

## Cost-effective EMI Power Inlet Filter

# EEA & EEB Series

Including the EAS/EBS and EAH/EBH Models



UL Recognized  
CSA Certified  
VDE Approved



## EEA Series

- Compact single stage EMI filter with IEC 60320-1 C14 inlet
- Two element circuit provides basic attenuation
- Same performance as the EF Series
- Available in three terminal configurations
- Supersedes EF Series

## EEB Series

- Compact EMI filter with IEC 60320-1 C14 inlet
- Two element circuit provides extended attenuation
- Extended differential mode performance
- Available in three terminal configurations

## EAS & EBS Models

- Same performance as EEA and EEB Series
- Snap-in mounting
- Spade terminals

## EAH & EBH Models

- Same size as EEA and EEB
- Minimal leakage current suitable for medical applications
- Flange mounted
- Spade terminals

## Specifications

Maximum leakage current each Line to Ground:

|                  | EEA/EEB | EAH/EBH   |
|------------------|---------|-----------|
| @ 120 VAC 60 Hz: | .22 mA  | 2 $\mu$ A |
| @ 250 VAC 50 Hz: | .38 mA  | 5 $\mu$ A |

Hipot rating (one minute):

|                 |          |
|-----------------|----------|
| Line to Ground: | 2250 VDC |
| Line to Line:   | 1450 VDC |

Rated Voltage (max.):

250 VAC

Operating Frequency:

50/60 Hz

Rated Current:

1 to 10A

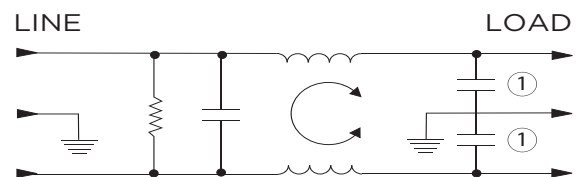
Operating Ambient Temperature Range

(at rated current  $I_r$ ):

-10°C to +40°C

In an ambient temperature ( $T_a$ ) higher than +40°C the maximum operating current ( $I_o$ ) is calculated as follows:  $I_o = I_r \sqrt{(85-T_a)/45}$

