

EMC Filter



RoHS

This model applies to analog circuit which is noise-sensitive. Put FC-L01D on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 ±2KV (2Ω internal resistance)/±4KV (12Ω internal resistance). Put FC-L01D2 on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 ±4KV (2Ω internal resistance)/±6KV (12Ω internal resistance) and EMI requirement of CISPR22 /EN 55022 Class B.

EMC filter used with the MORNSUN AC/DC module, AC/DC module's max. Input voltage must not more than EMC filter's max. Voltage, AC/DC module's max. Input current must less than EMC filter's nominal current.

FEATURES

- | Compact size
- | Design to suppress the AC power surge to achieve primary protection
- | Ensure the power supply module to meet the requirement of CISPR22/ EN55022 Class B
- | Cost-effective
- | Low Temperature rise
- | Mounting: PCB mounting, Chassis mounting with Screw Terminals, DIN-Rail mounting

Selection Guide

Model	Input Voltage Range (VAC)	Nominal Current (A)(max)
FC-L01D	85-305	0.5
FC-L01D2	85-305	0.5

Note: series with suffix "A2" are chassis mounting, with suffix "A4" are DIN-Rail mounting, for example FC-L01DA4.

General Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Operating Temperature		-40	--	85	°C
Storage Temperature		-40	--	105	
Casing Temperature Rise	220VAC @0.05A	--	--	5	
	220VAC @0.25A	--	--	20	
	220VAC @0.5A	--	--	30	
Leakage current (line to ground)	2000VAC, tested for 1 minute	--	2	--	mA

General Specifications

Casing Material	Black flame-retardant heat-proof epoxy resin (UL94-V0)		
Package Dimensions	FC-L01D	Horizontal package	48.50X36.00X20.50 mm
		A2 wiring package	96.10X54.00X29.00 mm
		A4 rail package	96.10X54.00X33.60 mm
	FC-L01D2	Horizontal package	62.00X45.00X22.50 mm
		A2 wiring package	96.10X54.00X31.00 mm
		A4 rail package	96.10X54.00X35.60 mm
Weight	FC-L01D	Horizontal package/A2 wiring package/	50g/100g/140g(Typ.)
	FC-L01D2	A4 rail package	85g/135g/175g(Typ.)

Frequency Attenuation Specifications

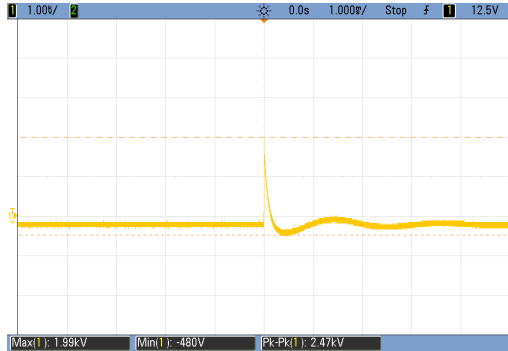
Item	Test Conditions	Min.	Typ.	Max.	Unit
The attenuation coefficient of frequency	150KHz—1GHz	FC-L01D	--	20	dB
		FC-L01D2	--	30	

Devise Standard

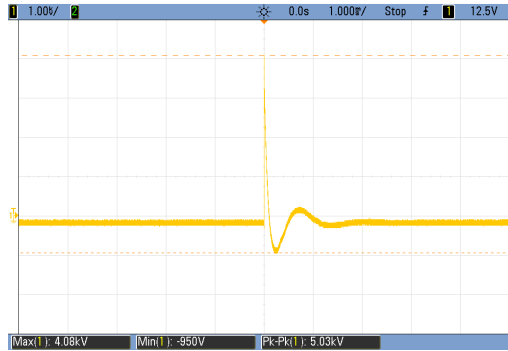
Put FC-L01D on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 $\pm 2KV$ (2Ω internal resistance)/ $\pm 4KV$ (12Ω internal resistance). Put FC-L01D2 on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 $\pm 4KV$ (2Ω internal resistance)/ $\pm 6KV$ (12Ω internal resistance) and EMI requirement of CISPR22 /EN 55022 Class B.

EMC Specifications

①FC-L01D Surge Test Result



Input voltage waveform (Differential mode 1.99KV)



Input voltage waveform (Common mode 4.084.62KV)

Note: Above result was tested on FC-L01D open.

