

5W, AC/DC CONVERTER

FEATURES

- ◆ Universal input voltage range:
85~265V_{AC}/100~375V_{DC}
- ◆ AC and DC dual-use(input from the same terminal)
- ◆ High efficiency, high power density
- ◆ Output short circuit, over-current, over-voltage protections
- ◆ Meets UL60950, EN60950 standards (Pending)
- ◆ Mounting :PCB mounting, Chassis mounting, Din-Rail mounting available
- ◆ Three year warranty



Selection Guide

Certification	Part No.	Output Power	Nominal Output Voltage and Current(Vo/Io)	Efficiency (230V _{AC} , %/Typ.)	Max. Capacitive Load (μF)
	CFAE5S3V3M	4.2W	3.3V/1250mA	74	4000
	CFAE5S05M	5W	5V/1000mA	78	4000
	CFAE5S09M		9V/550mA	78	1000
	CFAE5S12M		12V/420mA	80	820
	CFAE5S15M		15V/333mA	82	820
	CFAE5S24M		24V/230mA	83	330

Note: The suffix "Z" indicates DIN rail installation, for example: CFAE10S05MZ

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit.
Input Voltage Range	AC input	85	--	265	V _{AC}
	DC input	100	--	375	V _{DC}
Input Frequency		47	--	63	Hz
Input Current	110V _{AC}	--	--	105	mA
	230V _{AC}	--	--	70	
Inrush Current	110V _{AC}	--	10	--	A
	230V _{AC}	--	20	--	
Recommended External Input Fuse(Special package series include fuse)		1A/250V, slow fusing, necessary			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	3.3V output		--	±3	--	%
	Other output		--	±2	--	
Line Regulation	Full load		--	±0.5	--	
Load Regulation	10%-100% load		--	±1	--	mV
Ripple/Noise*	20MH bandwidth (peak-peak value)	3.3V/5V output	--	60	120	
		Other output	--	50	100	
Temperature Coefficient			--	±0.02	--	%/°C
Stand-by Power Consumption			--	--	0.3	W
Short Circuit Protection			Hiccup, continuous, self-recovery			
Over-current Protection			≥ 110%Io self-recovery			
Over-voltage Protection			Over-voltage shutdown			
Hold-up Time	110Vac input		--	12	--	ms
	230Vac input		--	80	--	

Note: * Ripple and noise are measured by "parallel cable" method, please see AC-DC Converter Application Notes for specific operation.

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output	Test time:1min	4000	--	--	V _{AC}
Operating Temperature			-25	--	+55	℃
Storage Temperature			-40	--	+105	
Storage Humidity			--	--	95	%RH
Switching Frequency			--	--	140	KHz
Power Derating		+55℃～+70℃	2.0	--	--	% /℃
		+0℃～-25℃	2.0	--	--	
Safety Standard		IEC60950/EN60950/UL60950				
Safety Certification		EN60950/UL60950 (Pending)				
Safety Class		CLASS II				
MTBF		MIL-HDBK-217F@25℃> 300,000 h				

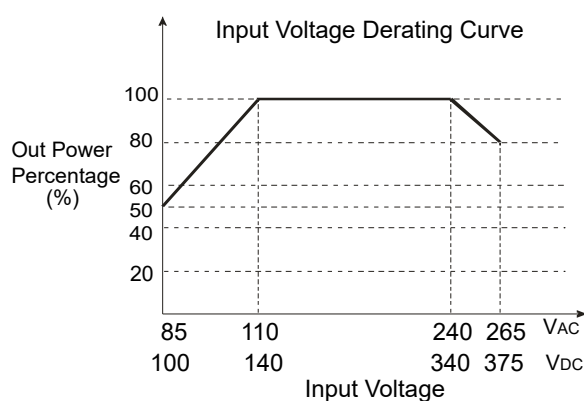
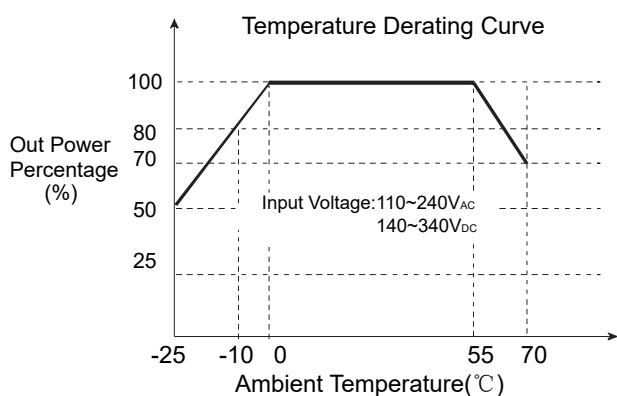
Physical Specifications