## Electrical Schematic

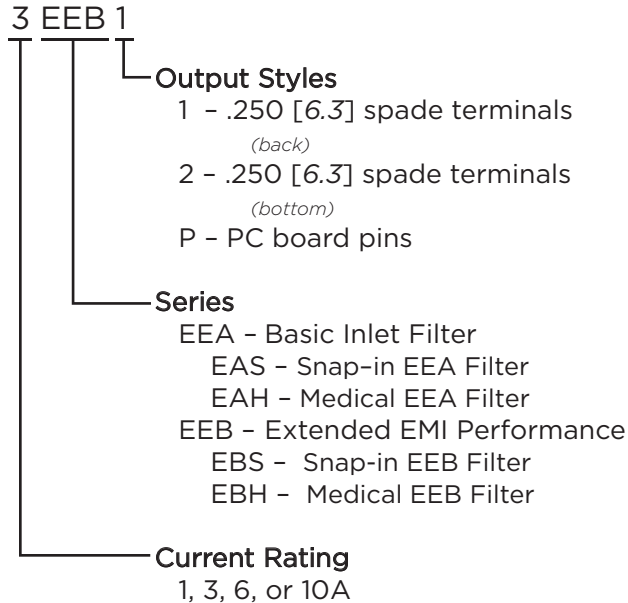


Note 1: Not present in EAH / EBH versions

## Cost-effective EMI Power Inlet Filter *(continued)*

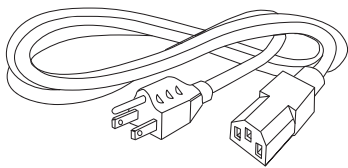
# EEA & EEB Series

## Ordering Information

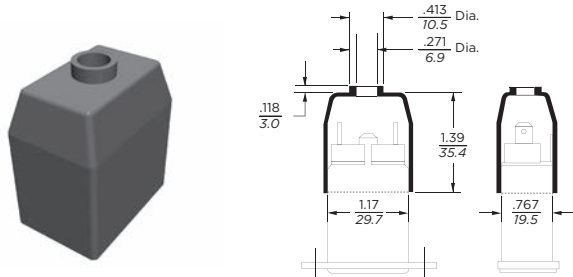


## Accessories

GA400: NEMA 5-15P to IEC 60320-1 C-13 line cord

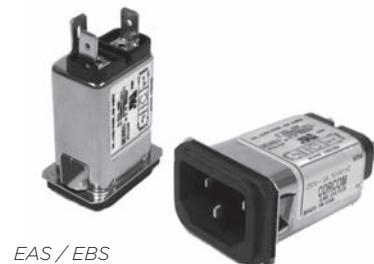


FA601: Insulating Shroud



## Available Part Numbers

| EEA Models | EEB Models |
|------------|------------|
| 1EEA1      | 1EEB1      |
| 1EEA2      | 1EEB2      |
| 1EEAP      | 1EEBP      |
| 3EEA1      | 3EEB1      |
| 3EEA2      | 3EEB2      |
| 3EEAP      | 3EEBP      |
| 6EEA1      | 6EEB1      |
| 6EEA2      | 6EEB2      |
| 6EEAP      | 6EEBP      |
| 10EEA1     | 10EEB1     |
| 10EEA2     | 10EEB2     |
| 10EEAP     | 10EEBP     |
| EAS Models | EBS Models |
| 1EAS1      | 1EBS1      |
| 3EAS1      | 3EBS1      |
| 6EAS1      | 6EBS1      |
| 10EAS1     | 10EBS1     |
| EAH Models | EBH Models |
| 1EAH1      | 1EBH1      |
| 3EAH1      | 3EBH1      |
| 6EAH1      | 6EBH1      |
| 10EAH1     | 10EBH1     |

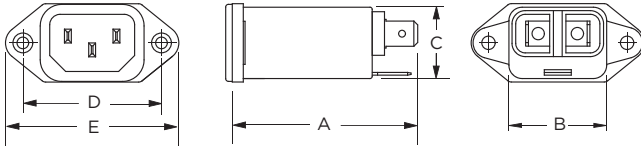


Cost-effective EMI Power Inlet Filter (continued)

## EEA & EEB Series

### Case Styles

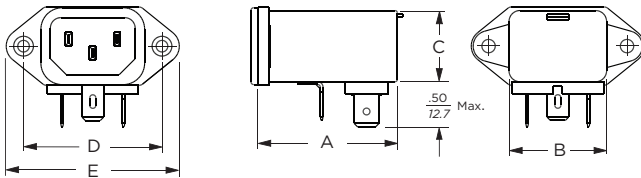
#### EEA1, EEB1, EAH1 & EBH1



Typical Dimensions:

Mounting holes (2): .132 [3.35] Dia. with .236 [5.99] Dia. x 90° countersink for #4 flathead screw  
IEC 60320-1 C14  
Line Inlet (1): .250 [6.3] with .07 [1.8] Dia. hole  
Load Terminals (2): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot  
Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot

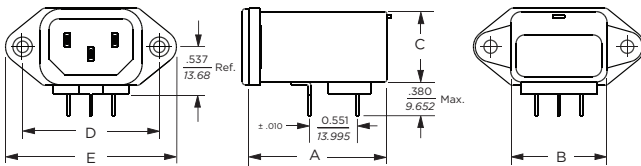
#### EEA2 & EEB2



Typical Dimensions:

Mounting holes (2): .132 [3.35] Dia. with .236 [5.99] Dia. x 90° countersink for #4 flathead screw  
IEC 60320-1 C14  
Line Inlet (1): .250 [6.3] with .07 [1.8] Dia. hole  
Load Terminals (2): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot  
Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot

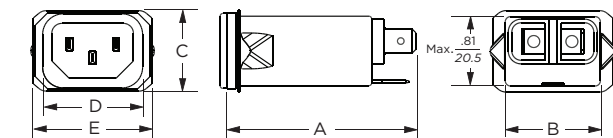
#### EEAP & EEBP



Typical Dimensions:

Mounting holes (2): .132 [3.35] Dia. with .236 [5.99] Dia. x 90° countersink for #4 flathead screw  
IEC 60320-1 C14  
Line Inlet (1): .250 [6.3] with .07 [1.8] Dia. hole  
PC board pins (3): .031 [.07] square, ± .003 [.07]

#### EAS1 & EBS1



Typical Dimensions:

