LTCC SURFACE MOUNT

Low Pass Filter

LFCW-482+

50Ω DC to 4.8 GHz

THE BIG DEAL

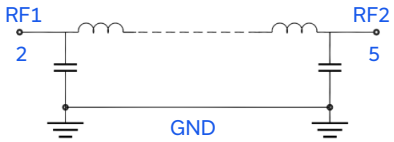
- Low Insertion Loss, Typ. 0.4 dB
- Passband Return Loss, Typ. 13.5 dB
- Stopband Rejection, Typ. 31.5 dB
- 0603 Surface Mount Footprint
- Power Handling: 5 W

Generic photo used for illustration purposes only

APPLICATIONS

- Wideband Receiver and Transmitter Chains
- Test and Measurement Instrumentation
- RF Front-End Filtering
- Harmonic and Spurious Signal Suppression

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' LFCW-482+ is a high-performance low pass filter designed for operation from DC to 4800 MHz. Utilizing low temperature co-fired ceramic (LTCC) technology, the filter delivers excellent insertion loss, return loss and stopband attenuation in a compact 0603 surface-mount package. With a typical insertion loss of as low as 0.4 dB and strong rejection beyond the cutoff band, this filter provides effective suppression of harmonics and spurious signals while preserving signal integrity across a wide frequency range. The small footprint makes this component ideal for densely populated RF and microwave signal chains, where size, efficiency and performance are critical.

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

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC–F1	DC–2.5	–	0.4	0.5	dB
		F1–F2	2.5–4.8	–	1.4	1.7	
	Freq. Cutoff[4]	Fc	5.3	–	3	–	
	Return Loss	DC–F1	DC–2.5	11	13.5	–	
		F1–F2	2.5–4.8	10	13	–	
Stopband	Rejection	F3–F4	6.6–8	23	30	–	dB
		F4–F5	8–12	25	31.5	–	
		F5–F6	12–14	21	28	–	

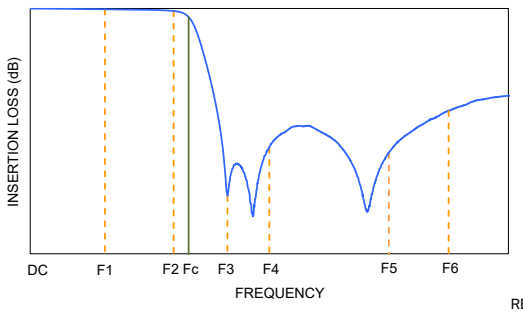
1. Tested in Evaluation Board P/N TB-LFCW-482C+.
2. This filter is bi-directional. RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
3. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
4. Typical variation ±5%.

ABSOLUTE MAXIMUM RATINGS[5]

Operating Temperature	-55 °C to +125 °C
Storage Temperature	-55 °C to +125 °C
Input Power[6]	5 W

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 1.25 W at +125 °C.

TYPICAL FREQUENCY RESPONSE



REV. OR
ECO-030181
LFCW-482+
MCL NY
260623

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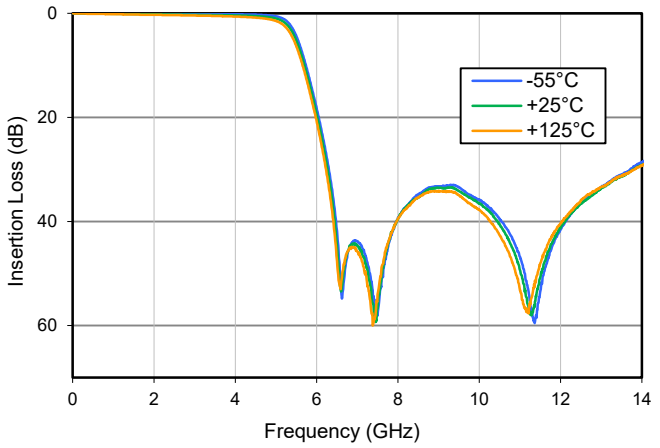
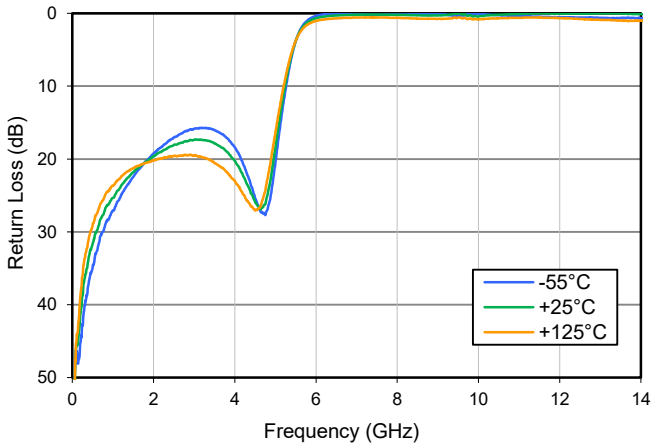
TYPICAL PERFORMANCE GRAPHS

