3-phase Delta External Power Line Filter for Frequency Converters

FCD Series

UL Recognized



6FCD10

FCD Series

- Suitable to meet the latest EMC standards
- Insulated safety terminals
- Suitable for EMC troubleshooting in the field
- Very high attenuation
- High insertion loss
- BS models optimized for very high insertion loss
- BS models suitable for infeed/regenerative (ER) applications
- Touch safe terminals provide easy connections and prevent inadvertent contact for safety in the most demanding applications

Ordering Information

150 FCD 10 BS -95

Terminal Block Option
-95 – 95mm terminal block
available on 150A only
omit for standard terminals

Filter Type
B – Single stage
BS – High performance Single stage.
Omit for dual stage

Input / Output Style
10 – Terminal Block

FCD Series

Current Rating
6, 12, 16, 25, 36, 50, 80, 110, 150, 180 or 230A

Specifications

Maximum leakage current voltage drop to virtual N to PE/V:

6FCD10:	.26 mA/V
12 & 16FCD10:	.45 mA/V
25, 36 & 50FCD10:	.52 mA/V
12 & 16FCD10B:	.46 mA/V
25& 36FCD10B:	.52 mA/V
50FCD10B:	.57 mA/V
80 & 110FCD10B:	.62 mA/V
150FCD10B:	.63 mA/V
180 & 230FCD10B:	.92 mA/V
FCD10BS:	3.25 mA/V

Hipot rating (one minute):

Line to Ground:	2250 VDC
Line to Line:	1450 VDC

Rated Voltage (max):

Phase to Phase:	480 VAC
Phase to Neutral / Ground:	277 VAC

Operating Frequency: 50/60 Hz

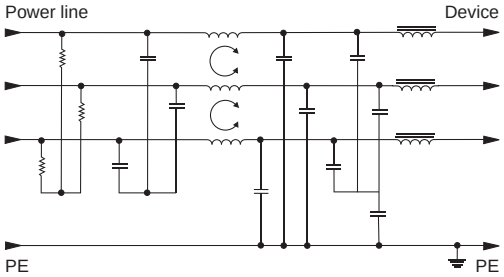
Rated Current: 6 to 230A

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: $I_o = I_r \sqrt{(85\text{-}Ta)/45}$

Electrical Schematics

6FCD10



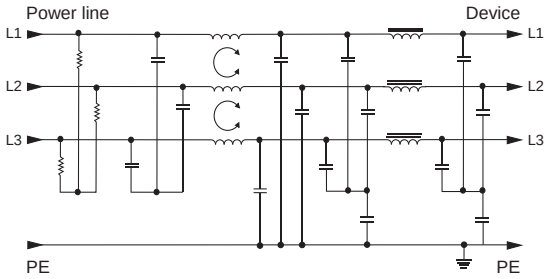
Dimensions are in inches and millimeters unless otherwise specified. Values in italics are metric equivalents. Dimensions are shown for reference purposes only. Specifications subject to change.

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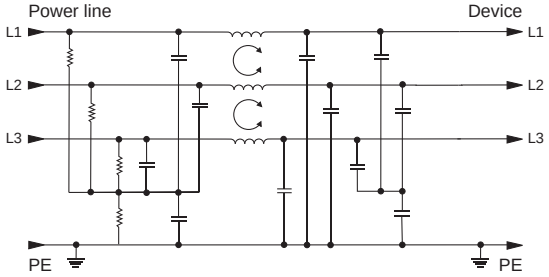
FCD Series

