

# Low Pass Filter

# SCLF-190+

50Ω DC to 190 MHz

### Maximum Ratings

Operating Temperature -40°C to 85°C

|                     |                |
|---------------------|----------------|
| Storage Temperature | -55°C to 100°C |
|---------------------|----------------|

|             |           |
|-------------|-----------|
| Power Input | 0.5W max. |
|-------------|-----------|

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

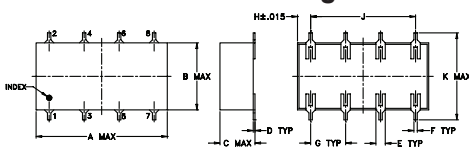
## Pin Connections

|       |   |
|-------|---|
| INPUT | 1 |
|-------|---|

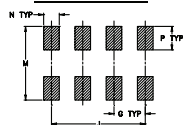
OUTPUT 8

|        |             |
|--------|-------------|
| GROUND | 2.3.4.5.6.7 |
|--------|-------------|

## Outline Drawing



## PCB Land Pattern



Suggested Layout,  
Tolerance to be within  $\pm 002$

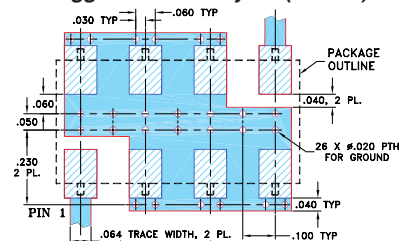
### Outline Dimensions (inch)

| A     | B    | C    | D    | E    | F    | G    |
|-------|------|------|------|------|------|------|
| 0.75  | 0.38 | 0.28 | 0.01 | 0.05 | 0.02 | 0.2  |
| 19.05 | 9.65 | 7.11 | 0.25 | 1.27 | 0.51 | 5.08 |

| H     | J     | K     | M     | N    | P    | wt    |
|-------|-------|-------|-------|------|------|-------|
| 0.075 | 0.6   | 0.45  | 0.47  | 0.1  | 0.15 | grams |
| 1.91  | 15.24 | 11.43 | 11.94 | 2.54 | 3.81 | 1.60  |

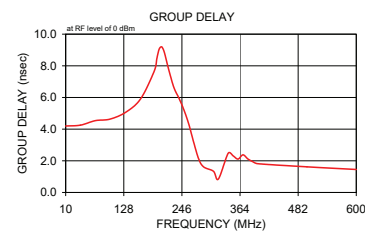
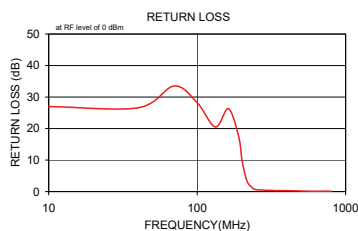
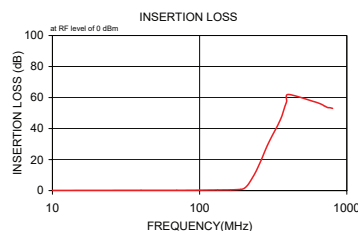
**Demo Board MCL P/N: TB-187+**

***Suggested PCB Layout (PL-049)***



**NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030"  $\pm$  .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



## 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/MC\\_Store/terms](http://www.minicircuits.com/MC_Store/terms).

## Features

- wide selection of cut-off frequencies
- excellent rejection
- custom models available

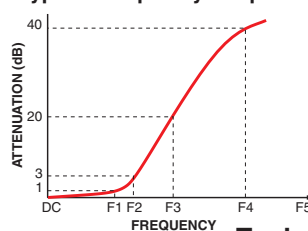
## Applications

- defense communications
- receivers/transmitters
- harmonic rejection of VCOs

## Electrical Specifications

| Parameter | F#             | Frequency (MHz) | Min.    | Typ. | Max. | Unit |    |
|-----------|----------------|-----------------|---------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1           | DC-190  | —    | —    | 1.0  | dB |
|           | Freq. Cut-Off  | F2              | 210     | —    | 3.0  | —    | dB |
|           | VSWR           | DC-F1           | DC-190  | —    | 1.7  | —    | :1 |
| Stop Band | Rejection Loss | F3-F4           | 290-390 | 20   | —    | —    | dB |
|           |                | F4-F5           | 390-800 | 40   | —    | —    | dB |
|           | VSWR           | F3-F5           | 290-800 | —    | 18   | —    | :1 |

