

# Plug-In High Pass Filter

PHP-250+

50Ω 225 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 |

## 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

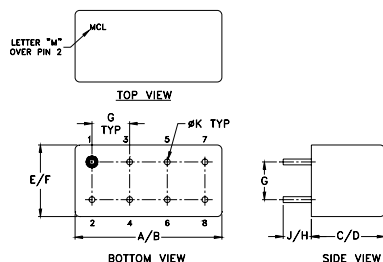
**+RoHS Compliant**

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 > 20 dB) | (loss 3 dB)    | (loss < 1 dB)  | Stopband Typ. | Passband Typ. |
| DC-100         | 100-150        | 205            | 225-1200       | 17            | 1.3           |

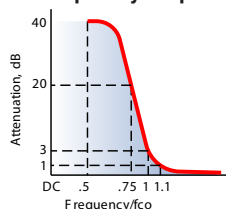
## Outline Drawing



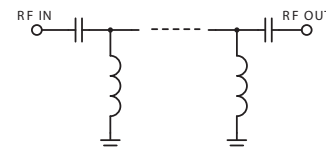
## Outline Dimensions (inch/mm)

| 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  | grams |       |
| 5.08  | 5.08  | 3.56 | 0.79  | 5.2   |       |

## typical frequency response

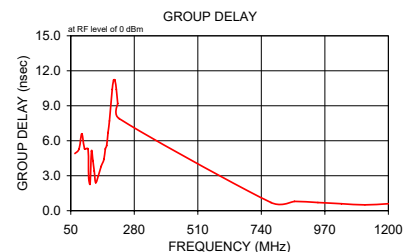
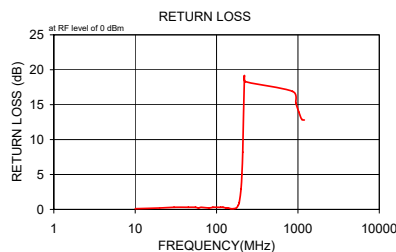


## electrical schematic



## Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|------------------|-----------------|--------------------|
| $\bar{x}$       | $\sigma$            |                  |                 |                    |
| 10.0            | 76.72               | 4.7              | 65.0            | 4.87               |
| 20.0            | 75.31               | 6.1              | 80.0            | 5.31               |
| 30.0            | 72.93               | 2.4              | 90.0            | 6.58               |
| 45.0            | 75.64               | 7.5              | 100.0           | 5.25               |
| 55.0            | 80.00               | 7.3              | 112.5           | 5.32               |
| 60.0            | 75.56               | 5.5              | 115.0           | 2.79               |
| 65.0            | 72.15               | 5.4              | 120.0           | 2.30               |
| 80.0            | 79.38               | 6.5              | 125.0           | 5.09               |
| 90.0            | 67.76               | 2.6              | 130.0           | 4.28               |
| 100.0           | 62.37               | 1.3              | 135.0           | 3.36               |
| 112.5           | 52.78               | 0.8              | 140.0           | 2.45               |
| 120.0           | 48.75               | 1.0              | 150.0           | 2.97               |
| 130.0           | 42.50               | 1.0              | 160.0           | 3.83               |
| 135.0           | 39.68               | 0.9              | 170.0           | 4.42               |
| 140.0           | 36.80               | 0.9              | 175.0           | 5.34               |
| 150.0           | 31.25               | 0.8              | 180.0           | 5.61               |
| 160.0           | 25.78               | 0.9              | 185.0           | 6.71               |
| 175.0           | 17.58               | 0.8              | 190.0           | 7.72               |
| 185.0           | 12.12               | 0.7              | 200.0           | 10.39              |
| 190.0           | 9.45                | 0.6              | 205.0           | 11.22              |
| 200.0           | 4.68                | 0.4              | 210.0           | 11.21              |
| 205.0           | 2.91                | 0.2              | 215.0           | 10.43              |
| 210.0           | 1.73                | 0.2              | 220.0           | 9.18               |
| 220.0           | 0.78                | 0.1              | 225.0           | 7.95               |
| 225.0           | 0.69                | 0.1              | 775.0           | 0.73               |
| 860.0           | 0.38                | 0.1              | 860.0           | 0.76               |
| 945.0           | 0.43                | 0.1              | 945.0           | 0.68               |
| 1030.0          | 0.48                | 0.1              | 1030.0          | 0.63               |
| 1115.0          | 0.52                | 0.1              | 1115.0          | 0.51               |
| 1200.0          | 0.56                | 0.1              | 1200.0          | 0.64               |



### 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.
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REV. C  
M151107  
PHP-250+  
200401

