

AC Feedthrough Filters - Class Y2

# FFA Series



Component Recognized by  
UL to US and Canadian Requirements



## FFA Series

- AC feedthrough filters
- Current Ratings from 10 to 300A
- Designed to meet the very stringent safety requirements of EN133200 class Y2 including the 5000V pulse test
- Custom versions available

## Ordering Information

10 FFA6 - BA



## Filter Options / Specifications

| Filter ID | Value (nF) | Inductance (nH) | Max. Leakage Current (mA)* | DC Resistance (mΩ) Max. |
|-----------|------------|-----------------|----------------------------|-------------------------|
| BA        | 2 x 4.7    | 70              | 0.9                        | 6                       |
| CA        | 2 x 10     | 70              | 1.9                        | 4                       |
| CE        | 2 x 10     | 140             | 1.9                        | 7                       |
| DG        | 2 x 22     | 170             | 4.2                        | 4                       |
| DH        | 2 x 22     | 180             | 4.2                        | 4                       |
| GB        | 2 x 47     | 80              | 8.9                        | 3                       |
| GJ        | 2 x 47     | 210             | 8.9                        | 9                       |
| HC        | 2 x 100    | 90              | 19                         | 2                       |
| HD        | 2 x 100    | 120             | 19                         | 1                       |
| HF        | 2 x 100    | 160             | 19                         | < 1                     |
| HN        | 2 x 100    | 250             | 19                         | 6                       |
| JK        | 2 x 150    | 240             | 29                         | 3                       |
| NP        | 2 x 470    | 330**           | 89                         | < 2                     |
| PP        | 2 x 1000   | 330             | 188                        | < 2                     |

\*@ 250 VAC 60 Hz  
\*\*240 for 100A Version

## Specifications

- Rated Voltage (max):** 250 VAC
- Operating Frequency:** 50/60 Hz
- Rated Current:** 10 to 300A
- Test Voltage (two seconds):** 5000 VDC
- Capacitor Class (EN133200):** Designed to meet Y2
- Pulse Test (EN133200):** 5000V Peak
- Insulation Resistance (within 1 minute):**  
For C < 0.33μF, R > 15000MΩ  
For C > 0.33μF, RC(MΩ\*μF) > 5000s
- Operating Ambient Temperature Range (at rated current I<sub>r</sub>):**  
10 to 100A: -40°C to +60°C  
200A: -40°C to +50°C  
250 & 300A: -40°C to +40°C
- Category Temperature Range:** -40°C to +85°C
- Current Derating Above Ambient:**  
10-100A: For temperature, θ I<sub>θ</sub> = IR √(85-θ)/25  
200A: For temperature, θ I<sub>θ</sub> = IR √(85-θ)/35  
250 & 300A: For temp., θ I<sub>θ</sub> = IR √(85-θ)/45
- Climatic Category:** 40/85/21
- MTBF:** > 5 million hours typical
- Insulating Materials Flammability Rating:** UL94V-0
- Case & Terminal Material:** Nickel Plated Brass

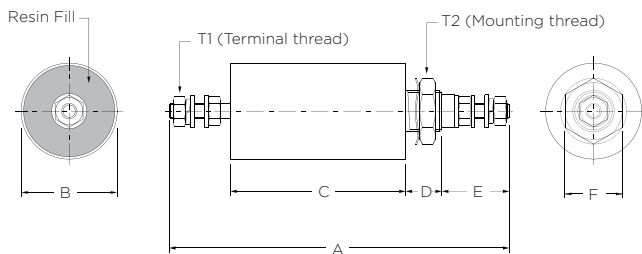
## Electrical Schematic



**AC Feedthrough Filters - Class Y2** *(continued)*

# FFA Series

## Case Style



### T1 - Terminal Thread

| Part No.         | Thread | Torque max. in.lb. |
|------------------|--------|--------------------|
| 10FFA6-BA/CE/CJ  | M3     | 4                  |
| 16FFA6-CA/DG/HN  | M4     | 11                 |
| 32FFA6-CA/DH/HN  | M4     | 11                 |
| 63FFA6-GB/JK/NP  | M6     | 22                 |
| 100FFA6-HC/NP/PP | M8     | 44                 |
| 200FFA6-HD/NP/PP | M10    | 70                 |
| 250FFA6-HF/NP/PP | M12    | 97                 |
| 300FFA6-HF/NP/PP | M16    | 177                |

