

LUMPED LC SURFACE MOUNT top hat

Low Pass Filter

ULP-216+

Mini-Circuits

50Ω

DC to 216 MHz

KEY FEATURES

- Low Insertion Loss, 1.5 dB Typ.
- High Rejection, 47 dB Typ.
- Sharp Insertion Loss Roll-off
- Ultra Miniature Surface Mount Package



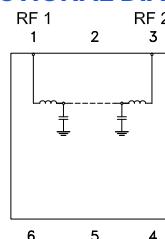
Generic photo used for illustration purposes only

APPLICATIONS

- Wireless Communications
- Receivers / Transformers
- Lab Use

PRODUCT OVERVIEW

The ULP-216+ is a low pass filter in a top hat package (size of 0.25" x 0.25") fabricated using SMT technology. Covering DC to 216 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.

FUNCTIONAL DIAGRAM**ELECTRICAL SPECIFICATIONS^{1,2,3} AT +25°C**

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC - 216	—	1.5	2
	Freq. Cut-Off	Fc	232	—	3.0	—
	Return Loss	DC-F1	DC - 216	—	17.69	—
Stopband	Rejection	F2-F3	295 - 450	20	27	—
		F3-F4	450 - 1300	40	47	—

1. Tested in Evaluation Board P/N TB-ULP-216+

2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

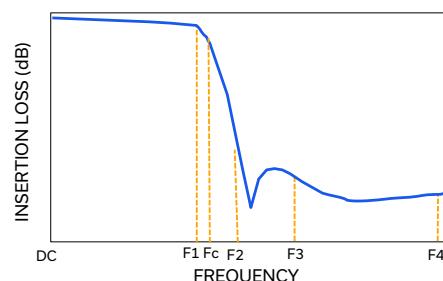
3. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

ABSOLUTE MAXIMUM RATINGS⁴

Parameter	Ratings
Operating Temperature	-40°C to + 85°C
Storage Temperature	-55°C to +100°C
Input Power ⁵	1 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-216+
EDU2391
URJ
250506

Mini-Circuits

www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

PAGE 1 OF 4



LUMPED LC SURFACE MOUNT



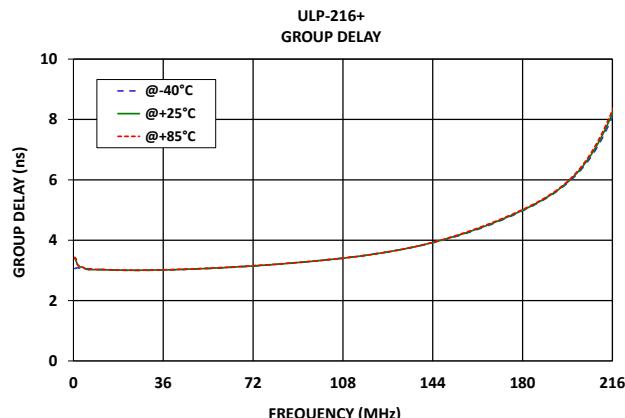
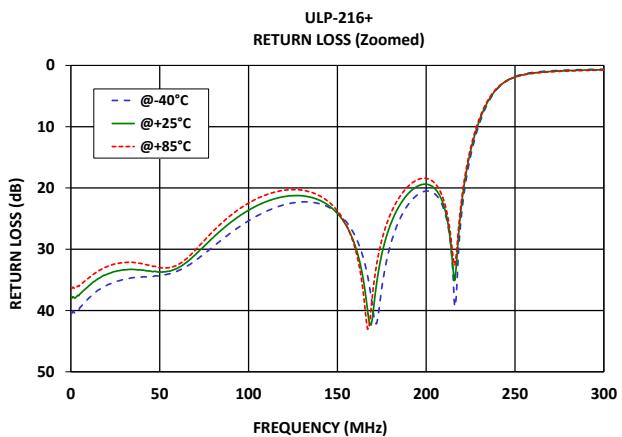
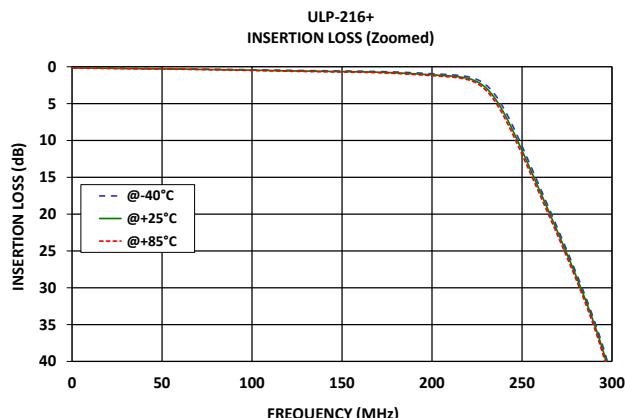
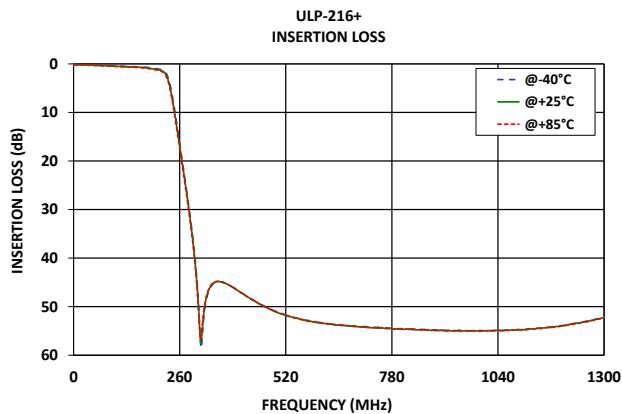
Low Pass Filter

