Coaxial

# Low Pass Filter

## SLP-15+

50Ω DC to 15 MHz

Generic photo used for illustration purposes only

CASE STYLE: FF99

| Connectors | Model |
|---|---|
| SMA | SLP-15+ |

### Maximum Ratings

| | |
|---|---|
| Operating Temperature | -55°C to +100°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.

### Features

- Good Attenuation Rate, 1.35 Typ. 20 dB / 3 dB BW Ratio
- Rugged Shielded Case
- Other SLP Models Available with Wide Selection of Cut-Off Frequencies

### Applications

- Lab Use
- Test Equipment
- Video Equipment

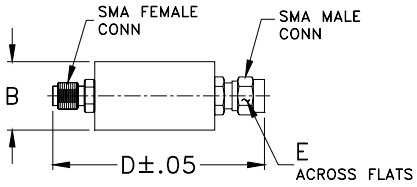
***+RoHS Compliant***

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

### Low Pass Filter Electrical Specifications

| PASSBAND (MHz) (loss < 1 dB) | fco (MHz) Nom. (loss 3 dB) | STOPBAND (MHz) (loss > 20 dB) | STOPBAND (MHz) (loss > 40 dB) | VSWR (:1) Passband Typ. | VSWR (:1) Stopband Typ. |
|---|---|---|---|---|---|
| DC-15 | 17 | 23-32 | 32-200 | 1.7 | 18 |