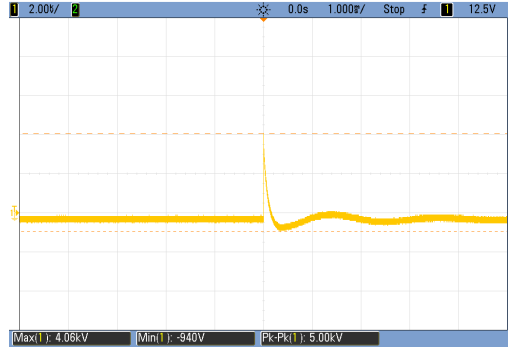


Output voltage waveform (0.9 KV)

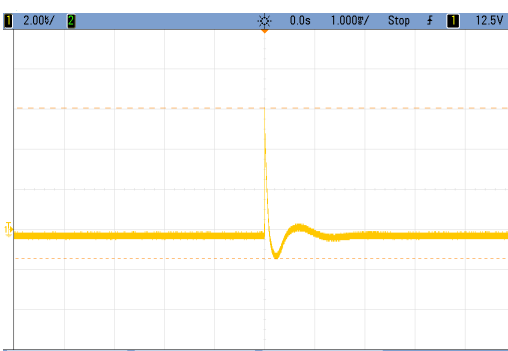


Output voltage waveform(0.71 KV)

②FC-L01DD2 Surge Test Result



Input voltage waveform (Differential mode 4.06KV)

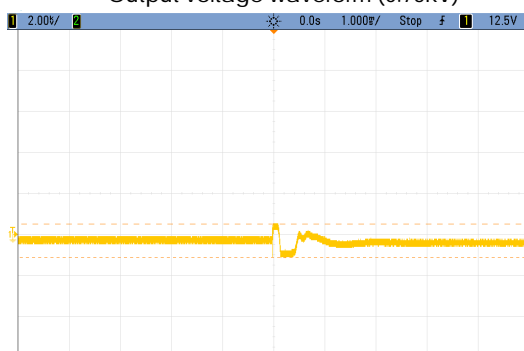


Input voltage waveform (Common mode 6.06KV)

Note: Above result was tested on FC-L01D2 open.



Output voltage waveform (0.75KV)



Output voltage waveform(0.5KV)

Design Reference

1. Inside schematic

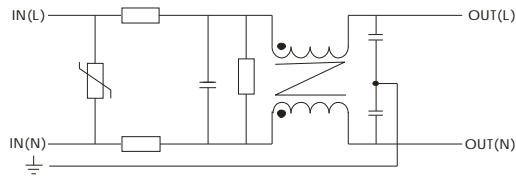


Fig1 FC-L01D

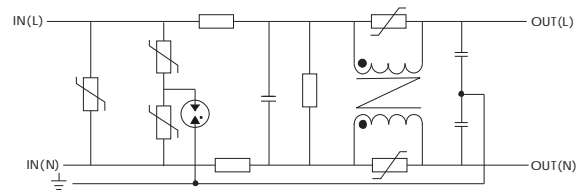
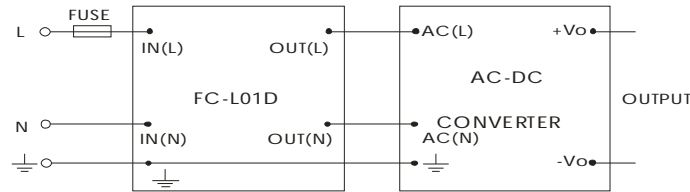


Fig 2 FC-L01D2

2. Typical application



FUSE: Due to the difference of the power module input current, the fuse of the recommended values, please refer to the Technical Manual for the power module.