### Typical Frequency Response



### Electrical Schematic



### Typical Performance Data

| Typical Characteristic Data |                        |          |                     |                    |                       |
|-----------------------------|------------------------|----------|---------------------|--------------------|-----------------------|
| Frequency<br>(MHz)          | Insertion Loss<br>(dB) |          | Return Loss<br>(dB) | Frequency<br>(MHz) | Group Delay<br>(nsec) |
|                             | $\bar{x}$              | $\sigma$ |                     |                    |                       |
| 10.00                       | 0.12                   | 0.10     | 27.00               | 10.00              | 4.20                  |
| 40.00                       | 0.19                   | 0.10     | 26.60               | 40.00              | 4.25                  |
| 70.00                       | 0.21                   | 0.10     | 33.50               | 70.00              | 4.54                  |
| 100.00                      | 0.27                   | 0.10     | 28.20               | 100.00             | 4.63                  |
| 132.50                      | 0.41                   | 0.10     | 20.50               | 132.50             | 5.08                  |
| 162.50                      | 0.49                   | 0.10     | 26.30               | 162.50             | 5.93                  |
| 190.00                      | 0.77                   | 0.10     | 17.60               | 190.00             | 7.69                  |
| 200.00                      | 1.38                   | 0.10     | 10.40               | 195.00             | 8.44                  |
| 210.00                      | 3.05                   | 0.10     | 5.40                | 200.00             | 9.07                  |
| 220.00                      | 5.72                   | 0.10     | 2.70                | 205.00             | 9.20                  |
| 240.00                      | 11.88                  | 0.10     | 0.90                | 210.00             | 8.88                  |
| 260.00                      | 18.95                  | 0.30     | 0.50                | 220.00             | 7.66                  |
| 270.00                      | 22.68                  | 0.40     | 0.50                | 230.00             | 6.61                  |
| 280.00                      | 26.25                  | 0.50     | 0.50                | 240.00             | 5.96                  |
| 290.00                      | 29.54                  | 0.60     | 0.40                | 250.00             | 5.22                  |
| 310.00                      | 35.11                  | 0.80     | 0.40                | 260.00             | 4.32                  |
| 340.00                      | 42.33                  | 1.20     | 0.30                | 270.00             | 3.16                  |
| 360.00                      | 47.49                  | 1.60     | 0.30                | 280.00             | 2.12                  |
| 370.00                      | 50.87                  | 2.40     | 0.30                | 290.00             | 1.62                  |
| 380.00                      | 54.42                  | 3.60     | 0.30                | 310.00             | 1.34                  |
| 390.00                      | 57.49                  | 3.20     | 0.30                | 320.00             | 0.85                  |
| 400.00                      | 62.02                  | 5.20     | 0.30                | 340.00             | 2.48                  |
| 600.00                      | 57.37                  | 2.30     | 0.10                | 350.00             | 2.31                  |
| 647.50                      | 56.32                  | 1.40     | 0.10                | 360.00             | 2.11                  |
| 687.50                      | 55.21                  | 1.80     | 0.10                | 370.00             | 2.38                  |
| 702.50                      | 54.51                  | 0.90     | 0.10                | 380.00             | 2.11                  |
| 710.00                      | 54.45                  | 1.30     | 0.10                | 390.00             | 1.94                  |
| 740.00                      | 53.58                  | 1.30     | 0.10                | 400.00             | 1.82                  |
| 770.00                      | 53.44                  | 1.40     | 0.10                | 500.00             | 1.62                  |
| 800.00                      | 53.04                  | 1.10     | 0.10                | 600.00             | 1.45                  |