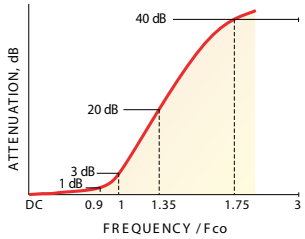
### Outline Drawing



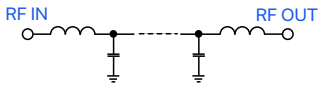

### Outline Dimensions (inch/mm)

| B | D | E | WT GRAMS |
|---|---|---|---|
| .70 | 1.98 | .312 | 42.0 |
| (17.78) | (50.29) | (7.92) | |

typical frequency response

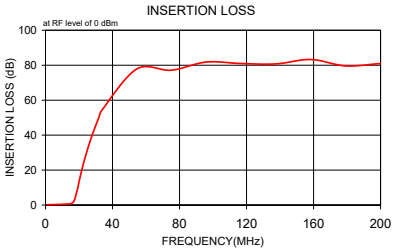


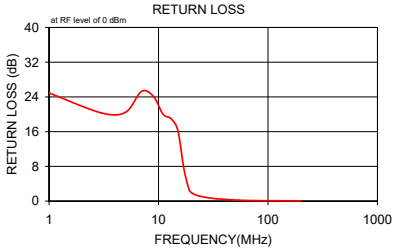

electrical schematic

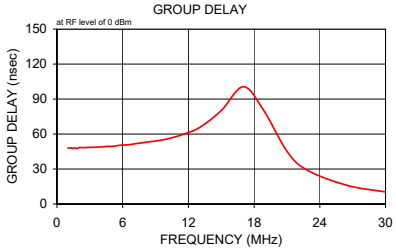



### Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) x̄ | Insertion Loss (dB) σ | Return Loss (dB) | Frequency (MHz) | Group Delay (nsec) |
|---|---|---|---|---|---|
| 1.00 | 0.21 | 0.04 | 24.91 | 1.00 | 48.07 |
| 3.00 | 0.26 | 0.04 | 20.32 | 1.10 | 47.91 |
| 5.00 | 0.30 | 0.04 | 20.46 | 1.30 | 48.21 |
| 7.00 | 0.33 | 0.05 | 25.27 | 1.40 | 47.67 |
| 9.00 | 0.38 | 0.05 | 24.09 | 1.60 | 48.07 |
| 11.00 | 0.47 | 0.07 | 20.00 | 1.80 | 47.68 |
| 13.00 | 0.58 | 0.07 | 19.00 | 2.00 | 48.30 |
| 15.00 | 0.81 | 0.06 | 16.36 | 2.30 | 48.44 |
| 17.00 | 2.32 | 0.37 | 7.61 | 2.50 | 48.37 |
| 19.00 | 8.82 | 0.63 | 2.63 | 2.90 | 48.63 |
| 19.80 | 12.25 | 0.57 | 2.04 | 3.20 | 48.63 |
| 20.60 | 15.66 | 0.53 | 1.72 | 3.60 | 48.80 |
| 21.40 | 18.93 | 0.50 | 1.51 | 4.00 | 48.88 |
| 22.20 | 22.02 | 0.48 | 1.36 | 4.60 | 49.48 |
| 23.00 | 24.94 | 0.48 | 1.25 | 5.10 | 49.49 |
| 23.80 | 27.72 | 0.47 | 1.15 | 5.80 | 50.43 |
| 25.40 | 32.87 | 0.50 | 0.99 | 6.50 | 50.77 |
| 27.10 | 37.90 | 0.60 | 0.86 | 7.30 | 51.87 |
| 28.70 | 42.24 | 0.70 | 0.76 | 8.20 | 53.05 |
| 30.40 | 46.55 | 0.86 | 0.67 | 9.30 | 54.47 |
| 32.00 | 50.45 | 1.02 | 0.60 | 10.40 | 56.61 |
| 33.60 | 54.18 | 1.48 | 0.55 | 11.70 | 60.33 |
| 54.40 | 77.82 | 6.04 | 0.22 | 13.10 | 66.08 |
| 75.20 | 77.17 | 4.69 | 0.12 | 15.00 | 80.27 |
| 96.00 | 81.80 | 4.39 | 0.09 | 17.00 | 100.53 |
| 116.80 | 80.95 | 4.80 | 0.08 | 18.80 | 81.42 |
| 137.60 | 80.75 | 3.87 | 0.07 | 21.10 | 43.84 |
| 158.40 | 83.26 | 4.95 | 0.07 | 23.00 | 28.31 |
| 179.20 | 79.58 | 3.64 | 0.06 | 26.60 | 15.72 |
| 200.00 | 80.96 | 5.21 | 0.06 | 30.00 | 10.37 |




**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

# Coaxial Low Pass Filter SLP-15+

## *Typical Performance Data*

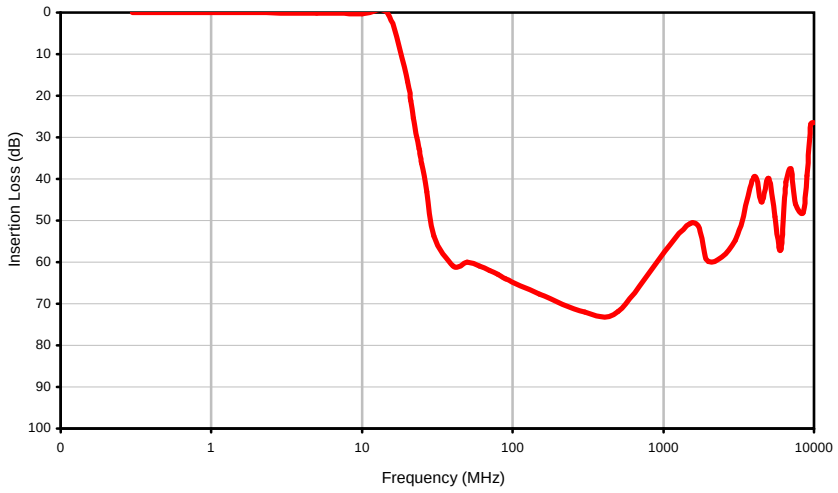
| FREQUENCY (MHz) | INSERTION LOSS (dB) | RETURN LOSS (dB) |
|---|---|---|
| 0.30 | 0.05 | 36.33 |
| 1.00 | 0.07 | 26.83 |
| 5.00 | 0.14 | 22.22 |
| 10.00 | 0.31 | 16.53 |
| 15.00 | 0.52 | 18.51 |
| 20.00 | 16.66 | 0.44 |
| 21.00 | 21.17 | 0.31 |
| 22.00 | 25.32 | 0.25 |
| 24.00 | 32.83 | 0.18 |
| 25.00 | 36.32 | 0.17 |
| 27.00 | 43.03 | 0.15 |
| 30.00 | 53.65 | 0.12 |
| 40.00 | 60.98 | 0.09 |
| 50.00 | 60.02 | 0.08 |
| 60.00 | 60.91 | 0.07 |
| 70.00 | 61.99 | 0.07 |
| 80.00 | 62.99 | 0.07 |
| 90.00 | 63.94 | 0.08 |
| 150.00 | 67.69 | 0.08 |
| 300.00 | 72.04 | 0.08 |
| 500.00 | 71.82 | 0.08 |
| 1500.00 | 50.84 | 0.83 |
| 2000.00 | 59.88 | 1.81 |
| 3000.00 | 54.76 | 0.74 |
| 4000.00 | 39.55 | 4.64 |
| 4500.00 | 45.57 | 2.63 |
| 5000.00 | 39.87 | 2.17 |
| 5500.00 | 49.09 | 3.06 |
| 6000.00 | 57.03 | 4.96 |
| 6500.00 | 40.81 | 4.35 |
| 7000.00 | 37.60 | 1.81 |
| 7500.00 | 46.02 | 1.43 |
| 8500.00 | 48.23 | 2.60 |
| 9000.00 | 39.27 | 2.27 |
| 9500.00 | 26.74 | 2.46 |
| 10000.00 | 26.41 | 2.52 |