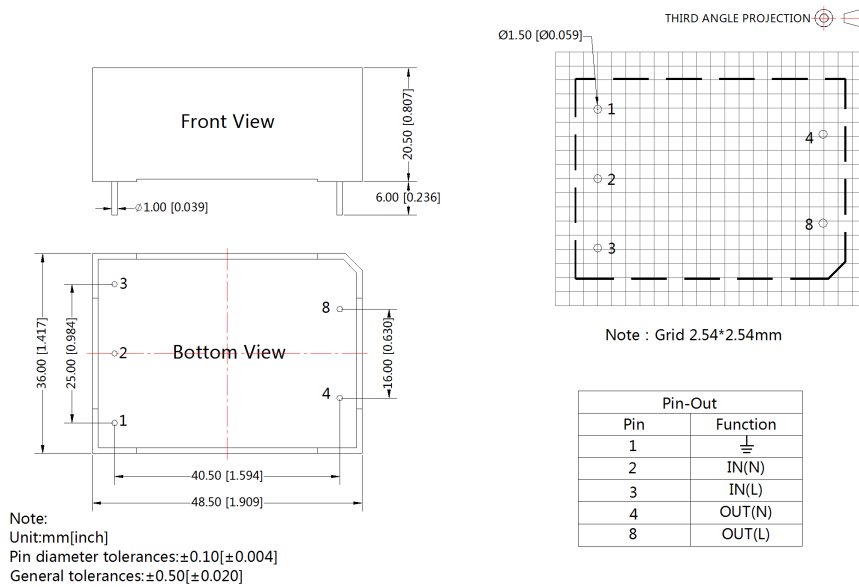
3. Supporting the product model

Model	EMI(Without External Circuit)	EMI(With EMC filter)	EFT (Without External Circuit)	EFT (With EMC filter)	Surge(Without External Circuit)	Surge (With FC-L01D)	Surge(With FC-L01D2)
LB(03-25)-10BXX(LT) Series	CISPR22/EN 55022 CLASS B	--	IEC/EN61000-4-4 ±2KV	IEC/EN61000-4-4 ±4KV	IEC/EN61000-4-5 ±1KV/±2KV	IEC/EN61000-4-5 ±2KV/±4KV	--
LD(01-02)-10BXX Series	CISPR22/EN 55022 CLASS B	--	--	IEC/EN61000-4-4 ±2KV	--	IEC/EN61000-4-5 ±1KV/±2KV	--
LD03-10BXX Series	CISPR22/EN 55022 CLASS A	CISPR22/EN55022 CLASS B	--	IEC/EN61000-4-4 ±2KV	--	IEC/EN61000-4-5 ±1KV/±2KV	--
LD05-20BXX Series	CISPR22/EN 55022 CLASS A	CISPR22/EN55022 CLASS B	IEC/EN61000-4-4 ±2KV	IEC/EN61000-4-4 ±4KV	IEC/EN61000-4-5 ±1KV/±2KV	IEC/EN61000-4-5 ±2KV/±4KV	--
LD05-23BXX Series	CISPR22/EN 55022 CLASS B	--	IEC/EN61000-4-4 ±2KV	IEC/EN61000-4-4 ±4KV	IEC/EN61000-4-5 ±1KV	IEC/EN61000-4-5 ±2KV/±4KV	--
LD10-20BXX Series	CISPR22/EN 55022 CLASS A	CISPR22/EN55022 CLASS B	IEC/EN61000-4-4 ±2KV	IEC/EN61000-4-4 ±4KV	IEC/EN61000-4-5 ±1KV	IEC/EN61000-4-5 ±2KV/±4KV	--
LD10-20BXX Series	CISPR22/EN 55022 CLASS A	CISPR22/EN55022 CLASS B	IEC/EN61000-4-4 ±2KV	IEC/EN61000-4-4 ±4KV	IEC/EN61000-4-5 ±1KV	IEC/EN61000-4-5 ±2KV/±4KV	--
LD10-23BXX Series	CISPR22/EN 55022 CLASS B	--	IEC/EN61000-4-4 ±2KV	IEC/EN61000-4-4 ±4KV	IEC/EN61000-4-5 ±1KV	IEC/EN61000-4-5 ±2KV/±4KV	--
LD12-20BXX Series	CISPR22/EN 55022 CLASS B	--	IEC/EN61000-4-4 ±4KV	--	IEC/EN61000-4-5 ±2KV	--	IEC/EN61000-4-5 ±4KV/±6KV
LD20-10BXX Series	CISPR22/EN 55022 CLASS B	--	IEC/EN61000-4-4 ±4KV	--	IEC/EN61000-4-5 ±2KV	--	IEC/EN61000-4-5 ±4KV/±6KV

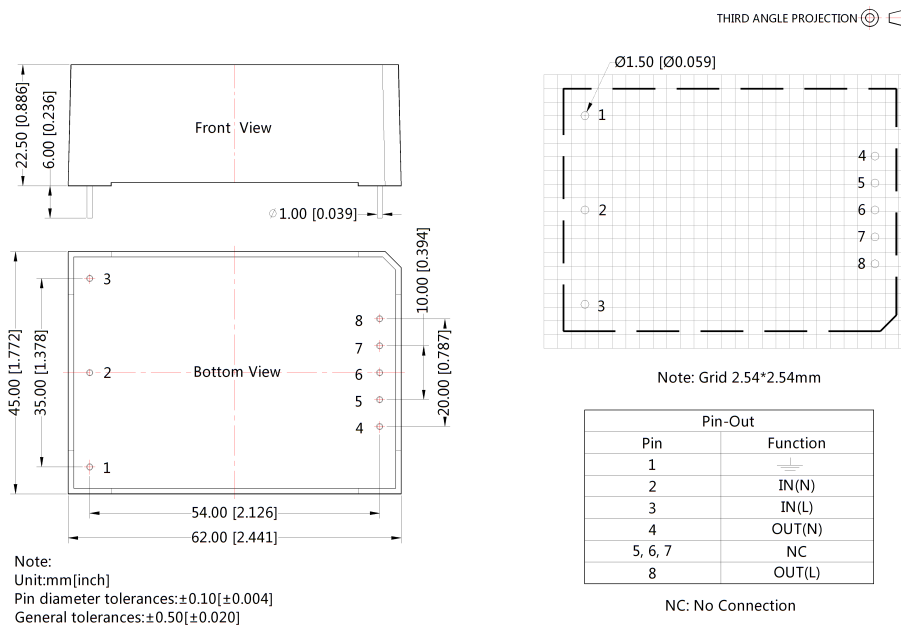
Model	EMI(Without External Circuit)	EMI(With EMC filter)	EFT (Without External Circuit)	EFT (With EMC filter)	Surge(Without External Circuit)	Surge(With FC-L01D)	Surge(With FC-L01D2)
LH Series	CISPR22/E N55022 CLASS B	--	IEC/EN61000-4-4 ±2KV	IEC/EN61000-4-4 ±4KV	IEC/EN61000-4-5 ±1KV/±2KV	IEC/EN61000-4-5 ±2KV/±4KV	--
Dedicated Power Converter For Power System LH(ER2) Series	CISPR22/E N55022 CLASS A	CISPR22/E N55022 CLASS B	IEC/EN61000-4-4 ±4KV	--	IEC/EN61000-4-5 ±2KV/±4KV	--	EC/EN61000-4-5 ±4KV/±6KV
LM30-00J0512-03E	CISPR22/E N55022 CLASS B	--	IEC/EN61000-4-4 ±4KV	--	IEC/EN61000-4-5 ±2KV/±4KV	--	EC/EN61000-4-5 ±4KV/±6KV