Electrical Schematics *(continued)*

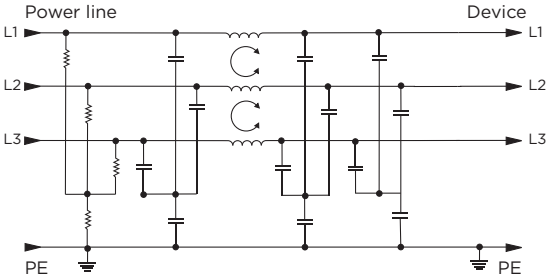
12 to 50A FCD10



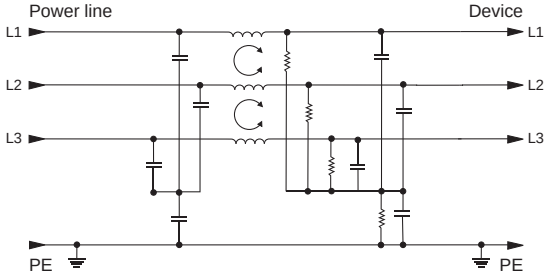
12 to 50A FCD10B



80 to 230A FCD10B



FCD10BS

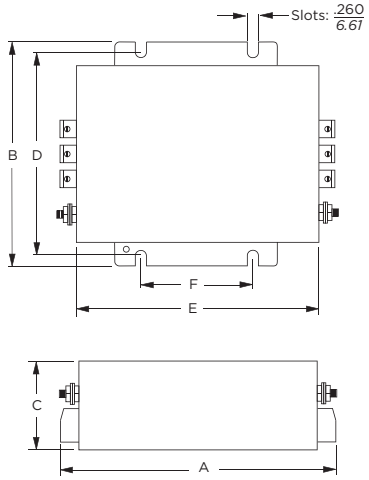


Available Part Numbers

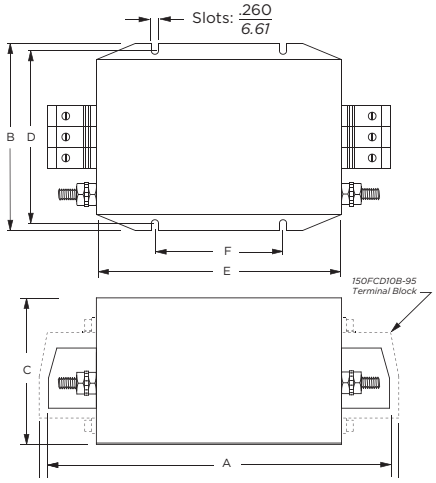
6FCD10	12FCD10B	50FCD10BS
12FCD10	16FCD10B	80FCD10BS
16FCD10	25FCD10B	110FCD10BS
25FCD10	36FCD10B	150FCD10BS
36FCD10	50FCD10B	150FCD10BS-95
50FCD10	80FCD10B	180FCD10BS
	110FCD10B	230FCD10BS
	150FCD10B	
	150FCD10B-95	
	180FCD10B	
	230FCD10B	

