

EMC Filter



Patent Protection RoHS

FEATURES

- Meet IEC/EN61000-4 series standard and CISPR22/EN55022
- Meets requirements of railway standard EN50155
- Reverse input voltage protection
- High efficiency up to 98%
- Mounting: PCB mounting, Chassis mounting, DIN-Rail mounting available

This model applies to analog circuit which is noise-sensitive. Put FC-CxxD on to the input of DC/DC module can ensure the module meet the EMC request of EN50155 standard. FC-CXXD is used with the MORNSUN DC/DC railway module of which rated power is less than 20W. DC/DC railway module's max. Input voltage must less than FC-CXXD's max. Voltage.

Selection Guide

Model	Input Voltage Range (VDC)	Max. output power(W)
FC-C01D	40-160	10
FC-CX1D	40-160	30
FC-C03D	40-160	50

Note: series with suffix "A2S" are chassis mounting, with suffix "A4S" are DIN-Rail mounting, for example FC-C01DA4S.

Input Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit	
Input Voltage	Operating temperature range	40	110	160	VDC	
No-load Current	FC-C01D & FC-CX1D	110VDC @ No-load	--	--	1	mA
	FC-C03D		--	--	3	

Output Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit	
Efficiency	FC-C01D	110VDC @10W	--	98	--	%
	FC-CX1D	110VDC @30W	--	98	--	
	FC-C03D	110VDC @50W	--	98	--	
Max. Output Voltage Limit*	Input voltage is not more than 175V	--	165	--	VDC	

Note: * Products continue to work in the Max. Output Voltage Limit will be failures and damage.

General Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit	
Operating Temperature		-40	--	+85	°C	
Storage Temperature		-55	--	+125		
Casing Temperature Rise	110VDC @Full load, Ta=25°C	--	+25	--		
Storage Humidity		5	--	95	%RH	
Insulation Voltage	+Vin - $\frac{1}{2}$, -Vin - $\frac{1}{2}$, leakage current < 5mA, with the test time of 1 minute	FC-C03D	--	--	2000	VAC
		Others	--	--	1500	
MTBF	MIL-HDBK-217F@40°C	--	1200	--	K hours	
Vibration	10 cycles in each axis, Test time in each axis: 3 minute, Frequency: 5-150Hz, amplitude: 7.5mm, acceleration: 10g	IEC/EN61373				

General Specifications

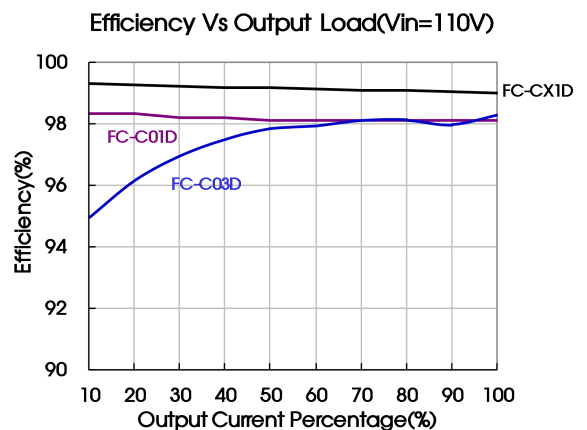
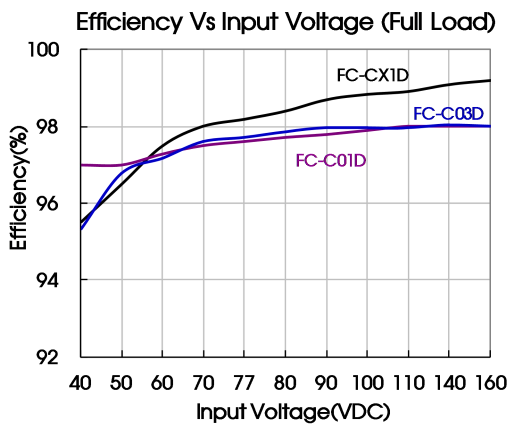
Casing Material		Black flame-retardant heat-proof epoxy resin (UL94 V-0)	
Dimensions	FC-C01D	Horizontal package	50.80*25.40*15.16mm
		A2S wiring package	76.00*31.50*24.96mm
		A4S rail package	76.00*31.50*28.56mm
	FC-CX1D & FC-C03D	Horizontal package	53.80*28.80*19.00mm
		A2S wiring package	76.00*31.50*27.80mm
		A4S rail package	76.00*31.50*32.40mm
Weight	FC-C01D	Horizontal package/A2S wiring package/ A4S rail package	35g/55g/75g(Typ)
	FC-CX1D & FC-C03D		50g/70g/90g(Typ)

