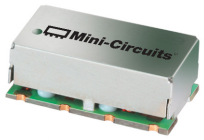
*Surface Mount*

# Low Pass Filter

## SXLP-13+

50Ω DC to 13 MHz




*Generic photo used for illustration purposes only*
CASE STYLE: HF1139

## The Big Deal

- Low insertion Loss typical 0.5 dB
- Sharp roll-off
- Wide stop band rejection till 2200 MHz
- Very good VSWR typical 1.3:1
- Miniature shielded package

## Product Overview

The SXLP-13+ is a lowpass filter in a shielded package (size of 0.440" x 0.740" x 0.270") fabricated using SMT technology. Covering DC to 13 MHz band width, these units offer good matching within the passband and high rejection 44 dB typical. This model uses miniature high Q capacitors and wire welded inductors for high reliability. In addition it has repeatable performance across production lots and consistent performance across temperature.

## Key Features

| Feature | Advantages |
|---|---|
| Sharp roll-off | Sharp roll-off, this will attenuate frequencies closer to the passband with good rejection. |
| High rejection | This enables the filters to attenuate spurious signals and reject harmonics for broadband frequency. |
| Small size, 0.440" x 0.740" x 0.270" | The small surface mount package enables the SXLP-13+ to be used in compact designs. |

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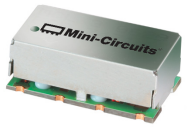


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CASE STYLE: HF1139

### Features

- Low insertion Loss typical 0.5 dB
- Sharp roll-off
- Wide band rejection till 2200 MHz
- Very good VSWR typical 1.3:1
- Miniature shielded package

### Applications

- Receivers / Transmitters
- Broadcasting
- Remote controlled sensors

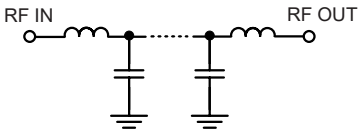
### Electrical Specifications at 25°C

| Parameter | | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Pass Band | Insertion Loss | DC-F1 | DC-13 | — | 0.5 | 1.2 | dB |
| | Freq. Cut-Off | F2 | 15.1 | — | 3.0 | — | dB |
| | VSWR | DC-F1 | DC-13 | — | 1.3 | 1.6 | :1 |
| Stop Band | Rejection Loss | F3 | 18.5 | 20 | 30 | — | dB |
| | | F4-F5 | 20-2200 | 28 | 44 | — | dB |
| | VSWR | F3-F5 | 18.5-2200 | — | 20 | — | :1 |

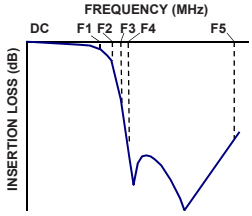
| Maximum Ratings | |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 0.5 W max. |

Permanent damage may occur if any of these limits are exceeded.