| FREQUENCY (MHz) | GROUP DELAY (nsec) |
|---|---|
| 0.30 | 52.410 |
| 1.00 | 52.030 |
| 5.00 | 53.290 |
| 10.00 | 60.070 |
| 15.00 | 85.120 |
| 20.00 | 54.210 |
| 21.00 | 39.360 |
| 22.00 | 30.210 |
| 24.00 | 19.920 |
| 25.00 | 16.880 |
| 27.00 | 12.400 |
| 30.00 | 7.800 |
| 40.00 | 6.900 |
| 50.00 | 2.050 |
| 60.00 | 1.770 |
| 70.00 | 1.450 |
| 80.00 | 0.290 |
| 90.00 | 0.510 |
| 150.00 | 1.650 |
| 300.00 | 1.470 |
| 500.00 | 4.150 |
| 1500.00 | 0.730 |
| 2000.00 | 0.180 |
| 3000.00 | 0.320 |
| 4000.00 | 0.720 |
| 4500.00 | 0.290 |
| 5000.00 | 1.150 |
| 5500.00 | 0.610 |
| 6000.00 | 1.630 |
| 6500.00 | 0.500 |
| 7000.00 | 0.690 |
| 7500.00 | 0.110 |
| 8500.00 | 0.120 |
| 9000.00 | 0.200 |
| 9500.00 | 0.580 |
| 10000.00 | 0.370 |