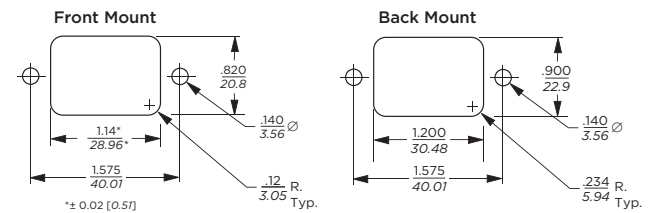
Line Inlet (1): IEC 60320-1 C14  
Load Terminals (2): .250 [6.3] with .07 [1.8] Dia. hole  
Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot

### Case Dimensions

| Part No.                  | A<br>(max.)   | B<br>(max.)  | C<br>(max.)  | D<br>± .010<br>± .25 | E<br>(max.)   |
|---------------------------|---------------|--------------|--------------|----------------------|---------------|
| EEA1, EEB1,<br>EAH1, EBH1 | 2.15<br>54.6  | 1.12<br>28.4 | 0.81<br>20.6 | 1.575<br>40.01       | 1.98<br>50.3  |
| EEA2, EEB2                | 1.54<br>39.1  | 1.12<br>28.4 | 0.81<br>20.6 | 1.575<br>40.01       | 1.98<br>50.3  |
| EEAP, EEBP                | 1.54<br>39.1  | 1.12<br>28.4 | 0.81<br>20.6 | 1.575<br>40.01       | 1.98<br>50.3  |
| EAS1, EBS1                | 2.20<br>55.88 | 1.15<br>29.2 | .96<br>24.38 | 1.185<br>30.10       | 1.41<br>35.81 |

### Recommended Panel Cutouts

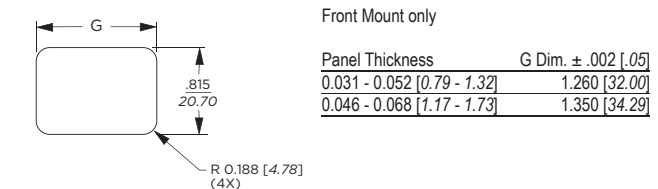
#### EEA, EEB, EAH, EBH



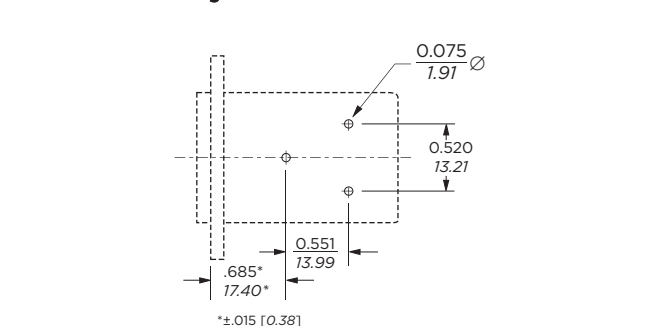
Tolerances ± .005 [0.13] unless otherwise noted

- Note 1: EEA1, EEB1, EAH1, EBH1 can be front or back mounted  
Note 2: EEA2, EEB2, EEAP and EEBP can be back mounted only

#### EAS, EBS



### PC Board Layout



## Cost-effective EMI Power Inlet Filter *(continued)*

# EEA & EEB Series

## Performance Data

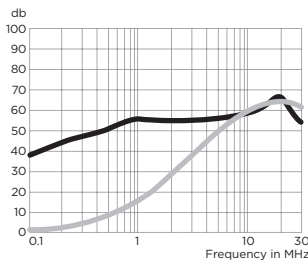
### Typical Insertion Loss

Measured in closed 50 Ohm system

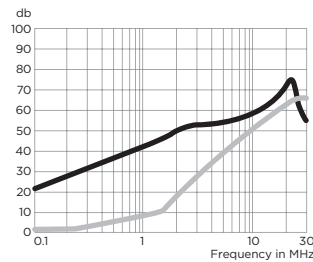
— Common Mode / Asymmetrical (L-G)  
— Differential Mode / Symmetrical (L-L)