Casing Material		Black flame-retardant and heat-resistant plastic (UL94-V0)
Dimension	Z Din-Rail mounting	Refer to the Dimensions
Weight	Z Din-Rail mounting	70g (Typ.)
Cooling Method		Free convection

EMC Specifications

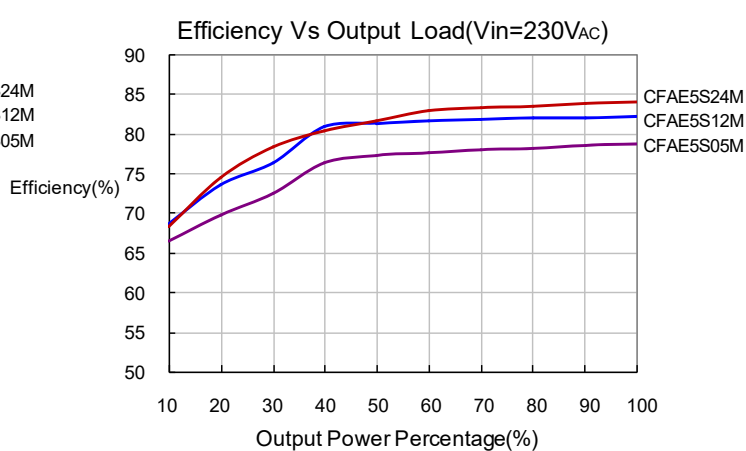
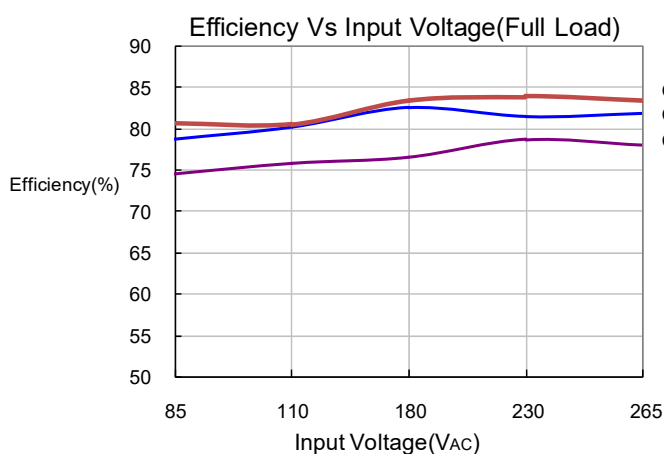
EMI	CE	CISPR22/EN55022, CLASS B			
	RE	CISPR22/EN55022, CLASS B			
EMS	ESD	IEC/EN61000-4-2 ±6KV/ 8KV			perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m			perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±2KV			perf. Criteria B
		IEC/EN 61000-4-4 ±4KV (See Fig. 2 for recommended circuit)			perf. Criteria B
	Surge	IEC/EN 61000-4-5 ±1KV			perf. Criteria B
		IEC/EN 61000-4-5 ±2KV/±4KV (See Fig. 2 for recommended circuit)			perf. Criteria B
	CS	IEC/EN61000-4-6 10Vr.m.sI			perf. Criteria A
	PFM	IEC/EN61000-4-8 10A/ m			perf. Criteria A
Voltage dips, short interruptions and voltage variations immunity		IEC/EN61000-4-11 0%-70%			perf. Criteria B

Product Characteristic Curve



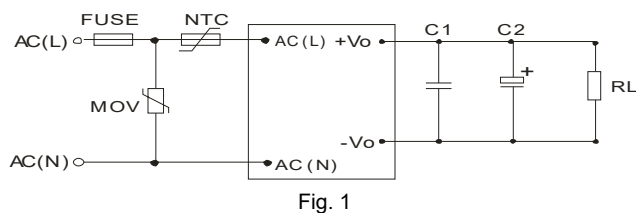
Note: ①When input 85~110V_{AC}/240~265V_{AC}/100~140V_{DC}/340~375V_{DC}, it need to be voltage derated on basis of temperature derating;

②This product is suitable for use in natural air cooling environments, if in a closed environment, please contact our company's FAE.



