

DC Feedthrough Filters - Class Y4

# FFD Series



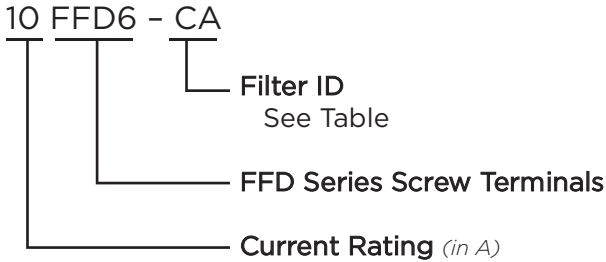
Component Recognized by  
UL to US and Canadian Requirements



## FFD Series

- DC feedthrough filters
- Current ratings from 10 to 200A
- Designed to meet the very stringent safety requirements of EN133200 class Y4 including the 2500V pulse test
- Custom versions available

## Ordering Information



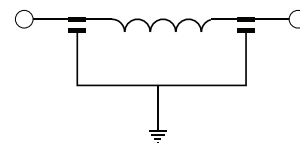
## Filter Options / Specifications

Filter ID	Value (nF)	Inductance (nH)	DC Resistance (mΩ) Max.
CA	2 x 10	70	6
HB	2 x 100	80	3
HE	2 x 100	140	8
NC	2 x 470	90	2
ND	2 x 470	120	1
NH	2 x 470	180	3
PK	2 x 1000	240	2
RP	2 x 4700	330	2

## Specifications

- Rated Voltage (max):** 130 VDC
- Rated Current:** 10 to 200A
- Test Voltage (two seconds):** 2500 VDC
- Capacitor Class (EN133200):** Designed to meet Y4
- Pulse Test (EN133200):** 2500V 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
- 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
- Climatic Category:** 40/85/21
- MTBF:** > 5 million hours typical
- Insulating Materials Flammability Rating:** UL94V-0
- Case & Terminal Material:** Nickel Plated Brass

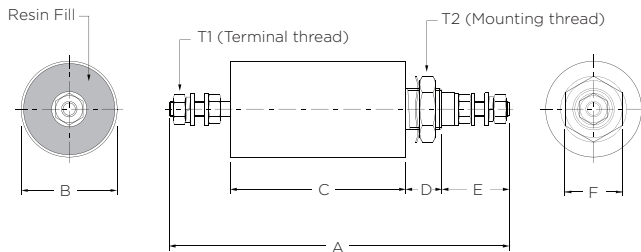
## Electrical Schematic



DC Feedthrough Filters - Class Y4 (continued)

# FFD Series

## Case Style



### T1 - Terminal Thread

Part No.	Thread	Torque max. in.lb.
10FFD6-CA/HE	M3	4
16FFD6-CA/HE	M4	11
32FFD6-CA/HE	M4	11
63FFD6-HB/NH	M6	22
100FFD6-NC/PK	M8	44
200FFD6-ND/RP	M10	70

### T2 - Mounting Thread

Part No.	Thread	Torque max. in.lb.
10FFD6-CA/HE	M12 x 1	35
16FFD6-CA/HE		
32FFD6-CA/HE		
63FFD6-HB/NH	M20 x 1	89
100FFD6-NC/PK	M24 x 1	124
200FFD6-ND/RP	M27 x 1.5	142

## Case Dimensions

Part No.	A	B	C	D	E	F
	$\pm_{-0.04}^{+0.04}$ 1	$\pm_{-0.5}^{+0.2}$ 0.5	$\pm_{-2}^{+0.08}$ 2	$\pm_{-1}^{+0.04}$ 1	$\pm_{-2}^{+0.08}$ 2	(max)
10FFD6-CA	<b>3.54</b> 90	<b>0.79</b> 20	<b>1.93</b> 49	<b>0.47</b> 12	<b>0.63</b> 16	<b>0.67</b> 17
16FFD6-CA	<b>3.86</b>	<b>0.79</b>	<b>2.09</b>	<b>0.47</b>	<b>0.71</b>	<b>0.67</b>
32FFD6-CA	98	20	53	12	18	17
63FFD6-HB	<b>6.30</b> 160	<b>0.98</b> 25	<b>3.70</b> 94	<b>0.55</b> 14	<b>1.02</b> 26	<b>0.87</b> 22
100FFD6-NC	<b>7.24</b> 184	<b>1.26</b> 32	<b>4.09</b> 104	<b>0.63</b> 16	<b>1.26</b> 32	<b>1.06</b> 27
200FFD6-ND	<b>8.23</b> 209	<b>1.50</b> 38	<b>4.41</b> 112	<b>0.75</b> 19	<b>1.57</b> 40	<b>1.06</b> 27
10FFD6-HE	<b>5.12</b> 130	<b>0.79</b> 20	<b>3.50</b> 89	<b>0.47</b> 12	<b>0.63</b> 16	<b>0.67</b> 17
16FFD6-HE	<b>5.47</b>	<b>0.79</b>	<b>3.70</b>	<b>0.47</b>	<b>0.71</b>	<b>0.67</b>
32FFD6-HE	139	20	94	12	18	17
63FFD6-NH	<b>6.81</b> 173	<b>1.26</b> 32	<b>4.13</b> 105	<b>0.63</b> 16	<b>1.02</b> 26	<b>1.06</b> 27
100FFD6-PK	<b>8.98</b> 173	<b>1.50</b> 32	<b>5.71</b> 105	<b>0.75</b> 16	<b>1.26</b> 26	<b>1.06</b> 27
200FFD6-RP	<b>10.98</b> 279	<b>2.13</b> 54	<b>7.17</b> 182	<b>0.75</b> 19	<b>1.57</b> 40	<b>1.57</b> 40

**DC Feedthrough Filters - Class Y4** *(continued)*

# FFD Series

## Available Part Numbers

Standard Performance	High Performance
10FFD6-CA	10FFD6-HE
16FFD6-CA	16FFD6-HE
32FFD6-CA	32FFD6-HE
63FFD6-HB	63FFD6-NH
100FFD6-NC	100FFD6-PK
200FFD6-ND	200FFD6-RP

## 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
CA	-	-	2	4	10	23	65	100
HB	2	4	10	18	27	62	95	100
HE	2	4	10	18	27	67	95	100
NC	7	14	23	30	32	70	100	100
ND	7	14	23	30	32	70	100	100
NH	7	14	23	31	35	75	100	100
PK	14	21	30	34	53	75	100	100
RP	20	32	40	52	85	100	100	100