EMC Specifications

EMI	CE	CISPR22/EN55022	150KHz-30MHz Class B (With MORNSUN's Module)	
	RE	CISPR22/EN55022	30MHz-1GHz Class B (With MORNSUN's Module)	
EMS	ESD	IEC/EN61000-4-2, GB/T17626.2	Contact ±6KV/Air ±8KV	perf. Criteria B
	RS	IEC/EN61000-4-3, GB/T17626.3	10V/m (With MORNSUN's Module)	perf. Criteria A
	EFT	IEC/EN61000-4-4, GB/T17626.4	±4KV (5KHz,100KHz)	perf. Criteria B
	Surge	IEC/EN61000-4-5, GB/T17626.5	±2KV(1.2µs/50µs 2Ω)/±4KV(1.2µs/50µs 12Ω)	perf. Criteria B
	CS	IEC/EN61000-4-6, GB/T17626.6	10Vr.m.s (With MORNSUN's Module)	perf. Criteria A

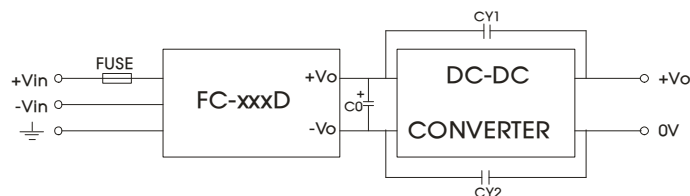
Note: The EMC specifications test above are all tested according to the circuit of typical application.

Product Characteristic Curve

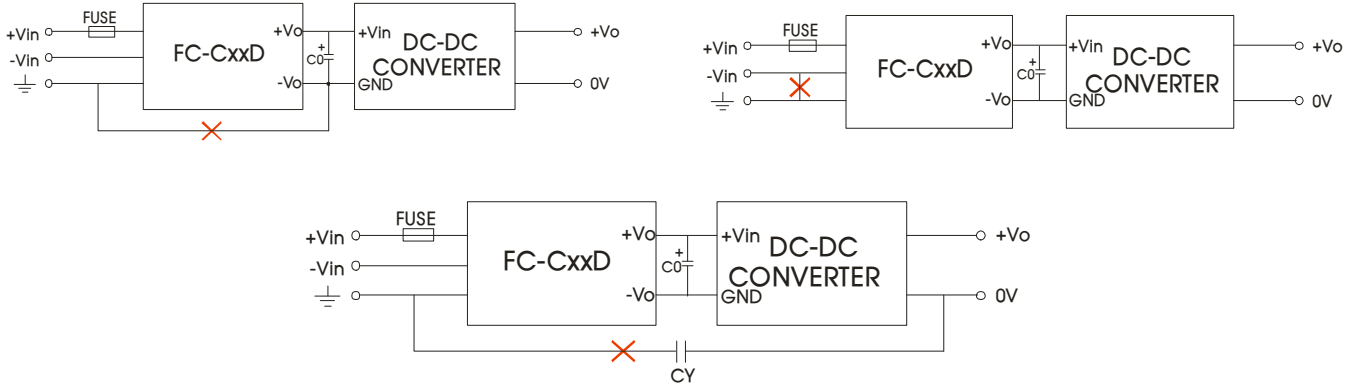


Design Reference

1. Typical application



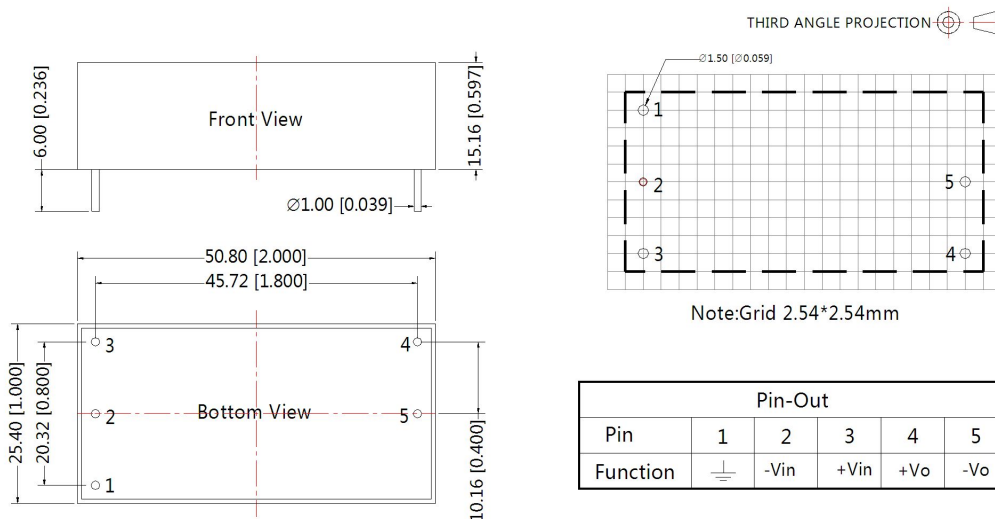
Model	Recommended external circuit parameters	
C0	FC-C01D&FC-CX1D	Recommend to use 100uF/200V electrolytic capacitor
	FC-C03D	Recommended to use 200uF/400V electrolytic capacitors in parallel
CY1, CY2	1nF/2000V	
FUSE	Due to the difference of the power module input current, the fuse of the recommended values, please refer to the Technical Manual for the power module	