### EEA, EAS Models

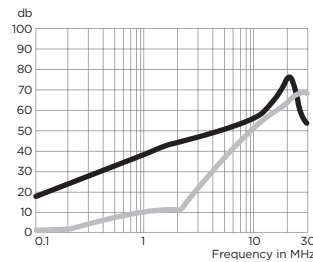
#### 1A



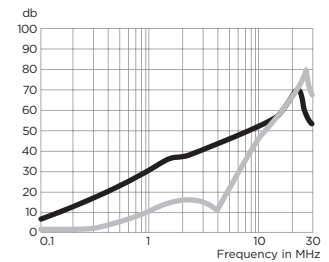
#### 3A



#### 6A

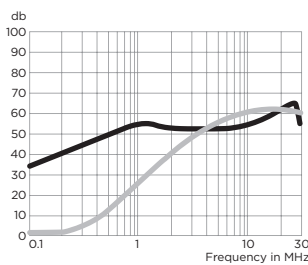


#### 10A

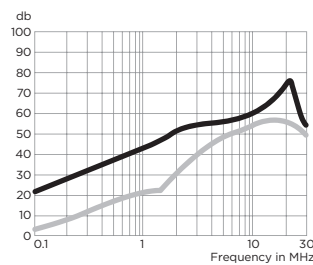


### EEB, EBS Models

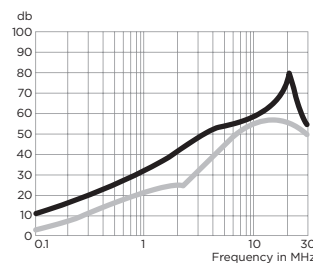
#### 1A



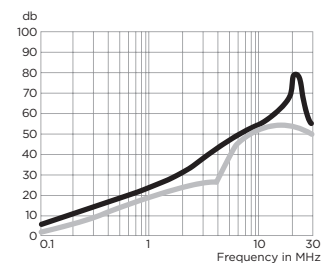
#### 3A



#### 6A

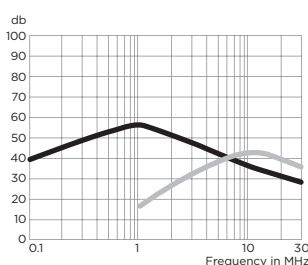


#### 10A

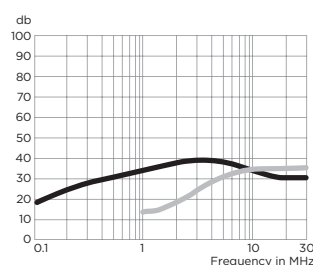


### EAH Models

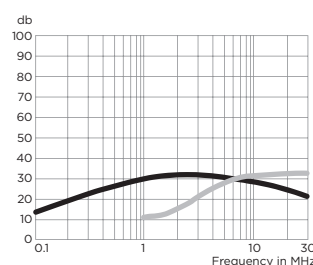
#### 1A



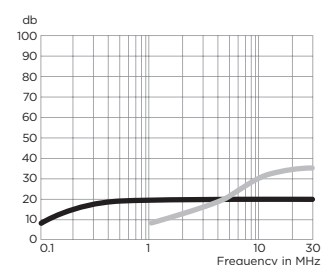
#### 3A



#### 6A

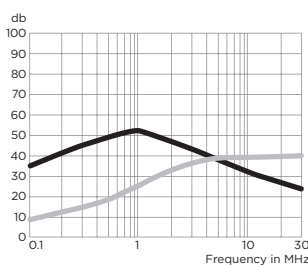


#### 10A

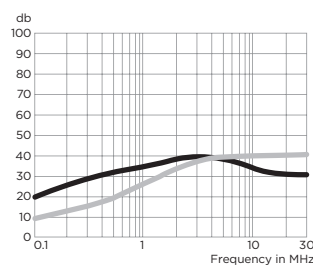


### EBH Models

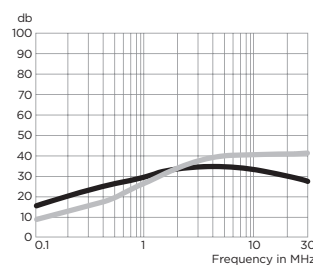
#### 1A



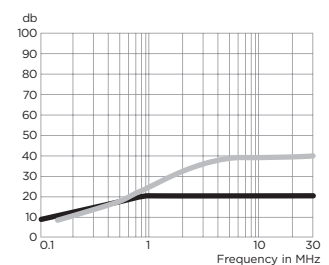
#### 3A



#### 6A



#### 10A



## Cost-effective EMI Power Inlet Filter *(continued)*

# EEA & EEB Series

## Performance Data *(continued)*

### Minimum Insertion Loss

Measured in closed 50 Ohm system

#### Common Mode / Asymmetrical (Line to Ground)

| Current<br>Rating       | Frequency – MHz |     |    |     |    |    |    |    |    |
|-------------------------|-----------------|-----|----|-----|----|----|----|----|----|
|                         | .01             | .05 | .1 | .15 | .5 | 1  | 5  | 10 | 30 |
| <b>EEA / EAS Models</b> |                 |     |    |     |    |    |    |    |    |
| 1A                      | 12              | 23  | 29 | 32  | 41 | 47 | 47 | 47 | 40 |
| 3A                      | -               | 10  | 15 | 19  | 30 | 36 | 48 | 50 | 47 |
| 6A                      | -               | 1   | 4  | 10  | 22 | 28 | 42 | 48 | 47 |
| 10A                     | -               | 1   | 3  | 5   | 14 | 20 | 32 | 38 | 47 |

#### EEB / EBS Models

|     |    |    |    |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|----|----|----|
| 1A  | 12 | 23 | 29 | 32 | 41 | 47 | 47 | 47 | 40 |
| 3A  | -  | 10 | 14 | 18 | 30 | 36 | 48 | 50 | 47 |
| 6A  | -  | 1  | 4  | 10 | 22 | 28 | 42 | 48 | 47 |
