

# High Pass Filter

PHP-300+

50Ω 290 to 1200 MHz

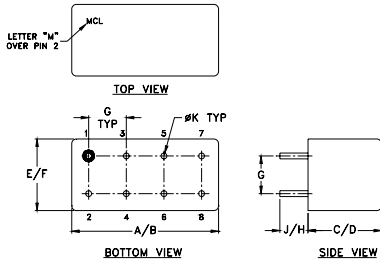
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -55°C to 100°C |
| Storage Temperature                                             | -55°C to 100°C |
| RF Power Input                                                  | 0.5W max.      |
| Permanent damage may occur if any of these limits are exceeded. |                |

## Pin Connections

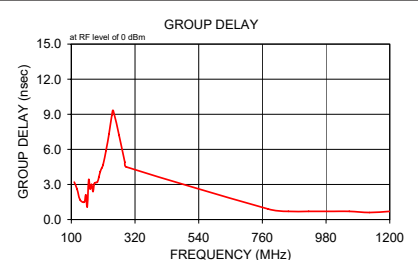
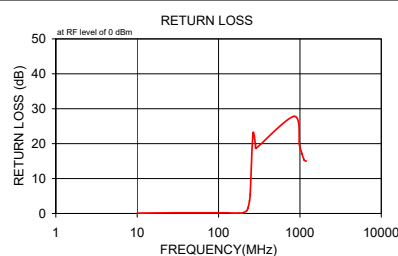
|             |             |
|-------------|-------------|
| INPUT       | 1           |
| OUTPUT      | 8           |
| GROUND      | 2,3,4,5,6,7 |
| CASE GROUND | 2,3,4,5,6,7 |

## Outline Drawing



## Outline Dimensions (inch/mm)

| A     | B     | C    | D     | E    | F     |
|-------|-------|------|-------|------|-------|
| .770  | .800  | .385 | .400  | .370 | .400  |
| 19.56 | 20.32 | 9.78 | 10.16 | 9.40 | 10.16 |
| G     | H     | J    | K     | wt   |       |
| .200  | .20   | .14  | .031  |      |       |
| 5.08  | 5.08  | 3.56 | 0.79  |      | 5.2   |
|       |       |      |       |      | grams |



## Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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## Features

- rugged shielded case, hermetically sealed
- other standard and custom PHP models available with wide selection of fco

## Applications

- lab use
- transmitters/receivers
- military/hi-rel application



Generic photo used for illustration purposes only

CASE STYLE: A01

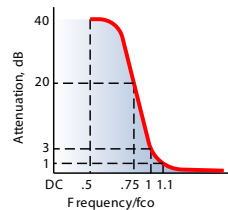
+RoHS Compliant

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

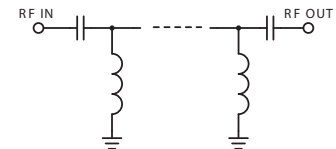
## High Pass Filter Electrical Specifications

| STOPBAND (MHz) | fco (MHz) Nom. | PASSBAND (MHz)  | VSWR (:1)                   |
|----------------|----------------|-----------------|-----------------------------|
| (loss > 40 dB) | (loss 3 dB)    | (loss < 1.5 dB) | Stopband Typ. Passband Typ. |
| DC-145         | 145-190        | 245             | 17 1.7                      |

