

# Surface Mount Low Pass Filter

50Ω DC to 11 MHz

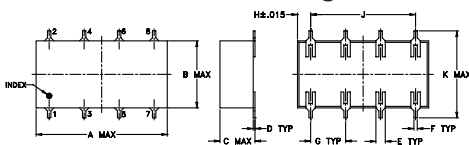
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| 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. |                |

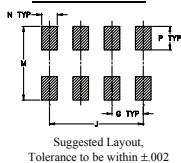
## Pin Connections

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

## Outline Drawing



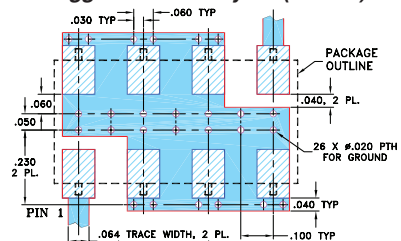
### PCB Land Pattern



## 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

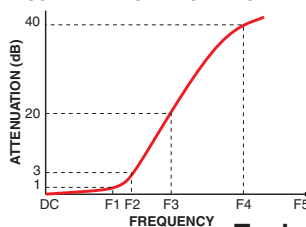
## Applications

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

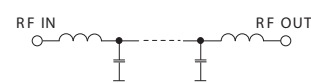
## Electrical Specifications

| Parameter | F#             | Frequency (MHz) | Min.   | Typ. | Max. | Unit |    |
|-----------|----------------|-----------------|--------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1           | DC-11  | —    | —    | 1.0  | dB |
|           | Freq. Cut-Off  | F2              | 14     | —    | 3.0  | —    | dB |
|           | VSWR           | DC-F1           | DC-11  | —    | 1.7  | —    | :1 |
| Stop Band | Rejection Loss | F3-F4           | 19-24  | 20   | —    | —    | dB |
|           |                | F4-F5           | 24-200 | 40   | —    | —    | dB |
|           | VSWR           | F3-F5           | 19-200 | —    | 18   | —    | :1 |

## Typical Frequency Response



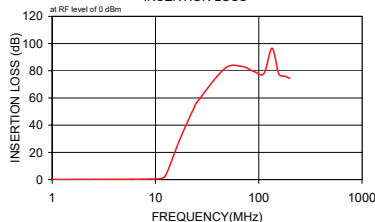
## Electrical Schematic



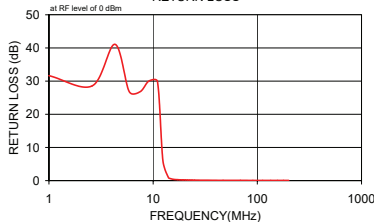
## Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|------------------|-----------------|--------------------|
|                 | $\bar{x}$           | $\sigma$         |                 |                    |
| 1.00            | 0.08                | 0.00             | 1.00            | 48.1               |
| 2.60            | 0.13                | 0.00             | 1.75            | 47.7               |
| 4.30            | 0.18                | 0.00             | 2.50            | 48.6               |
| 5.90            | 0.24                | 0.01             | 3.25            | 48.3               |
| 7.50            | 0.31                | 0.01             | 4.00            | 49.2               |
| 9.10            | 0.40                | 0.01             | 4.75            | 49.7               |
| 11.00           | 0.64                | 0.02             | 5.50            | 50.0               |
| 12.40           | 2.53                | 0.24             | 6.25            | 51.0               |
| 14.00           | 11.64               | 0.45             | 7.00            | 50.9               |
| 14.50           | 14.82               | 0.45             | 7.75            | 51.9               |
| 15.40           | 20.14               | 0.43             | 8.50            | 53.3               |
| 16.30           | 24.95               | 0.40             | 9.25            | 54.8               |
| 17.20           | 29.31               | 0.39             | 10.00           | 55.2               |
| 18.10           | 33.33               | 0.38             | 11.00           | 57.7               |
| 19.00           | 37.05               | 0.37             | 11.50           | 59.2               |
| 19.50           | 38.99               | 0.38             | 12.25           | 61.6               |
| 20.40           | 42.29               | 0.36             | 13.00           | 65.0               |
| 21.30           | 45.46               | 0.36             | 14.00           | 69.8               |
| 22.20           | 48.48               | 0.40             | 14.50           | 74.0               |
| 23.10           | 51.09               | 0.34             | 15.25           | 81.9               |
| 24.00           | 53.92               | 0.49             | 16.00           | 91.7               |
| 25.00           | 56.48               | 0.64             | 16.75           | 102.3              |
| 46.90           | 81.67               | 4.73             | 17.50           | 104.5              |
| 68.80           | 83.17               | 5.36             | 18.25           | 94.9               |
| 90.60           | 79.31               | 1.74             | 19.00           | 77.8               |
| 112.50          | 78.10               | 2.32             | 19.75           | 62.5               |
| 134.40          | 96.52               | 45.46            | 20.25           | 53.5               |
| 156.30          | 77.69               | 2.10             | 21.00           | 43.4               |
| 178.10          | 76.01               | 0.73             | 21.50           | 38.2               |
| 200.00          | 74.48               | 2.60             | 22.25           | 31.8               |

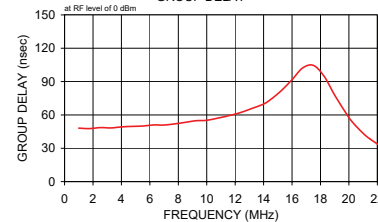
SCLF-10.7  
INSERTION LOSS



SCLF-10.7  
RETURN LOSS



SCLF-10.7  
GROUP DELAY



## Notes

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