Note: These applications is not supported for this model.

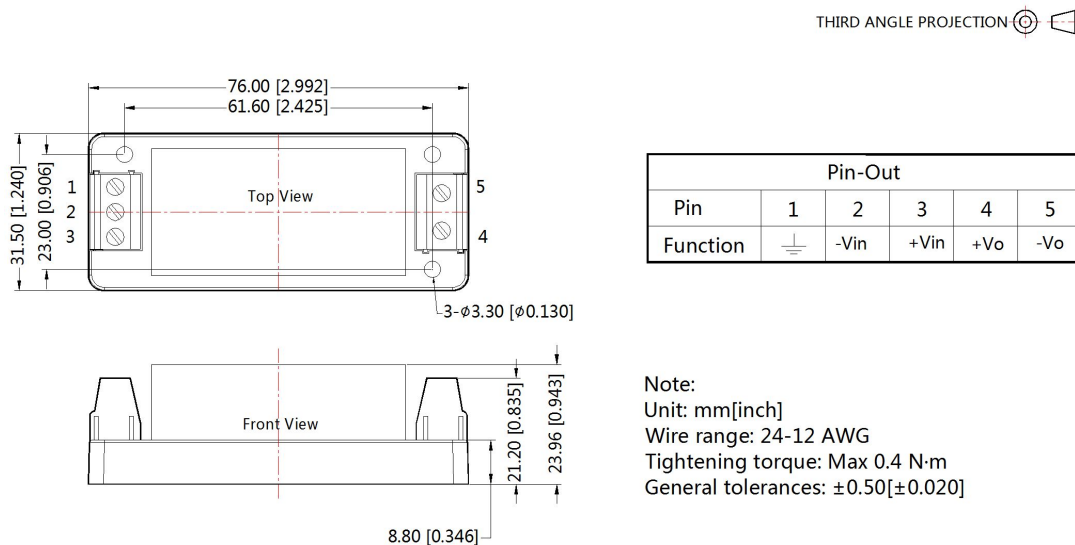
2. For more information Please find the application notes on www.mornsun-power.com

FC-C01D Dimensions and Recommended Layout



Note:
Unit :mm[inch]
Pin diameter tolerances : $\pm 0.10[\pm 0.004]$
General tolerances: $\pm 0.50[\pm 0.020]$

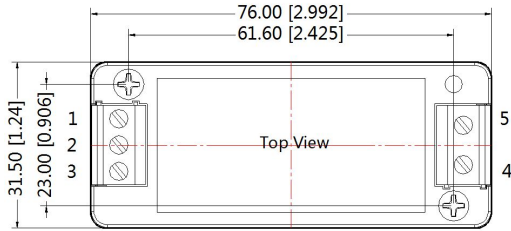
FC-C01DA2S Dimensions




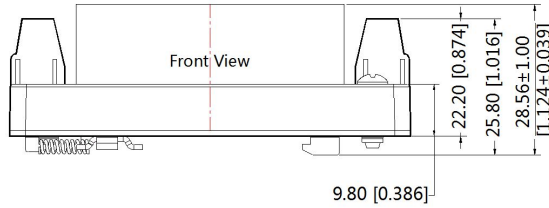
Note:
Unit: mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
General tolerances: $\pm 0.50[\pm 0.020]$