### T2 - Mounting Thread

| Part No.         | Thread    | Torque max. in.lb. |
|------------------|-----------|--------------------|
| 10FFA6-BA/CE/CJ  |           |                    |
| 16FFA6-CA        | M12 x 1   | 35                 |
| 32FFA6-CA        |           |                    |
| 16FFA6-DG/HN     |           |                    |
| 32FFA6-DH/HN     | M16 x 1   | 62                 |
| 63FFA6-GB        |           |                    |
| 63FFA6-JK        | M20 x 1   | 89                 |
| 100FFA6-HC       |           |                    |
| 100FFA6-NP       | M24 x 1   | 124                |
| 200FFA6-HD       |           |                    |
| 63FFA6-NP        |           |                    |
| 100FFA6-PP       | M27 x 1.5 | 142                |
| 200FFA6-NP/PP    |           |                    |
| 250FFA6-HF/NP/PP | M32 x 1.5 | 212                |
| 300FFA6-HF/NP/PP |           |                    |

## Case Dimensions

| Part No.   | A                   | B                     | C                   | D                   | E                   | F                 |
|------------|---------------------|-----------------------|---------------------|---------------------|---------------------|-------------------|
|            | $\frac{\pm .04}{1}$ | $\frac{\pm .02}{0.5}$ | $\frac{\pm .08}{2}$ | $\frac{\pm .04}{1}$ | $\frac{\pm .08}{2}$ | (max)             |
| 10FFA6-BA  | <b>3.86</b><br>98   | <b>0.79</b><br>20     | <b>2.24</b><br>57   | <b>0.47</b><br>12   | <b>0.63</b><br>16   | <b>0.67</b><br>17 |
| 16FFA6-CA  | <b>4.17</b>         | <b>0.79</b>           | <b>2.40</b>         | <b>0.47</b>         | <b>0.71</b>         | <b>0.67</b>       |
| 32FFA6-CA  | 106                 | 20                    | 61                  | 12                  | 18                  | 17                |
| 63FFA6-GB  | <b>6.30</b><br>160  | <b>0.98</b><br>25     | <b>3.70</b><br>94   | <b>0.55</b><br>14   | <b>1.02</b><br>26   | <b>0.87</b><br>22 |
| 100FFA6-HC | <b>7.24</b><br>184  | <b>1.26</b><br>32     | <b>4.09</b><br>104  | <b>0.63</b><br>16   | <b>1.26</b><br>32   | <b>1.06</b><br>27 |
| 200FFA6-HD | <b>8.23</b><br>209  | <b>1.50</b><br>38     | <b>4.41</b><br>112  | <b>0.75</b><br>19   | <b>1.57</b><br>40   | <b>1.06</b><br>27 |
| 300FFA6-HF | <b>7.87</b><br>200  | <b>2.13</b><br>54     | <b>3.66</b><br>93   | <b>0.75</b><br>19   | <b>1.81</b><br>46   | <b>1.57</b><br>40 |
| 10FFA6-CE  | <b>4.21</b><br>107  | <b>0.79</b><br>20     | <b>2.60</b><br>66   | <b>0.47</b><br>12   | <b>0.63</b><br>16   | <b>0.67</b><br>17 |
| 16FFA6-DG  | <b>4.57</b>         | <b>0.98</b>           | <b>2.72</b>         | <b>0.55</b>         | <b>0.71</b>         | <b>0.87</b>       |
| 32FFA6-DH  | 116                 | 25                    | 69                  | 14                  | 18                  | 22                |
| 63FFA6-JK  | <b>6.81</b><br>173  | <b>1.26</b><br>32     | <b>4.13</b><br>105  | <b>0.63</b><br>16   | <b>1.02</b><br>26   | <b>1.06</b><br>27 |
| 100FFA6-NP | <b>8.98</b><br>228  | <b>1.50</b><br>38     | <b>5.71</b><br>145  | <b>0.75</b><br>19   | <b>1.26</b><br>32   | <b>1.06</b><br>27 |
| 200FFA6-NP | <b>9.57</b><br>243  | <b>2.13</b><br>54     | <b>5.75</b><br>146  | <b>0.75</b><br>19   | <b>1.57</b><br>40   | <b>1.57</b><br>40 |
| 250FFA6-NP | <b>10.51</b>        | <b>2.13</b>           | <b>6.30</b>         | <b>0.75</b>         | <b>1.81</b>         | <b>1.57</b>       |
| 300FFA6-HN | 267                 | 54                    | 160                 | 19                  | 46                  | 40                |
| 10FFA6-GJ  | <b>5.51</b><br>140  | <b>0.79</b><br>20     | <b>3.90</b><br>99   | <b>0.47</b><br>12   | <b>0.63</b><br>16   | <b>0.67</b><br>17 |
| 16FFA6-HN  | <b>5.83</b>         | <b>0.98</b>           | <b>3.98</b>         | <b>0.55</b>         | <b>0.71</b>         | <b>0.87</b>       |
| 32FFA6-HN  | 148                 | 25                    | 101                 | 14                  | 18                  | 22                |
| 63FFA6-NP  | <b>7.44</b><br>189  | <b>2.13</b><br>54     | <b>4.65</b><br>118  | <b>0.75</b><br>19   | <b>1.02</b><br>26   | <b>1.57</b><br>40 |
| 100FFA6-PP | <b>8.94</b><br>227  | <b>2.13</b><br>54     | <b>5.67</b><br>144  | <b>0.75</b><br>19   | <b>1.26</b><br>32   | <b>1.57</b><br>40 |
| 200FFA6-PP | <b>9.57</b><br>243  | <b>2.13</b><br>54     | <b>5.75</b><br>146  | <b>0.75</b><br>19   | <b>1.57</b><br>40   | <b>1.57</b><br>40 |
| 250FFA6-PP | <b>10.51</b>        | <b>2.13</b>           | <b>6.3</b>          | <b>0.75</b>         | <b>1.81</b>         | <b>1.57</b>       |
| 300FFA6-PP | 267                 | 54                    | 160                 | 19                  | 46                  | 40                |

