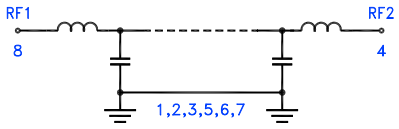
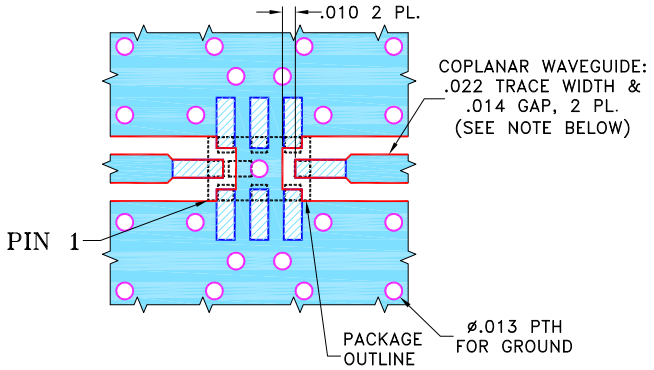


Figure 1. LFCG-1525+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1[2]	8	Connects to RF Input Port
RF2[2]	4	Connects to RF Output Port
GROUND	1,2,3,5,6,7	Connects to Ground on PCB, (See drawing PL-429)

SUGGESTED PCB LAYOUT (PL-429)



NOTES:

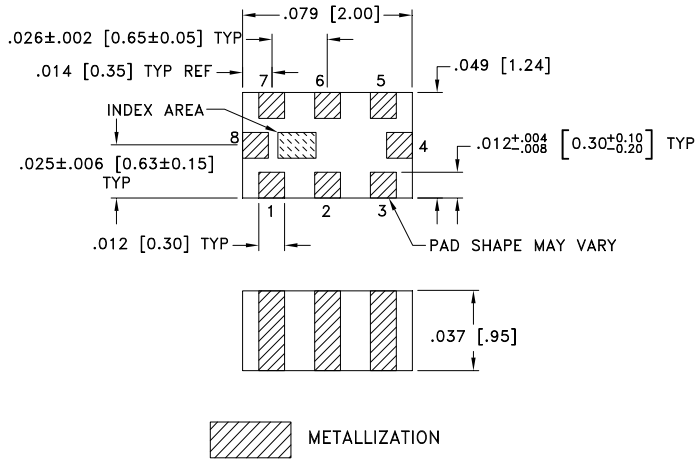
1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. Suggested PCB Layout PL-429

CASE STYLE DRAWING



Weight: .008 grams
Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3 Pl. ± .005

PRODUCT MARKING*: ML

*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 and Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads
Case Style	GE0805C-2 Lead Finish: Tin over Nickel plating
RoHS Status	Compliant
Tape and Reel	F114
Suggested Layout for PCB Design	PL-429
Evaluation Board	TB-LFCG-1525+
	Gerber File
Environmental Rating	ENV06

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