### Functional Schematic



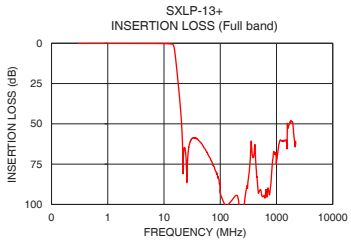

### Typical Frequency Response

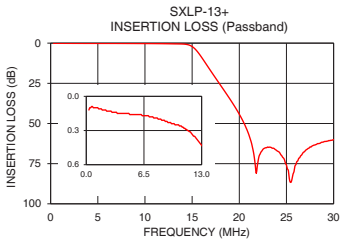


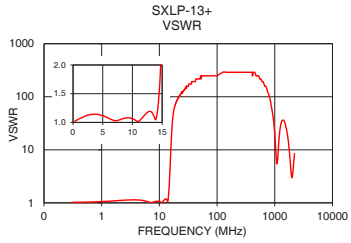

### Typical Performance Data at 25°C

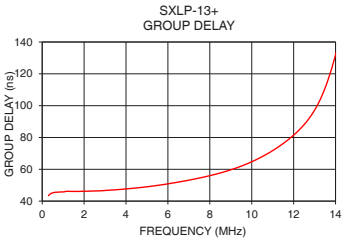
| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|---|---|---|---|---|
| 0.3 | 0.12 | 1.02 | 0.3 | 43.42 |
| 1.0 | 0.10 | 1.06 | 0.5 | 45.16 |
| 8.0 | 0.19 | 1.04 | 1.0 | 45.77 |
| 13.0 | 0.43 | 1.19 | 2.0 | 46.18 |
| 14.5 | 0.89 | 1.50 | 3.0 | 46.69 |
| 15.0 | 2.11 | 2.77 | 4.0 | 47.67 |
| 15.1 | 2.53 | 3.21 | 5.0 | 48.98 |
| 15.2 | 3.02 | 3.76 | 6.0 | 50.84 |
| 16.0 | 8.79 | 13.49 | 7.0 | 53.17 |
| 17.3 | 20.12 | 45.72 | 8.0 | 55.97 |
| 18.0 | 26.10 | 59.91 | 8.5 | 57.68 |
| 18.5 | 30.37 | 66.82 | 9.0 | 59.68 |
| 20.0 | 44.23 | 82.73 | 9.5 | 61.98 |
| 100.0 | 93.13 | 248.17 | 10.0 | 64.72 |
| 500.0 | 91.46 | 248.17 | 10.5 | 67.95 |
| 1000.0 | 73.03 | 19.54 | 11.0 | 71.76 |
| 1500.0 | 60.11 | 32.18 | 11.5 | 76.20 |
| 2000.0 | 54.06 | 3.02 | 12.0 | 81.46 |
| 2100.0 | 61.22 | 4.88 | 12.5 | 88.07 |
| 2200.0 | 62.60 | 8.51 | 13.0 | 97.19 |

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



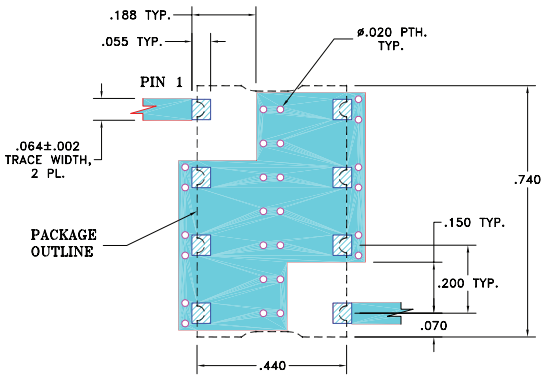




Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

## Pad Connections

| | |
|---|---|
| INPUT | 1 |
| OUTPUT | 8 |
| GROUND | 2,3,4,5,6,7 |

***Demo Board MCL P/N: TB-368+***
***Suggested PCB Layout (PL-230)***



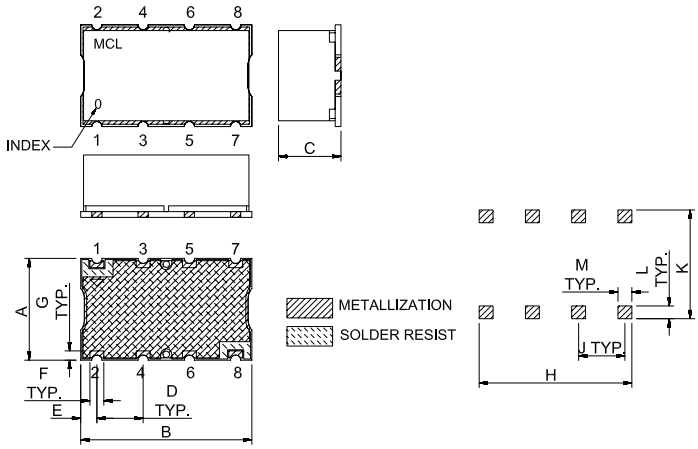

NOTE:

1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS: .025"±.002". 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 SOLDER MASK

## Outline Drawing




## Outline Dimensions ( inch / mm )

| A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| .44 | .74 | .27 | .200 | .07 | .060 | .040 |
| 11.18 | 18.80 | 6.86 | 5.08 | 1.78 | 1.52 | 1.02 |
| H | J | K | L | M | | wt |
| .660 | .200 | .470 | .055 | .060 | | grams |
| 16.76 | 5.08 | 11.94 | 1.40 | 1.52 | | 3.0 |

*Note: Please refer to case style drawing for details*