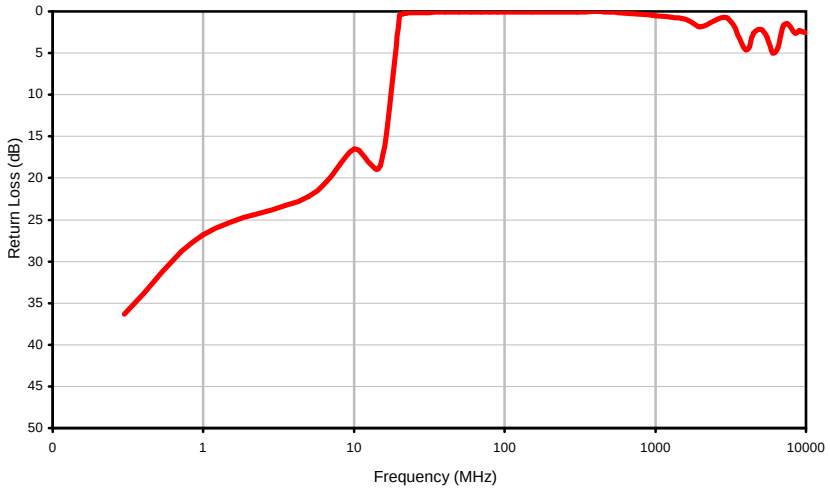
# Coaxial Low Pass Filter SLP-15+

## *Typical Performance Curves*

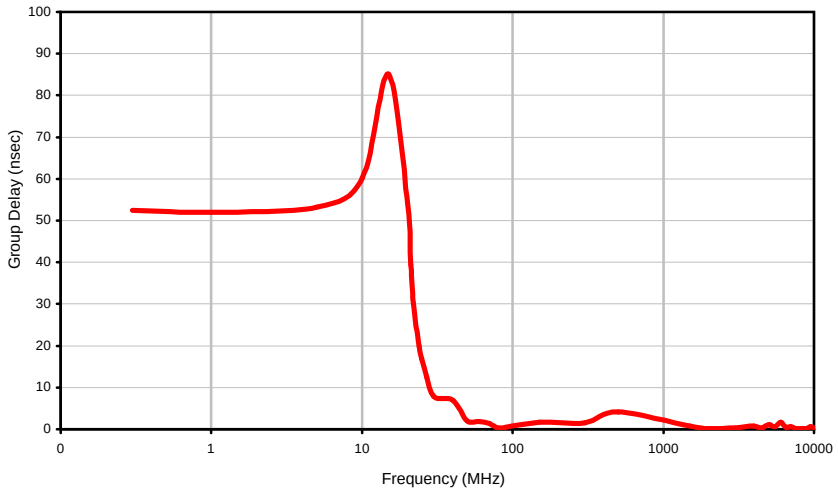
**Insertion Loss**




**Return Loss**

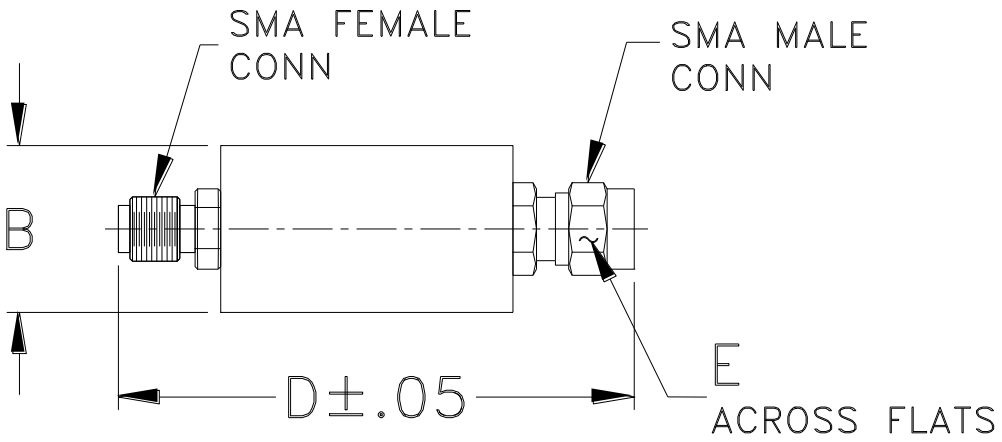



**Group Delay**



**FF56**
**FF99**

## Outline Dimensions




| CASE #. | A | B | C | D | E | WT GRAMS |
|---|---|---|---|---|---|---|
| FF56 | -- | .46 (11.68) | -- | 1.70 (43.18) | .312 (7.92) | 18.0 |
| FF99 | -- | .70 (17.78) | -- | 1.98 (50.29) | | 42.0 |

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

**Notes:**
1. Case material: Brass.
2. Case finish: Nickel plate.

Mini-Circuits

# Environmental Specifications ENV28

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|---|---|---|
| Operating Temperature | -55° to 100°C<br>Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | 90% RH, 65°C<br>Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103 |
| Thermal Shock | -65° to 125°C, 5 cycles | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18) | MIL-STD-202, Method 213, Condition I |