Dimensions are in inches and millimeters unless otherwise specified. Values in italics are metric equivalents. Dimensions are shown for reference purposes only. Specifications subject to change.

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**AC Feedthrough Filters - Class Y2** *(continued)*

# FFA Series

## Available Part Numbers

| Standard Performance | High Performance | Extended Performance |
|----------------------|------------------|----------------------|
| 10FFA6-BA            | 10FFA6-CE        | 10FFA6-GJ            |
| 16FFA6-CA            | 16FFA6-DG        | 16FFA6-HN            |
| 32FFA6-CA            | 32FFA6-DH        | 32FFA6-HN            |
| 63FFA6-GB            | 63FFA6-JK        | 63FFA6-NP            |
| 100FFA6-HC           | 100FFA6-NP       | 100FFA6-PP           |
| 200FFA6-HD           | 200FFA6-NP       | 200FFA6-PP           |
| 250FFA6-HF           | 250FFA6-NP       | 250FFA6-PP           |
| 300FFA6-HF           | 300FFA6-NP       | 300FFA6-PP           |

## Performance Data

### Typical Insertion Loss – Line to Ground in 50 Ohm circuit

| Filter ID | Frequency – MHz |      |     |     |    |    |     |      |  |
|-----------|-----------------|------|-----|-----|----|----|-----|------|--|
|           | 0.01            | 0.03 | 0.1 | 0.3 | 1  | 10 | 100 | 1000 |  |
| BA        | -               | -    | -   | -   | 4  | 18 | 80  | 100  |  |
| CA        | -               | -    | 2   | 4   | 10 | 22 | 65  | 100  |  |
| CE        | -               | -    | 2   | 3   | 10 | 28 | 65  | 100  |  |
| DG        | -               | -    | 3   | 7   | 15 | 40 | 72  | 100  |  |
| DH        | -               | -    | 3   | 7   | 15 | 40 | 72  | 100  |  |
| GB        | -               | -    | 6   | 11  | 21 | 50 | 85  | 100  |  |
| GJ        | -               | -    | 5   | 12  | 21 | 60 | 90  | 100  |  |
| HC        | -               | 2    | 10  | 18  | 27 | 60 | 100 | 100  |  |
| HD        | -               | 2    | 10  | 18  | 27 | 60 | 100 | 100  |  |
| HF        | -               | 2    | 10  | 18  | 27 | 60 | 100 | 100  |  |
| HN        | 2               | 4    | 10  | 17  | 24 | 75 | 90  | 100  |  |
| JK        | 3               | 8    | 15  | 21  | 28 | 72 | 100 | 100  |  |
| NP        | 7               | 15   | 24  | 31  | 44 | 80 | 100 | 100  |  |
| PP        | 12              | 20   | 29  | 33  | 56 | 80 | 100 | 100  |  |