Case Styles

6 to 50A FCD10 & FCD10B



80 to 150A FCD10B
50 to 150A FCD10BS

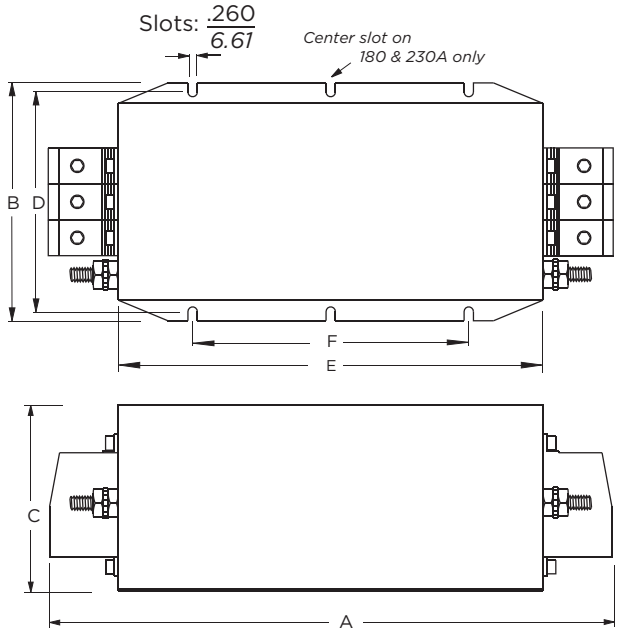


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FCD Series

Case Styles *(continued)*
180 to 230FCD10B\BS



Terminals

Part No.	Terminal	Size	Torque max. lbf-in [N-m]
6FCD10	Ground	8-32	20.7 [*2.34*]
	Line/Load	4mm² terminal block	7.08 [*0.8*]
12FCD10/10B 16FCD10/10B	Ground	M5	26.58 [*3.0*]
	Line/Load	4mm² terminal block	7.08 [*0.8*]
25FCD10/10B 36FCD10/10B	Ground	M5	26.58 [*3.0*]
	Line/Load	6mm² terminal block	15.93 [*1.8*]
50FCD10/10B	Ground	M5	26.58 [*3.0*]
	Line/Load	10mm² terminal block	15.93 [*1.8*]
50FCD10BS	Ground	M10	88.5 [*10.0*]
	Line/Load	16mm² terminal block	20.36 [*2.3*]
80 to 150FCD10B 80 to 150FCD10BS	Ground	M10	88.5 [*10.0*]
	Line/Load	50mm² terminal block	70.80 [*8.0*]
150FCD10B/BS-95 180FCD10B/BS 230FCD10B/BS	Ground	M10	88.5 [*10.0*]
	Line/Load	95mm² terminal block	177.0 [*20.0*]

Case Dimensions

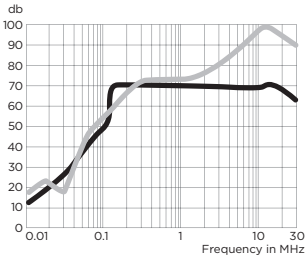
Part No.	A (max.)	B (max.)	C (max.)	D ± .02 ± .5	E (max.)	F ± .02 ± .5
6FCD10	**6.18**	**4.33**	**2.32**	**3.74**	**5.16**	**2.76**
	157.0	*110.0*	*59.0*	*95.0*	*131.0*	*70.0*
12FCD10/10B 16FCD10/10B	**6.97**	**5.51**	**2.56**	**4.92**	**5.94**	**2.76**
	177.0	*140.0*	*65.0*	*125.0*	*151.0*	*70.0*
25FCD10/10B 36FCD10/10B 50FCD10/10B	**9.69**	**6.26**	**2.52**	**5.71**	**8.43**	**4.53**
	246.0	*159.0*	*64.0*	*145.0*	*214.0*	*115.0*
50FCD10BS	**11.41**	**6.61**	**3.54**	**6.10**	**8.70**	**4.53**
	290.0	*168.0*	*90.0*	*155.0*	*221.0*	*115.0*
80FCD10B/BS 110FCD10B/BS 150FCD10B/BS	**12.09**	**6.61**	**5.55**	**6.10**	**8.70**	**4.53**
	307.0	*168.0*	*141.0*	*155.0*	*221.0*	*115.0*
150FCD10B-95 150FCD10BS-95	**12.6**	**6.61**	**5.55**	**6.10**	**8.70**	**4.53**
	320.0	*168.0*	*141.0*	*155.0*	*221.0*	*115.0*
180FCD10B/BS 230FCD10B/BS	**15.71**	**6.61**	**5.55**	**6.10**	**11.81**	**6.50**
	399.0	*168.0*	*141.0*	*155.0*	*300.0*	*165.0*

Performance Data

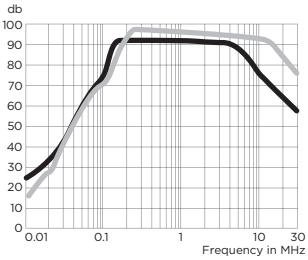
Typical Insertion Loss

Measured in closed 50 Ohm system

6FCD10



12FCD10



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

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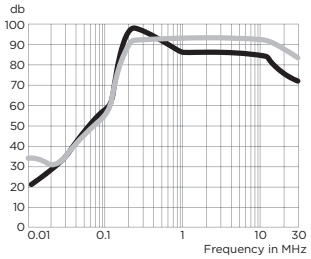
FCD Series

