LUMPED LC SURFACE MOUNT top hat

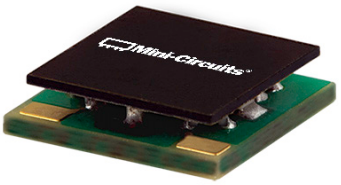
Low Pass Filter

ULP-190+

50Ω DC to 190 MHz

KEY FEATURES

- Low Insertion Loss, 1.5 dB Typ.
- High Rejection, 40 dB Typ.
- Sharp Insertion Loss Roll-off
- Good Return Loss, 13.97 dB Typ.
- Ultra Miniature Surface Mount Package

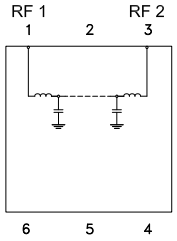


Generic photo used for illustration purposes only

APPLICATIONS

- Wireless Communications
- Receivers / Transformers
- Lab Use

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

The ULP-190+ is a low pass filter in a top hat package (size of 0.25" x 0.25") fabricated using SMT technology. Covering DC to 190 MHz band width, these units offer good matching within the passband and high rejection. This model uses a miniature high Q capacitors and chip inductors for high reliability. In addition it has repeatable performance across production lots and consistent performance across temperature.

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

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC - 190	—	1.5	2	dB
	Freq. Cut-Off	Fc	220	—	3.0	—	dB
	Return Loss	DC-F1	DC - 190	—	13.97	—	dB
Stopband	Rejection	F2-F3	264 - 300	20	27	—	dB
		F3-F4	300 - 1300	40	47	—	
		F4-F5	1300 - 3000	—	20	—	

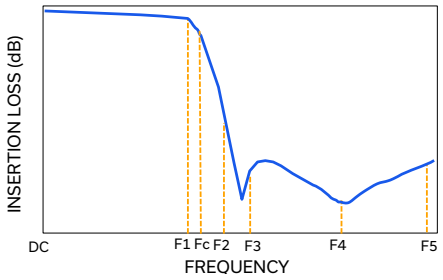
1. Tested in Evaluation Board P/N TB-ULP-190+
2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
3. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

ABSOLUTE MAXIMUM RATINGS[4]

Parameter	Ratings
Operating Temperature	-40°C to + 85°C
Storage Temperature	-55°C to +100°C
Input Power[5]	0.6 W max.

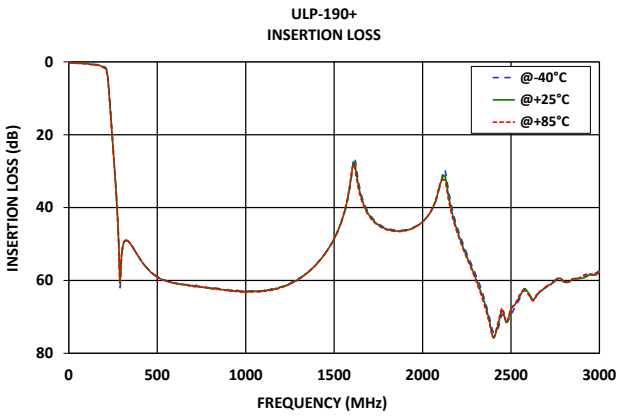
4. Permanent damage may occur if any of these limits are exceeded.
5. Power rating applies only to signals within the passband.