Design Reference

1. Typical application circuit

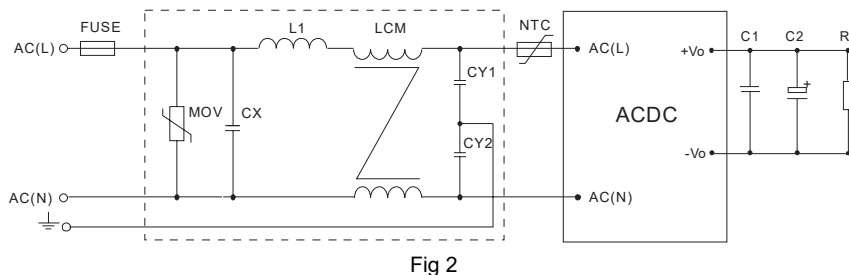


Model	C1(μF)	C2(μF)
CFAE5S03V3M	1	220
CFAE5S05M		220
CFAE5S09M		100
CFAE5S12M		100
CFAE5S15M		100
CFAE5S24M		47

Note:

Output filtering capacitor C2 is a electrolytic capacitor, it is recommended to use high frequency and low impedance electrolytic capacitor. For capacitance and current of capacitor please refer to manufacture's datasheet. Output capacitor withstand voltage derating should be 80% or above. C1 is ceramic capacitor, which is used to filter high-frequency noise. External input NTC is recommended to use 12D-5; External input MOV is recommended to use S14K350.

2. EMC solution-recommended circuit



EMC solution-recommended circuit PCB layout

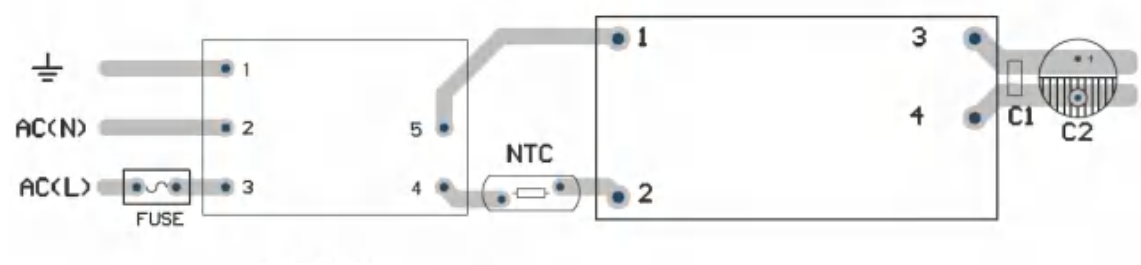
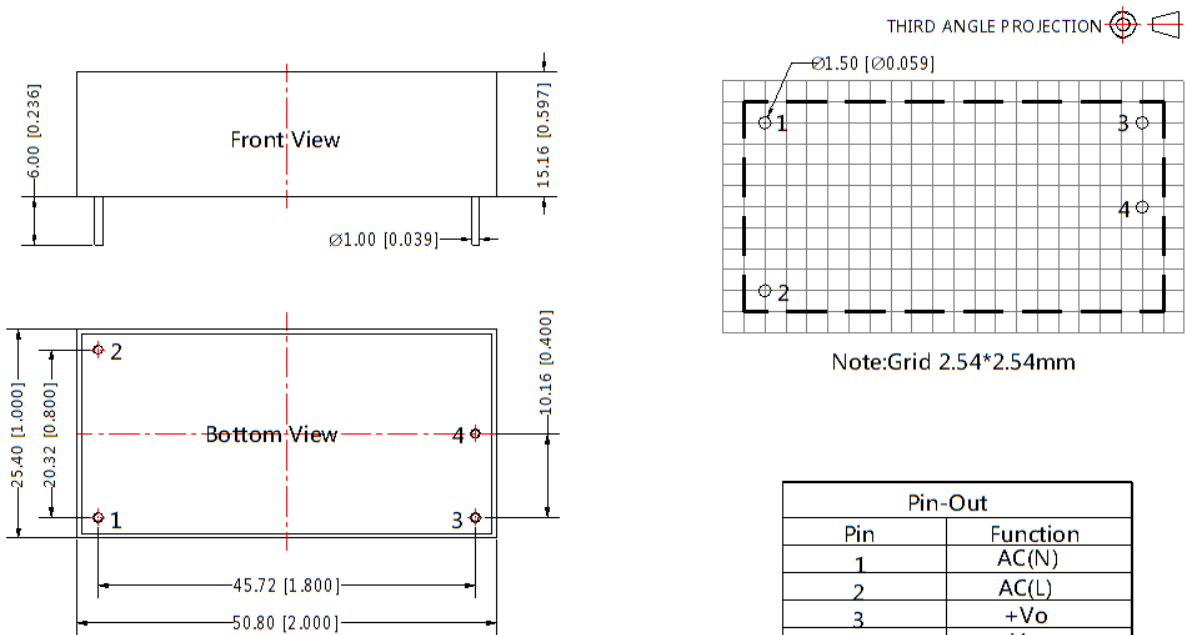


