

# Surface Mount Low Pass Filter

## SCLF-30+

50Ω DC to 30 MHz

### Maximum Ratings

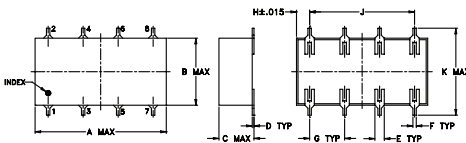
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| Power Input           | 0.5W max.      |

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

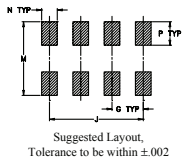
### Pin Connections

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

### Outline Drawing



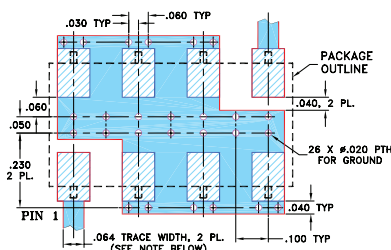
### PCB Land Pattern



### 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" ± .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

### Features

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

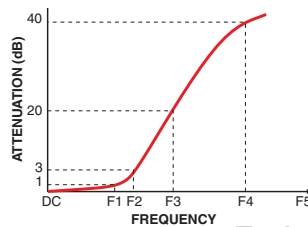
### Applications

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

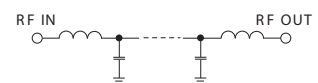
### Electrical Specifications

| Parameter | F#             | Frequency (MHz) | Min.   | Typ. | Max. | Unit |    |
|-----------|----------------|-----------------|--------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1           | DC-30  | —    | —    | 1.0  | dB |
|           | Freq. Cut-Off  | F2              | 35     | —    | 3.0  | —    | dB |
|           | VSWR           | DC-F1           | DC-30  | —    | 1.7  | —    | :1 |
| Stop Band | Rejection Loss | F3-F4           | 47-61  | 20   | —    | —    | dB |
|           |                | F4-F5           | 61-200 | 40   | —    | —    | dB |
|           | VSWR           | F3-F5           | 47-200 | —    | 18   | —    | :1 |

### Typical Frequency Response

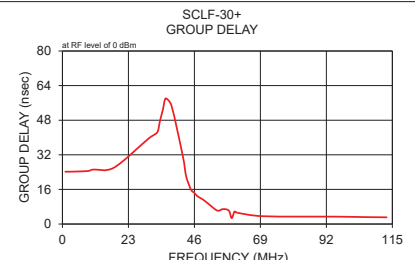
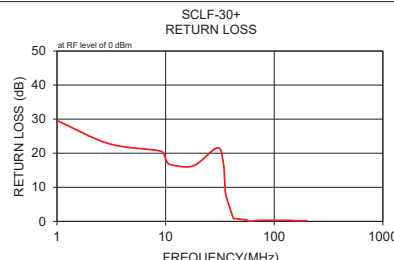
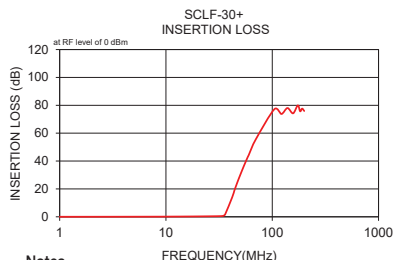


### Electrical Schematic



### Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|------------------|-----------------|--------------------|
|                 | $\bar{x}$           | $\sigma$         |                 |                    |
| 1.00            | 0.04                | 0.10             | 1.00            | 24.20              |
| 3.00            | 0.07                | 0.10             | 3.00            | 24.20              |
| 9.00            | 0.13                | 0.10             | 9.00            | 24.50              |
| 10.00           | 0.15                | 0.10             | 10.00           | 25.00              |
| 11.00           | 0.17                | 0.10             | 11.00           | 25.20              |
| 18.00           | 0.27                | 0.10             | 18.00           | 26.10              |
| 30.00           | 0.45                | 0.10             | 30.00           | 39.50              |
| 34.00           | 0.59                | 0.10             | 33.00           | 42.30              |
| 35.00           | 0.90                | 0.20             | 34.00           | 47.70              |
| 36.00           | 1.64                | 0.50             | 35.00           | 52.80              |
| 42.00           | 14.01               | 1.80             | 36.00           | 58.10              |
| 44.00           | 18.75               | 1.70             | 38.00           | 54.80              |
| 45.00           | 20.87               | 1.70             | 42.00           | 31.20              |
| 46.00           | 22.85               | 1.60             | 43.00           | 22.80              |
| 47.00           | 24.78               | 1.60             | 44.00           | 18.50              |
| 49.00           | 28.37               | 1.50             | 45.00           | 15.50              |
| 54.00           | 36.33               | 1.40             | 46.00           | 14.40              |
| 58.00           | 41.83               | 1.10             | 47.00           | 12.90              |
| 59.00           | 43.10               | 1.10             | 49.00           | 11.30              |
| 60.00           | 44.18               | 1.10             | 51.00           | 9.20               |
| 61.00           | 45.51               | 0.90             | 54.00           | 6.20               |
| 70.00           | 55.55               | 1.50             | 56.00           | 6.90               |
| 105.00          | 77.30               | 9.90             | 58.00           | 6.20               |
| 122.00          | 73.76               | 4.40             | 59.00           | 2.70               |
| 139.00          | 78.03               | 9.10             | 60.00           | 5.80               |
| 157.00          | 74.23               | 4.80             | 61.00           | 5.20               |
| 174.00          | 79.94               | 4.80             | 70.00           | 3.60               |
| 183.00          | 75.66               | 3.00             | 96.00           | 3.40               |
| 191.00          | 77.64               | 7.00             | 105.00          | 3.20               |
| 200.00          | 75.91               | 6.00             | 113.00          | 3.10               |



### Notes

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