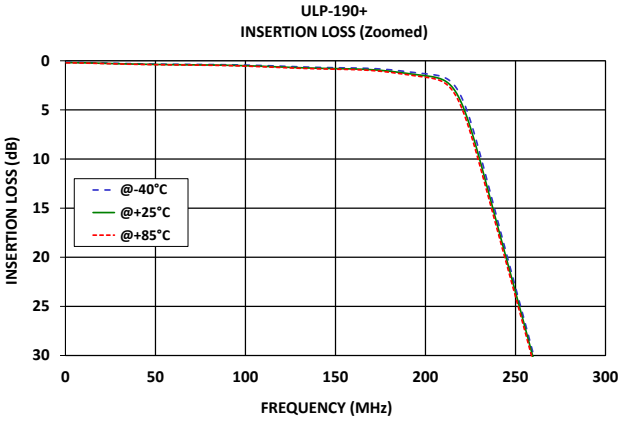
TYPICAL FREQUENCY RESPONSE AT +25°C

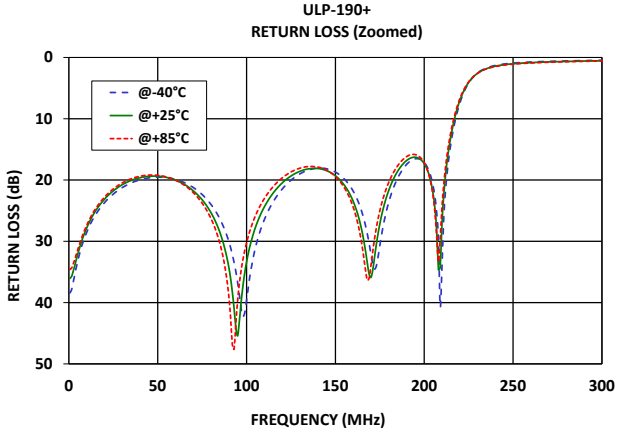


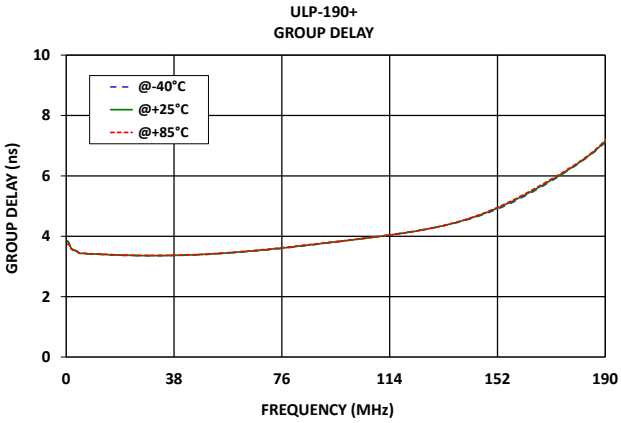
REV. B
ECO-025420
ULP-190+
EDU2390
URJ
250506

TYPICAL PERFORMANCE GRAPHS









FUNCTIONAL DIAGRAM

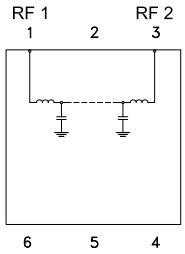
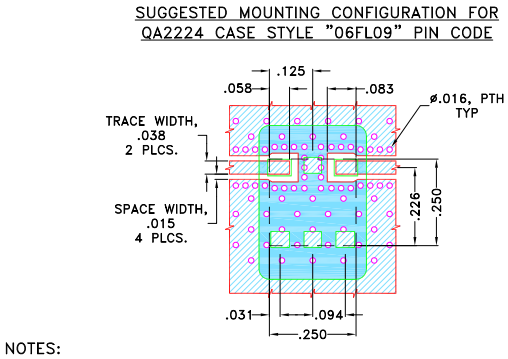


Figure 1. ULP-190+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1 (Note 2)	1	Connects to RF Input Port
RF2 (Note 2)	3	Connects to RF Output Port
GROUND	2,4,5,6	Connects to Ground on PCB, (See drawing PL-484)
NC	—	No connection, not used internally. See drawing PL-484 for connection to PCB

SUGGESTED PCB LAYOUT (PL-484)



NOTES:

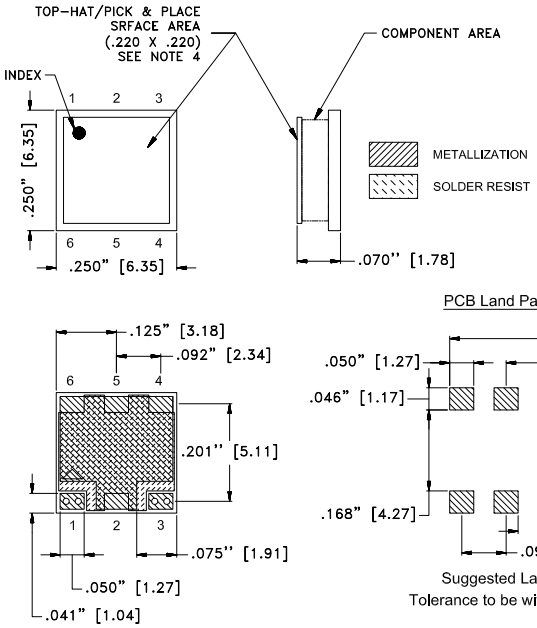
1. TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .020"±.0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Figure 2. Suggested PCB Layout PL-484

CASE STYLE DRAWING



Weight: .25 gram

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015

PRODUCT MARKING*: ULP-190

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

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASH BOARD. CLICK HERE

Performance Data and Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads
Case Style	QA2224 Lead Finish: Gold over Nickel Plate
RoHS Status	Compliant
Tape and Reel	TR-F34
Suggested Layout for PCB Design	PL-484
Evaluation Board	TB-ULP-190+
	Gerber File
Environmental Rating	ENV03T2

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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