Fig 3

Note: Suggestions for safety regulation and wiring width: wire width ≥ 3mm, distance between wires ≥ 6mm, and distance between wire and ground ≥ 6mm
For detailed information on filters, please contact our company

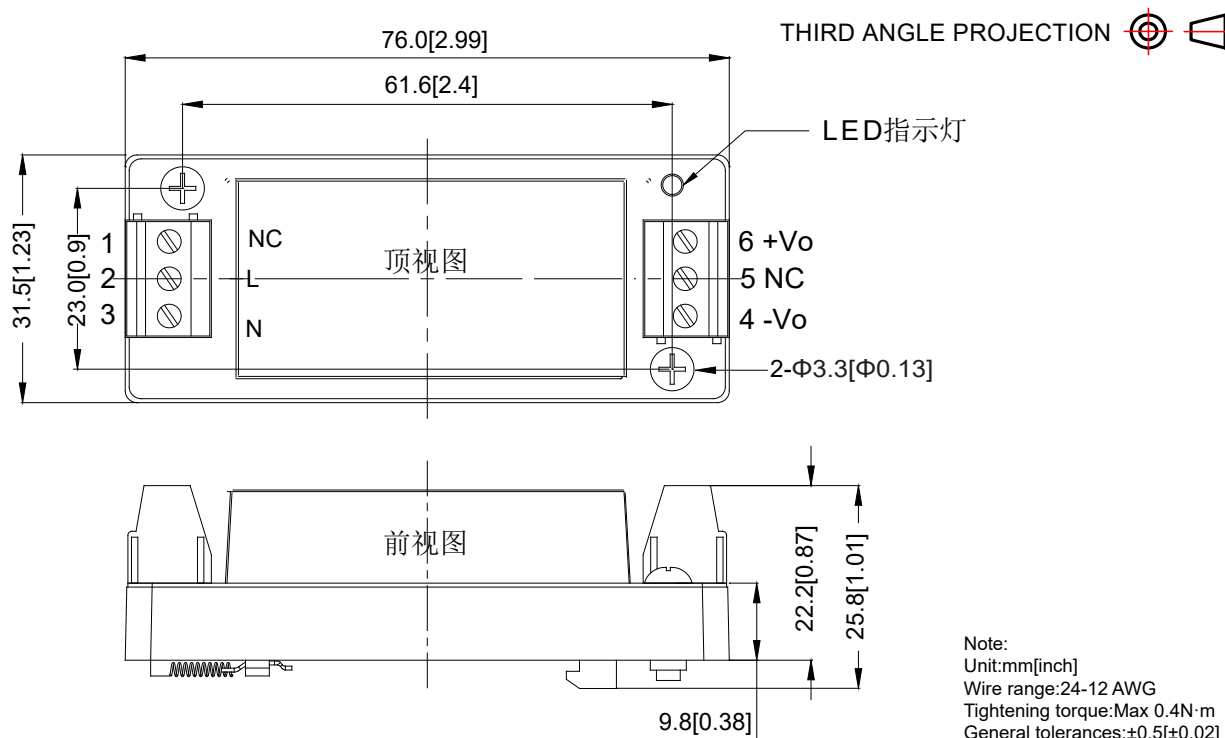
Element model	Recommended value
MOV	S14K350
CX	0.1μF/275VAC
L1	4.7uH/2.0A
CY1	1nF/400VAC
CY2	1nF /400VAC
LCM	2.2mH
FUSE	1A/250V, slow fusing, necessary

Dimensions and Recommended Layout



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

CFAE5S05MZ Din-Rail mounting Dimensions



Note:

1. If the product operates below the minimum required load, it cannot be guaranteed that the product performance meets all performance indicators in this manual;
2. The maximum capacitive load is within the input voltage range and tested under full load conditions;
3. Unless otherwise specified, all indicators in this manual are measured at Ta=25°C, humidity<75% RH, nominal input voltage, and output rated load;
4. All indicator testing methods in this manual are based on the company's corporate standards;
5. Our company can provide product customization, and you can directly contact our technical personnel for specific situations;
6. The product involves laws and regulations: see "Product Features" and "EMC Characteristics";
7. After our company's products are scrapped, they need to be classified and stored according to ISO14001 and relevant environmental laws and regulations, and handed over to qualified units for processing



Beijing Huayang Changfeng Technology Co., Ltd.

Production Base: No. 25 Huoju South Street, Development Zone, Zhuozhou City, Hebei Province

phone:010-68817997

mobile phone:15600309099

E-mail:sales@chewins.net