| 10A | -  | 1  | 3  | 5  | 14 | 20 | 32 | 38 | 47 |

#### EAH Models

|     |   |    |    |    |    |    |    |    |    |
|-----|---|----|----|----|----|----|----|----|----|
| 1A  | 8 | 21 | 29 | 32 | 42 | 45 | 32 | 30 | 19 |
| 3A  | - | 5  | 10 | 15 | 25 | 27 | 30 | 27 | 22 |
| 6A  | - | -  | 5  | 6  | 19 | 21 | 24 | 20 | 15 |
| 10A | - | -  | 1  | 5  | 9  | 12 | 12 | 12 | 12 |

#### EBH Models

|     |   |    |    |    |    |    |    |    |    |
|-----|---|----|----|----|----|----|----|----|----|
| 1A  | 8 | 21 | 29 | 32 | 42 | 45 | 32 | 25 | 19 |
| 3A  | - | 5  | 10 | 15 | 25 | 27 | 30 | 27 | 22 |
| 6A  | - | -  | 5  | 8  | 17 | 20 | 24 | 23 | 18 |
| 10A | - | -  | -  | 3  | 8  | 12 | 12 | 12 | 12 |

#### Differential Mode / Symmetrical (Line to Line)

| Current<br>Rating | Frequency – MHz |   |     |    |    |    |    |
|-------------------|-----------------|---|-----|----|----|----|----|
|                   | .5              | 1 | 1.5 | 3  | 5  | 10 | 30 |
| EEA / EAS Models  |                 |   |     |    |    |    |    |
| 1A                | 1               | 9 | 19  | 32 | 42 | 45 | 40 |
| 3A                | 2               | 4 | 6   | 20 | 35 | 45 | 40 |
| 6A                | 2               | 4 | 6   | 6  | 24 | 40 | 40 |
| 10A               | 1               | 4 | 5   | 5  | 5  | 30 | 40 |

#### EEB / EBS Models

|     |   |   |    |    |    |    |    |    |
|-----|---|---|----|----|----|----|----|----|
| 1A  | 1 | 3 | 14 | 23 | 41 | 47 | 50 | 44 |
| 3A  | 1 | 2 | 11 | 14 | 25 | 38 | 44 | 40 |
| 6A  | 1 | 2 | 10 | 14 | 20 | 33 | 42 | 40 |
| 10A | 1 | 2 | 10 | 16 | 19 | 19 | 39 | 40 |

#### EAH Models

|     |   |    |    |    |    |
|-----|---|----|----|----|----|
| 1A  | 5 | 13 | 28 | 32 | 25 |
| 3A  | 4 | 6  | 20 | 27 | 28 |
| 6A  | 2 | 5  | 19 | 25 | 27 |
| 10A | 1 | 5  | 15 | 22 | 27 |

#### EBH Models

|     |   |    |    |    |    |    |
|-----|---|----|----|----|----|----|
| 1A  | 1 | 10 | 18 | 30 | 31 | 31 |
| 3A  | 1 | 10 | 18 | 30 | 31 | 31 |
| 6A  | 1 | 10 | 18 | 30 | 31 | 31 |
| 10A | 1 | 10 | 18 | 30 | 31 | 31 |