FC-C01DA4S Dimensions

THIRD ANGLE PROJECTION 



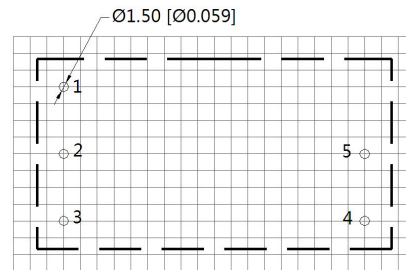
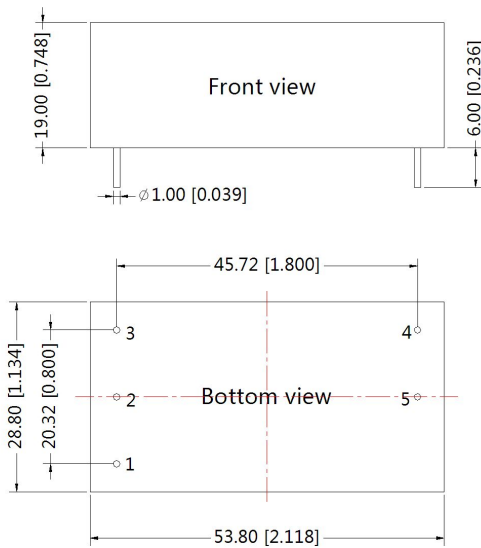
Pin-Out					
Pin	1	2	3	4	5
Function		-Vin	+Vin	+Vo	-Vo




Note:
Unit: mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
Installed on DIN RAIL TS35
General tolerances: ±0.50[±0.020]

FC-CX1D&FC-C03D Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



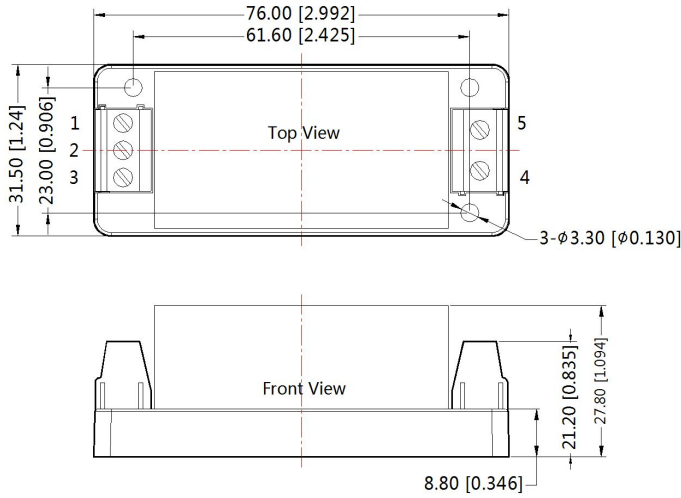
Note : Grid 2.54*2.54mm


Pin-Out	
Pin	Function
1	
2	-Vin
3	+Vin
4	+Vo
5	-Vo

Note:
Unit :mm[inch]
Pin diameter tolerances :±0.10[±0.004]
General tolerances:±0.50[±0.020]

FC-C01DA2S & FC-B02DA2S Dimensions

THIRD ANGLE PROJECTION 

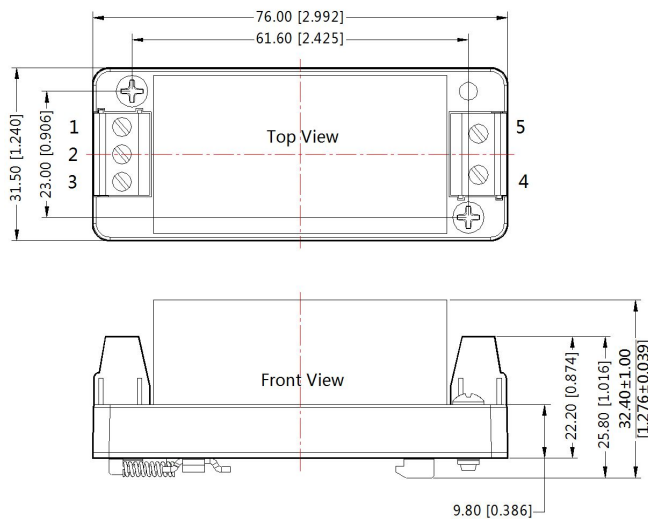



Pin-Out					
Pin	1	2	3	4	5
Function		-Vin	+Vin	+Vo	-Vo

Note:
Unit: mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
General tolerances: $\pm 0.50[\pm 0.020]$

FC-C01DA4S & FC-B02DA4S Dimensions

THIRD ANGLE PROJECTION 



Pin-Out					
Pin	1	2	3	4	5
Function		-Vin	+Vin	+Vo	-Vo

Note:
Unit: mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
Installed on DIN RAIL TS35
General tolerances: $\pm 0.50[\pm 0.020]$

- Note:
1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number: 58220003 (FC-C01D), 58220005 (FC-CX1D&FC-C03D), the Packing bag number of A2S/ A4S package: 58220022;
 2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^\circ\text{C}$, humidity<75%RH with nominal input voltage and rated output load;
 3. All index testing methods in this datasheet are based on Company's corporate standards;
 4. We can provide product customization service, please contact our technicians directly for specific information;
 5. Specifications are subject to change without prior notice.

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