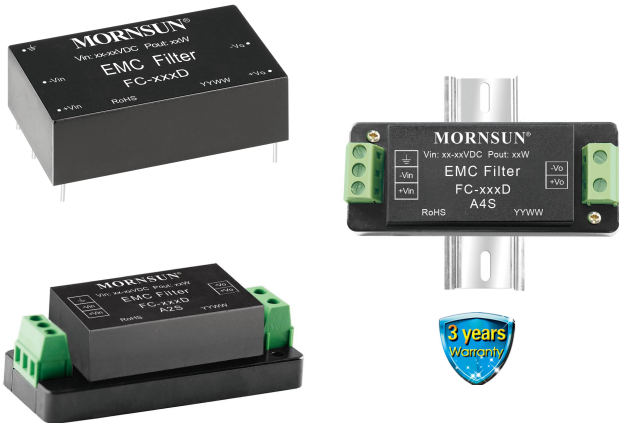


EMC Filter



FEATURES

- Compact size
- Cost-effective
- Designed to meet IEC/EN61000-4 and CISPR32/EN55032 standards
- Input reverse voltage protection
- High efficiency up to 98%
- With soft start function
- Flexible mounting options include direct PCB mounting, Chassis or DIN-Rail mounting with Screw Terminals

Patent Protection RoHS

These filter modules are extremely useful in noise-sensitive analog circuit applications. Filters connected on the input side of DC/DC converters can ensure system compliance with EMC requirements according to IEC/EN61000-4 and CISPR32/EN55032 standards. MORNSUN's DC/DC railway converter module can be used with the filters as long as the DC-DC converters input voltage does not exceed the filter maximum voltage rating and DC-DC converters' power does not exceed the filter maximum output power.

Selection Guide

Model	Input Voltage Range (VDC)	Max. output power(W)
FC-AX3D	10-36	30
FC-B02D	18-75	30
FC-D03D	18-36	50
FC-E03D	36-75	75

Note: Add suffix "A2S" for chassis mounting and suffix "A4S" for DIN-Rail mounting.

Input Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	FC-AX3D	10	24	36	VDC
	FC-B02D	18	48	75	
	FC-D03D	18	24	36	
	FC-E03D	36	48	75	
No-load Current	FC-AX3D	24VDC @ No-load	--	10	mA
	FC-B02D	48VDC @ No-load	--	10	
	FC-D03D	24VDC @ No-load	--	5	
	FC-E03D	48VDC @ No-load	--	5	

Output Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Efficiency	FC-AX3D	24VDC @30W	--	98	%
	FC-B02D	48VDC @30W	--	98	
	FC-D03D	24VDC @50W	--	98	
	FC-E03D	48VDC @50W	--	97	
Max. Output Voltage Limit*	FC-AX3D	Input voltage ≤ 47V	--	39	VDC
	FC-B02D	Input voltage ≤ 100V	--	82	
	FC-D03D	Input voltage ≤ 47V	--	39	
	FC-E03D	Input voltage ≤ 100V	--	82	

Note: *Continuous operation of the filters at their Max. Output Voltage Limit may cause failures and/or permanent damage.

General Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Operating Temperature		-40	--	+85	°C
Storage Temperature		-55	--	+125	
Max. Case Temperature	FC-AX3D	24VDC @30W, T _a =25°C	--	+40	
	FC-B02D	48VDC @30W, T _a =25°C	--	+40	
	FC-D03D	24VDC @50W, T _a =25°C	--	+75	
	FC-E03D	48VDC @50W, T _a =25°C	--	+70	
Storage Humidity		5	--	95	%RH
Isolation	+V _{in} - $\frac{+}{-}$, -V _{in} - $\frac{-}{+}$, leakage current < 5mA, with the test time of 1 minute	--	--	500	VAC
MTBF	MIL-HDBK-217F@40°C	--	1000	--	K hours

Mechanical Specifications

Case Material	Black epoxy resin; flame-retardant, heat-resistant (UL94 V-0)	
Dimensions	Horizontal package	53.80 x 28.80 x 19.00 mm
	A2S chassis mounting	76.00 x 31.50 x 27.80 mm
	A4S DIN-Rail mounting	76.00 x 31.50 x 32.40 mm
Weight	Horizontal package/A2S chassis mounting/A4S DIN-Rail mounting	50.0g/70.0g/90.0g(Typ)

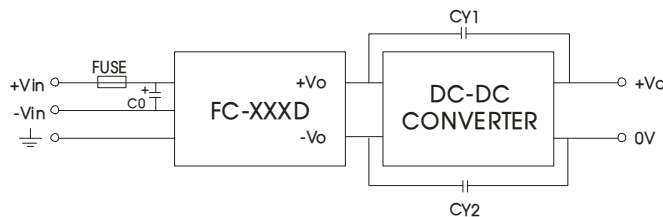
Electromagnetic compatibility (EMC)

Emissions	CE	CISPR32/ EN55032	150KHz-30MHz Class B (With MORNSUN's Module)
	RE	CISPR32/ EN55032	30MHz-1GHz Class B (With MORNSUN's Module)
Immunity	ESD	IEC/EN61000-4-2/GB/T17626.2	Air ±8KV Contact ±6KV perf. Criteria B
	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
	RS	IEC/EN61000-4-3/GB/T17626.3	10V/m (With MORNSUN's Module) perf. Criteria A
	CS	IEC/EN61000-4-6/GB/T17626.6	10Vr.m.s (With MORNSUN's Module) perf. Criteria A

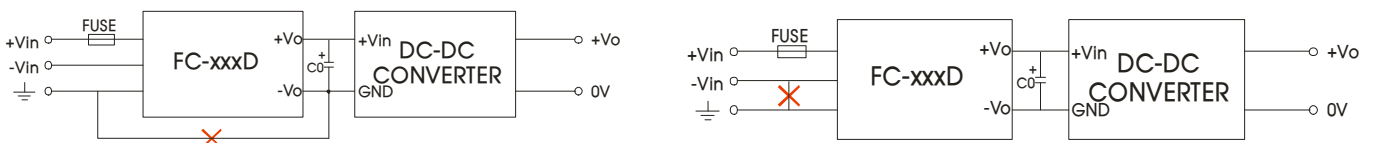
Note: All EMC specifications above are tested using the circuit shown in Typical Application.