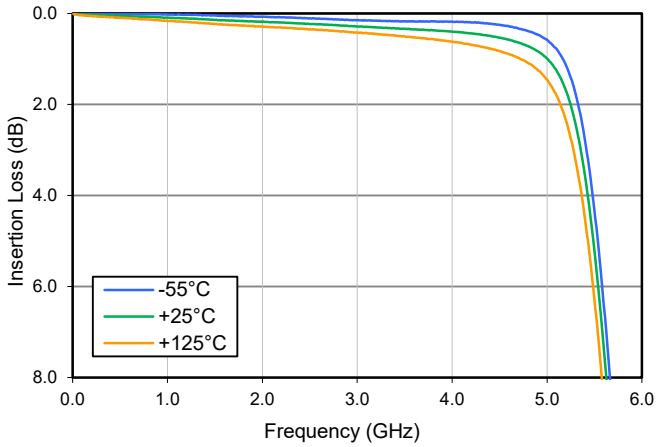
INSERTION LOSS



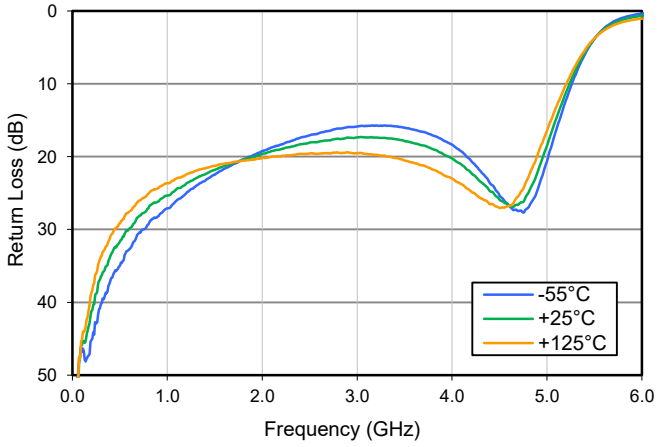
RETURN LOSS



INSERTION LOSS (PASSBAND)



RETURN LOSS (PASSBAND)



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FUNCTIONAL DIAGRAM

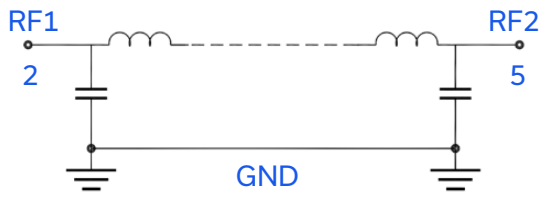
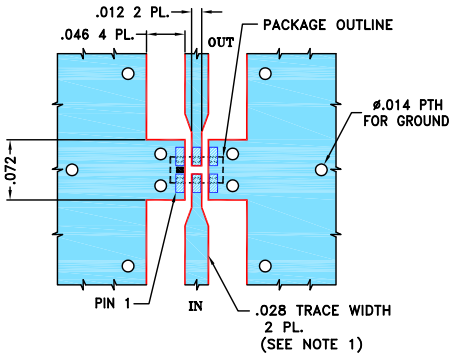


Figure 1. LFCW-482+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1	2	Connects to RF Input Port
RF2	5	Connects to RF Output Port
GROUND	1, 3, 4, 6	Connects to Ground on PCB, (See drawing PL-554)

SUGGESTED PCB LAYOUT (PL-554)



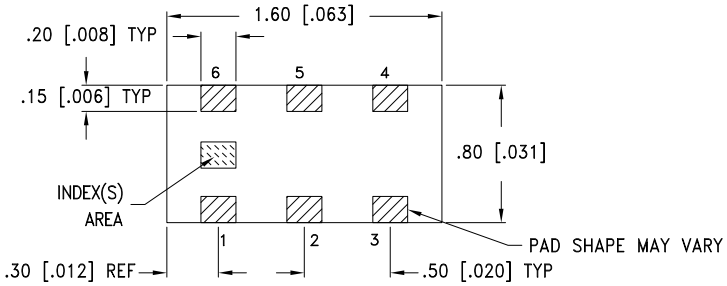
NOTES:
1. TRACE WIDTH IS SHOWN FOR FR4, GRADE IT-180TC (ITEQ CORP.) WITH DIELECTRIC THICKNESS .016±.0015. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

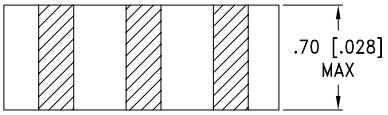
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. Suggested PCB Layout

CASE STYLE DRAWING





METALLIZATION

Weight: .005 grams
Dimensions are in mm [inch]. Tolerances: ±0.13 mm

PRODUCT MARKING*: N/A

*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	JC0603C Lead Finish: Tin Plate over Nickel Plate
RoHS/REACH Status	Compliant
Tape and Reel	F114
Suggested Layout for PCB Design	PL-554
Evaluation Board	TB-LFCW-482C+ Gerber File
Environmental Rating	ENV166

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.

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