4. For more information Please find the application notes on www.mornsun-power.com

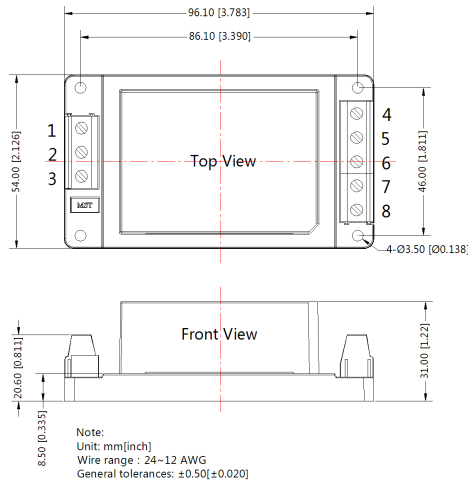
FC-L01D Dimensions and Recommended Layout



FC-L01D2 Dimensions and Recommended Layout



FC-L01DA2 & FC-L01D2A2 Dimensions

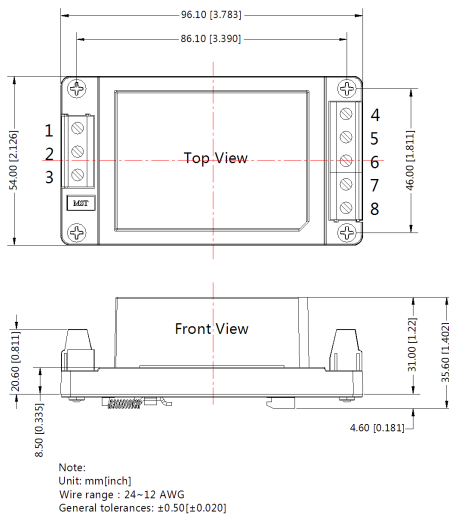


Pin	FC-L01DA2	FC-L01D2A2
1	⊕	⊕
2	IN(N)	IN(N)
3	IN(L)	IN(L)
4	OUT (N)	OUT (N)
5	NC	NC
6	NC	NC
7	NC	NC
8	OUT (L)	OUT (L)

*The figure above is related to FC-L01D2A2 series, the height of other series is different.

OUTLINE AND DIMENSIONS	
MODEL	DIMENSIONS
FC-L01DA2	96.1*54*29.0mm
FC-L01D2A2	96.1*54*31.0mm

FC-L01DA4 & FC-L01D2A4 Dimensions



Pin	FC-L01DA4	FC-L01D2A4
1	⊕	⊕
2	IN(N)	IN(N)
3	IN(L)	IN(L)
4	OUT (N)	OUT (N)
5	NC	NC
6	NC	NC
7	NC	NC
8	OUT (L)	OUT (L)

*The figure above is related to FC-L01D2A4 series, the height of other series is different.

OUTLINE AND DIMENSIONS	
MODEL	DIMENSIONS
FC-L01DA4	96.1*54*33.6mm
FC-L01D2A4	96.1*54*35.6mm

Note:

1. Packing Information please refer to 'Product Packing Information'. The Packing bag number of Horizontal package : 58220007 (FC-L01D)/58220006(FC-L01D2), the Packing bag number of A2/ A4 package:58220010;
2. Unless otherwise specified, data in this data sheet should be tested under the conditions of Ta=25°C, humidity<75%;
3. All index testing methods in this datasheet are based on our Company's corporate standards;
4. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technicians for specific information;
5. We can provide product customization service;
6. Specifications of this product are subject to changes without prior notice.

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