## typical frequency response



## electrical schematic



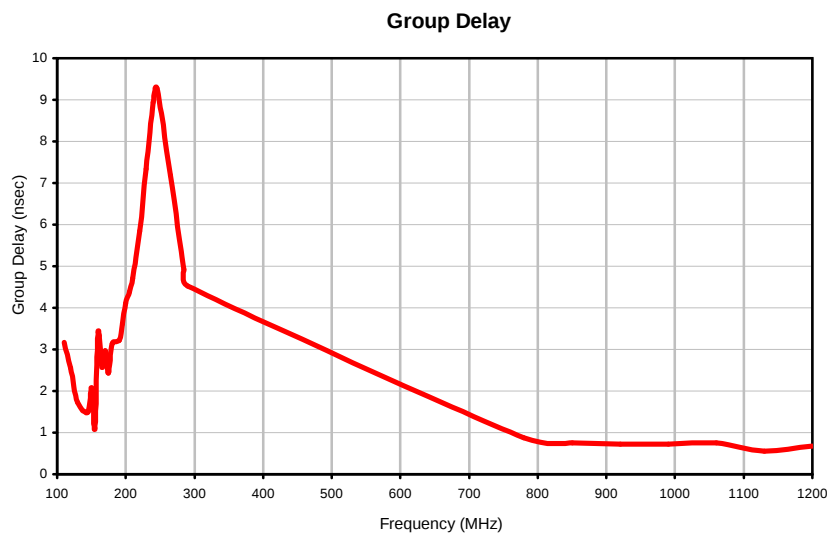
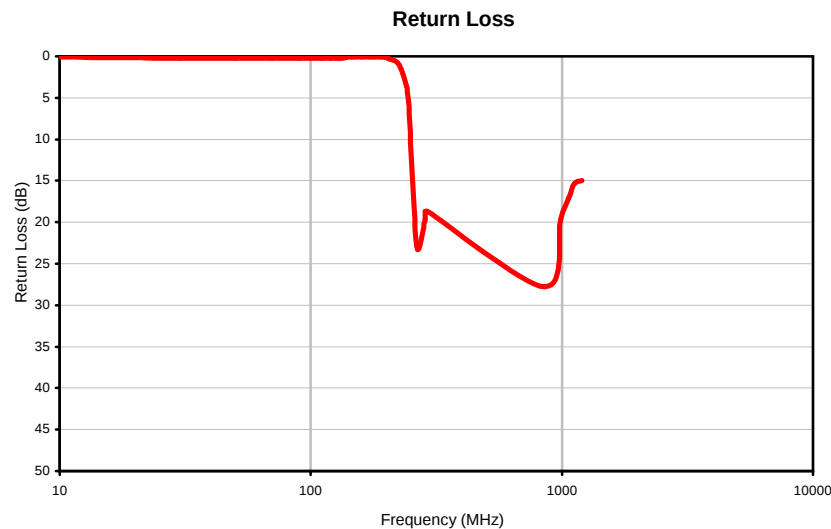
## Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|------------------|-----------------|--------------------|
| $\bar{x}$       | $\sigma$            |                  |                 |                    |
| 10.0            | 74.21               | 2.4              | 110.0           | 3.17               |
| 30.0            | 74.57               | 4.0              | 120.0           | 2.56               |
| 50.0            | 75.03               | 6.1              | 130.0           | 1.73               |
| 70.0            | 75.11               | 1.9              | 145.0           | 1.50               |
| 90.0            | 77.67               | 5.6              | 150.0           | 2.07               |
| 100.0           | 71.90               | 4.0              | 155.0           | 1.11               |
| 110.0           | 64.71               | 1.1              | 160.0           | 3.42               |
| 120.0           | 61.50               | 1.0              | 165.0           | 2.57               |
| 130.0           | 54.50               | 0.9              | 170.0           | 2.97               |
| 145.0           | 47.14               | 0.4              | 175.0           | 2.43               |
| 150.0           | 44.66               | 0.4              | 180.0           | 3.14               |
| 160.0           | 39.74               | 0.4              | 190.0           | 3.21               |
| 170.0           | 34.99               | 0.4              | 195.0           | 3.62               |
| 175.0           | 32.61               | 0.4              | 200.0           | 4.11               |
| 180.0           | 30.36               | 0.4              | 205.0           | 4.38               |
| 190.0           | 25.67               | 0.4              | 210.0           | 4.71               |
| 195.0           | 23.38               | 0.4              | 220.0           | 5.85               |
| 205.0           | 18.79               | 0.4              | 230.0           | 7.34               |
| 220.0           | 11.96               | 0.4              | 240.0           | 8.94               |
| 230.0           | 7.65                | 0.3              | 245.0           | 9.28               |
| 240.0           | 4.02                | 0.3              | 265.0           | 7.19               |
| 245.0           | 2.69                | 0.2              | 285.0           | 4.93               |
| 265.0           | 0.66                | 0.1              | 290.0           | 4.53               |
| 285.0           | 0.52                | 0.1              | 780.0           | 0.87               |
| 290.0           | 0.52                | 0.1              | 850.0           | 0.75               |
| 850.0           | 0.28                | 0.1              | 920.0           | 0.72               |
| 990.0           | 0.33                | 0.1              | 990.0           | 0.72               |
| 1060.0          | 0.38                | 0.1              | 1060.0          | 0.75               |
| 1130.0          | 0.42                | 0.1              | 1130.0          | 0.56               |
| 1200.0          | 0.47                | 0.1              | 1200.0          | 0.68               |