Design Reference

1. Typical application



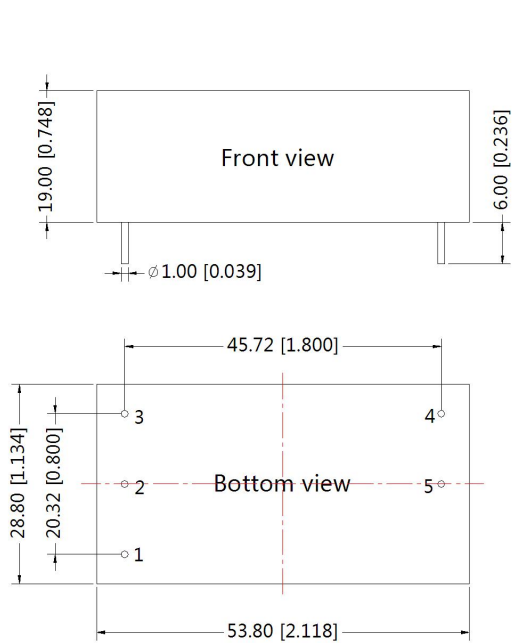
Model	Recommended external circuit parameters.
C0	400uF/200V electrolytic capacitor.
CY1, CY2	1nF/2000V
FUSE	The fuse value varies with different power modules and must be selected in accordance with the specified input current of the corresponding power converter, but not exceeding the filter specifications.



Note: Connections marked with X interfere with this filter modules performance and should therefore not be used

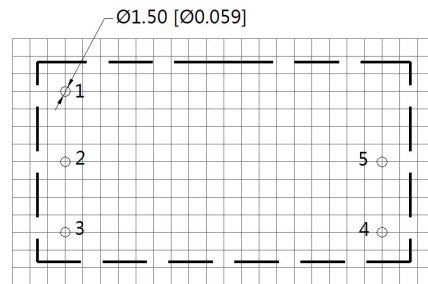
2. For additional information please refer to the application notes on www.mornsun-power.com

FC-xxxD Dimensions and Recommended Layout



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

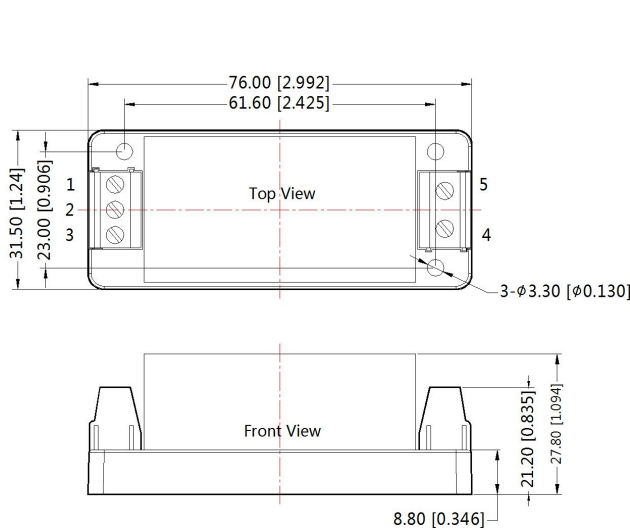
THIRD ANGLE PROJECTION



Note : Grid 2.54*2.54mm

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

FC-xxxDA2S Dimensions



THIRD ANGLE PROJECTION

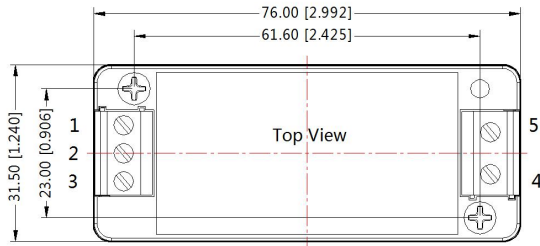
Pin-Out					
Pin	1	2	3	4	5
Function		-Vin	+Vin	+Vo	-Vo


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

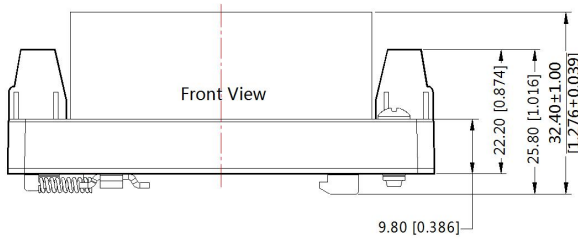
2018年12月10-正本-

FC-xxxDA4S 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]

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220005, the Packaging bag number of A2S/ A4S package: 58220022;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, 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. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

2018年12月10-正本-

MORNSUN Guangzhou Science & Technology Co., Ltd.

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Luogang District, Guangzhou, P. R. China
Tel: 86-20-38601850 Fax: 86-20-38601272 E-mail: sales@mornsun.cn www.mornsun-power.com