Performance Data *(continued)*

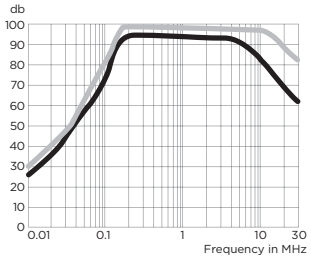
Typical Insertion Loss *(continued)*

Measured in closed 50 Ohm system

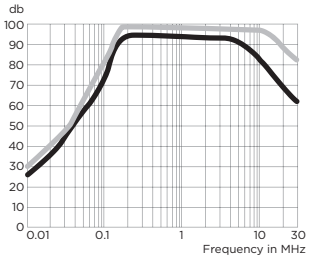
16FCD10



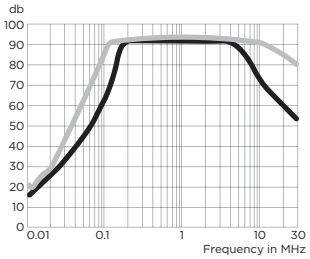
25FCD10



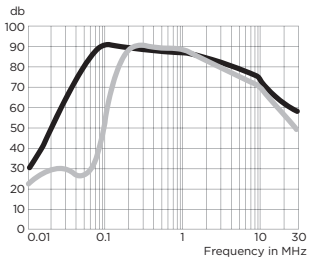
36FCD10



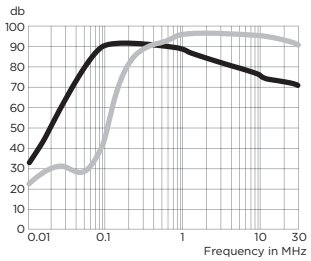
50FCD10



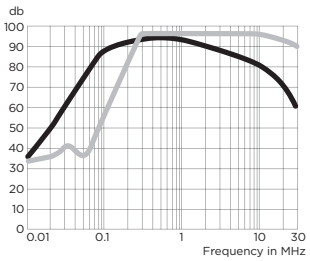
12FCD10B



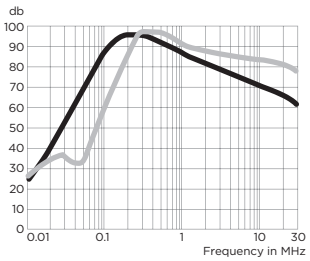
16FCD10B



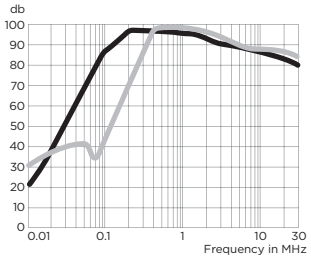
25FCD10B



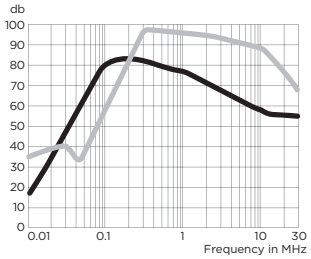
36FCD10B



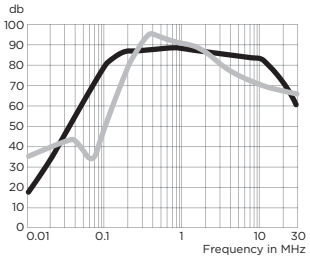
50FCD10B



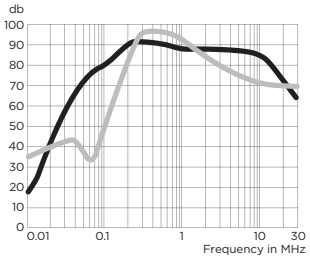
80FCD10B



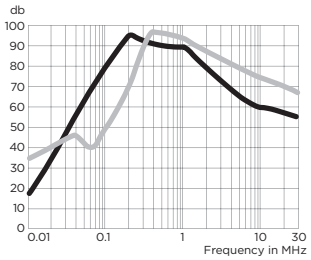
110FCD10B



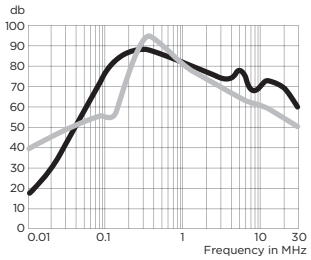
150FCD10B



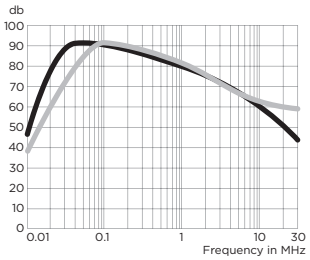
180FCD10B



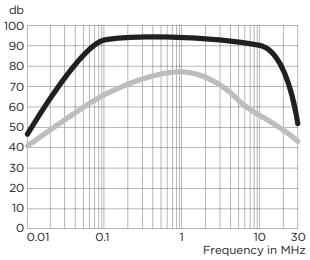
230FCD10B



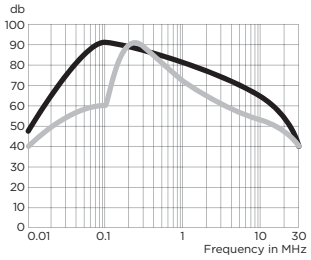
50/80/110FCD10BS



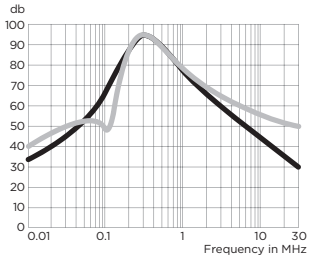
150FCD10BS



180FCD10BS



230FCD10BS



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

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FCD Series

Performance Data *(continued)*

Minimum Insertion Loss

Measured in closed 50 Ohm system

Common Mode / Asymmetrical (Line to Ground)

	Frequency –MHz								
Part No.	**.01**	**.03**	**.05**	**.1**	**.5**	**1**	**5**	**10**	**30**
6FCD10	2	14	23	39	56	52	48	45	33
12 & 16FCD10	13	30	36	45	75	75	52	45	35
25FCD10	13	30	36	45	75	75	52	45	35
36FCD10	9	26	32	40	75	75	52	45	35
50FCD10	9	26	32	40	75	75	52	45	35