ULP-216+

50Ω

DC to 216 MHz

TYPICAL PERFORMANCE GRAPHS





LUMPED LC SURFACE MOUNT

Low Pass Filter

50Ω

DC to 216 MHz

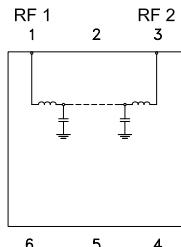
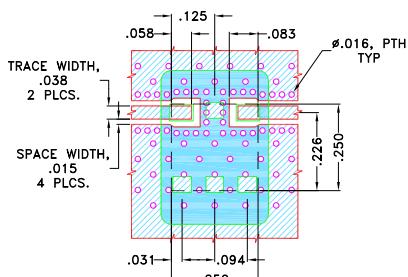
ULP-216+**FUNCTIONAL DIAGRAM**

Figure 1. ULP-216+ Functional Diagram

PAD DESCRIPTION

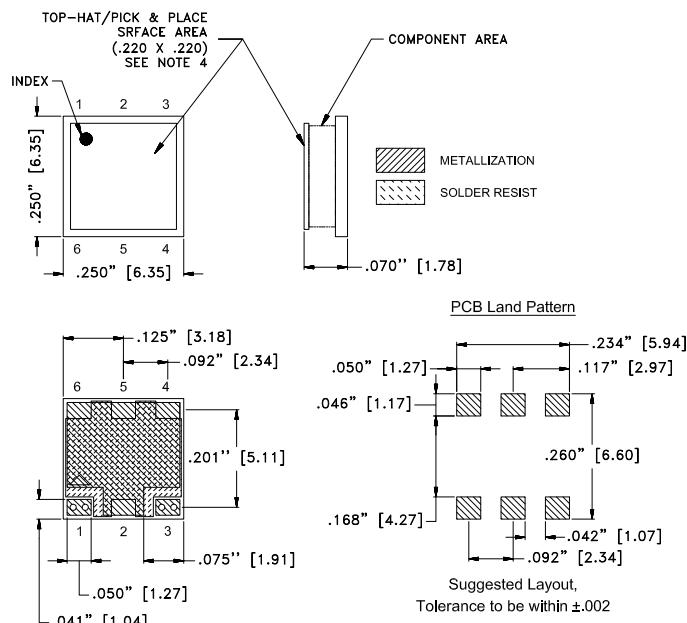
Function	Pad Number	Description
RF1 ^(Note 2)	1	Connects to RF Input Port
RF2 ^(Note 2)	3	Connects to RF Output Port
GROUND	2,4,5,6	Connects to Ground on PCB, (See drawing PL-484)
NC	—	No connection, not used internally. See drawing PL-484 for connection to PCB

SUGGESTED PCB LAYOUT (PL-484)SUGGESTED MOUNTING CONFIGURATION FOR
QA2224 CASE STYLE "06FL09" PIN CODE

NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS (R04350B) 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.

Figure 2. Suggested PCB Layout PL-484

CASE STYLE DRAWING**Weight: .25 gram**

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

PRODUCT MARKING*: ULP-216

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

LUMPED LC SURFACE MOUNT 

Low Pass Filter

ULP-216+

Mini-Circuits

50Ω

DC to 216 MHz

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-216+
	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.
- 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