## Typical Performance Data

| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | RETURN<br>LOSS<br>(dB) | FREQUENCY<br>(MHz) | GROUP<br>DELAY<br>(nsec) |
|--------------------|---------------------------|------------------------|--------------------|--------------------------|
| 10.0               | 74.21                     | 0.10                   | 110.0              | 3.170                    |
| 30.0               | 74.57                     | 0.20                   | 120.0              | 2.560                    |
| 50.0               | 75.03                     | 0.20                   | 130.0              | 1.730                    |
| 70.0               | 75.11                     | 0.20                   | 145.0              | 1.500                    |
| 90.0               | 77.67                     | 0.20                   | 150.0              | 2.070                    |
| 100.0              | 71.90                     | 0.20                   | 155.0              | 1.110                    |
| 110.0              | 64.71                     | 0.20                   | 160.0              | 3.420                    |
| 120.0              | 61.50                     | 0.20                   | 165.0              | 2.570                    |
| 130.0              | 54.50                     | 0.20                   | 170.0              | 2.970                    |
| 145.0              | 47.14                     | 0.10                   | 175.0              | 2.430                    |
| 150.0              | 44.66                     | 0.10                   | 180.0              | 3.140                    |
| 160.0              | 39.74                     | 0.10                   | 190.0              | 3.210                    |
| 170.0              | 34.99                     | 0.10                   | 195.0              | 3.620                    |
| 175.0              | 32.61                     | 0.10                   | 200.0              | 4.110                    |
| 180.0              | 30.36                     | 0.10                   | 205.0              | 4.380                    |
| 190.0              | 25.67                     | 0.10                   | 210.0              | 4.710                    |
| 195.0              | 23.38                     | 0.10                   | 220.0              | 5.850                    |
| 205.0              | 18.79                     | 0.30                   | 230.0              | 7.340                    |
| 220.0              | 11.96                     | 0.70                   | 240.0              | 8.940                    |
| 230.0              | 7.65                      | 1.60                   | 245.0              | 9.280                    |
| 240.0              | 4.02                      | 3.60                   | 265.0              | 7.190                    |
| 245.0              | 2.69                      | 5.40                   | 285.0              | 4.930                    |
| 265.0              | 0.66                      | 22.90                  | 290.0              | 4.530                    |
| 285.0              | 0.52                      | 19.60                  | 780.0              | 0.870                    |
| 290.0              | 0.52                      | 18.70                  | 850.0              | 0.750                    |
| 850.0              | 0.28                      | 27.80                  | 920.0              | 0.720                    |
| 990.0              | 0.33                      | 19.60                  | 990.0              | 0.720                    |
| 1060.0             | 0.38                      | 17.10                  | 1060.0             | 0.750                    |
| 1130.0             | 0.42                      | 15.30                  | 1130.0             | 0.560                    |
| 1200.0             | 0.47                      | 15.00                  | 1200.0             | 0.680                    |

## Typical Performance Curves



REV. X1  
 PHP-300+  
 060725  
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A01  
A04  
A05  
A06

## Outline Dimensions



| CASE# | A               | B               | C              | D               | E              | F               | G              | H             | J             | K             | WT,<br>GRAM |
|-------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|---------------|---------------|---------------|-------------|
| A01   | .770<br>(19.56) | .800<br>(20.32) | .385<br>(9.78) | .400<br>(10.16) | .370<br>(9.40) | .400<br>(10.16) | .200<br>(5.08) | .20<br>(5.08) | .14<br>(3.56) | .031<br>(.79) | 5.2         |
| A04   |                 |                 | .200<br>(5.08) | .210<br>(5.33)  |                |                 |                |               |               |               | 3.7         |
| A05   |                 |                 | .240<br>(6.10) | .250<br>(6.35)  |                |                 |                |               |               |               | 3.7         |
| A06   |                 |                 | .285<br>(7.24) | .310<br>(7.87)  |                |                 |                |               |               |               | 5.2         |

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm .03$ ; 3 Pl.  $\pm .015$

### Notes:

- Header material: C.R.S.  
Pin material: #52 alloy.  
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Insulated spacer available. Request P/N B14-045-01.
- Tolerance on pin diameter  $\pm .005$  inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.



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| 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                                                                          |
| Thermal Shock                  | -55° to 100°C, 100 cycles                                                                                                                                       | MIL-STD-202, Method 107, Condition A-3, except +100°C                                                |
| 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               | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes                                                                                               | MIL-STD-202, Method 213, Condition A                                                                 |
| Moisture Resistance            | 10 cycles, 24 hours per cycle                                                                                                                                   | MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours |
| Solderability                  | 10X Magnification                                                                                                                                               | J-STD-002, 95% Coverage                                                                              |
| Resistance to Solder Heat      | 260°C for 10 seconds                                                                                                                                            | MIL-STD-202, Method 210, Condition B                                                                 |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215                                                                              |
| Terminal Strength              | 4 1/2 Pound Pull                                                                                                                                                | MIL-STD-202, Method 211, Condition A                                                                 |



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| Specification       | Test/Inspection Condition | Reference/Spec                       |
|---------------------|---------------------------|--------------------------------------|
| Gross Leak          | 125°C Bubble Test         | MIL-STD-202, Method 112, Condition D |
| Barometric Pressure | 100,000 Feet              | MIL-STD-202, Method 105, Condition D |