12FCD10B	18	45	59	75	73	65	49	47	26
16FCD10B	18	45	59	75	73	65	49	47	26
25FCD10B	18	45	60	49	83	75	58	56	28
36FCD10B	8	38	52	70	77	70	54	50	47
50FCD10B	3	34	49	67	76	70	59	58	37
80FCD10B	2	35	49	67	74	67	59	58	27
110FCD10B	2	35	49	66	72	65	59	58	18
150FCD10B	1	36	50	66	69	63	59	58	9
180FCD10B	-	36	50	66	67	60	59	58	-
230FCD10B	-	25	40	58	73	66	58	52	21
50FCD10BS	40	66	70	69	65	60	53	51	24
80FCD10BS	35	63	67	66	63	58	52	49	23
110FCD10BS	30	61	69	69	66	60	53	53	25
150FCD10BS	32	61	67	67	62	56	48	46	16
180FCD10BS	30	60	65	65	61	55	47	46	16
230FCD10BS	27	58	62	63	59	54	46	45	15

Differential Mode / Symmetrical (Line to Line)

	Frequency –MHz								
Part No.	**.01**	**.03**	**.05**	**.1**	**.5**	**1**	**5**	**10**	**30**
6FCD10	9	8	24	40	62	57	50	48	38
12 & 16FCD10	9	13	24	55	75	75	75	65	60
25FCD10	9	13	26	55	75	75	75	65	60
36FCD10	9	13	26	46	75	75	75	65	60
50FCD10	9	13	26	46	75	75	75	65	60
12FCD10B	6	13	9	37	90	86	74	78	34
16FCD10B	6	13	9	37	60	86	74	78	34
25FCD10B	10	16	12	41	89	87	69	86	43
36FCD10B	17	24	24	38	87	81	63	66	24
50FCD10B	15	24	27	21	88	74	51	69	52
80FCD10B	17	25	28	23	87	71	50	62	45
110FCD10B	18	27	30	25	86	69	49	56	39
150FCD10B	19	28	31	28	85	66	49	49	32
180FCD10B	21	29	33	30	84	63	48	43	26
230FCD10B	22	31	35	36	78	60	46	41	26
50FCD10BS	25	31	26	59	73	64	50	45	19
80FCD10BS	25	31	26	59	73	64	50	45	19
110FCD10BS	24	31	24	55	72	65	51	46	26
150FCD10BS	25	33	32	51	71	61	47	42	22
180FCD10BS	25	33	32	51	71	61	47	42	22
230FCD10BS	25	33	32	51	71	61	47	42	22

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