# Plug-In High Pass Filter

PHP-250+

## 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               | 76.72                     | 0.10                   | 65.0               | 4.870                    |
| 20.0               | 75.31                     | 0.20                   | 80.0               | 5.310                    |
| 30.0               | 72.93                     | 0.30                   | 90.0               | 6.580                    |
| 45.0               | 75.64                     | 0.30                   | 100.0              | 5.250                    |
| 55.0               | 80.00                     | 0.30                   | 112.5              | 5.320                    |
| 60.0               | 75.56                     | 0.20                   | 115.0              | 2.790                    |
| 65.0               | 72.15                     | 0.30                   | 120.0              | 2.300                    |
| 80.0               | 79.38                     | 0.20                   | 125.0              | 5.090                    |
| 90.0               | 67.76                     | 0.30                   | 130.0              | 4.280                    |
| 100.0              | 62.37                     | 0.30                   | 135.0              | 3.360                    |
| 112.5              | 52.78                     | 0.30                   | 140.0              | 2.450                    |
| 120.0              | 48.75                     | 0.30                   | 150.0              | 2.970                    |
| 130.0              | 42.50                     | 0.20                   | 160.0              | 3.830                    |
| 135.0              | 39.68                     | 0.20                   | 170.0              | 4.420                    |
| 140.0              | 36.80                     | 0.20                   | 175.0              | 5.340                    |
| 150.0              | 31.25                     | 0.10                   | 180.0              | 5.610                    |
| 160.0              | 25.78                     | 0.10                   | 185.0              | 6.710                    |
| 175.0              | 17.58                     | 0.20                   | 190.0              | 7.720                    |
| 185.0              | 12.12                     | 0.60                   | 200.0              | 10.390                   |
| 190.0              | 9.45                      | 1.00                   | 205.0              | 11.220                   |
| 200.0              | 4.68                      | 2.90                   | 210.0              | 11.210                   |
| 205.0              | 2.91                      | 5.00                   | 215.0              | 10.430                   |
| 210.0              | 1.73                      | 8.20                   | 220.0              | 9.180                    |
| 220.0              | 0.78                      | 19.10                  | 225.0              | 7.950                    |
| 225.0              | 0.69                      | 18.30                  | 775.0              | 0.730                    |
| 860.0              | 0.38                      | 16.90                  | 860.0              | 0.760                    |
| 945.0              | 0.43                      | 15.20                  | 945.0              | 0.680                    |
| 1030.0             | 0.48                      | 13.90                  | 1030.0             | 0.630                    |
| 1115.0             | 0.52                      | 12.90                  | 1115.0             | 0.510                    |
| 1200.0             | 0.56                      | 12.80                  | 1200.0             | 0.640                    |

REV. X1  
PHP-250+  
070529  
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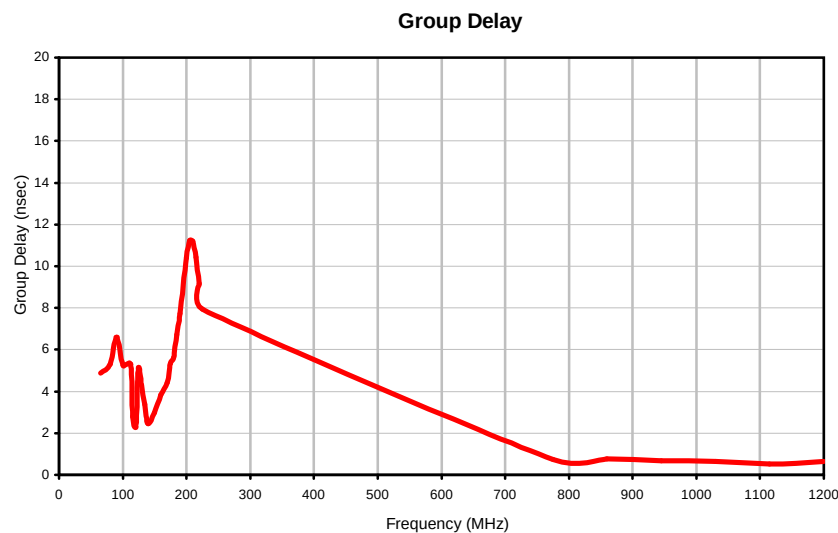


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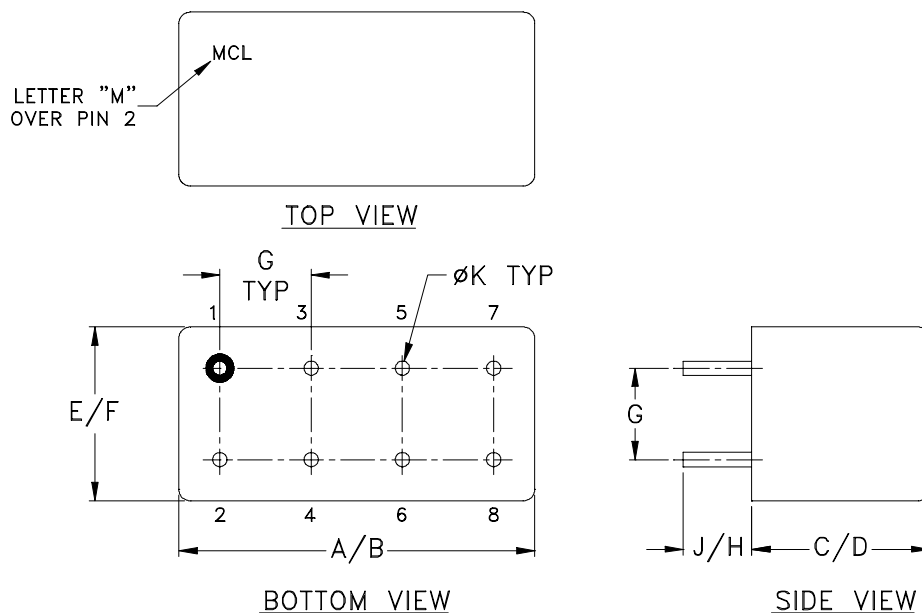


## Typical Performance Curves



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 |