

FEATURES:

30W,AC-DC CONVERTER



- ◆ Input voltage range:85-305V_{AC} and 120-430V_{DC} (48V output), 85-305V_{AC} and 100-430V_{DC}(others)
- ◆ Operating ambient temperature range: -25℃ to +55℃
- ◆ Up to 90% efficiency
- ◆ No-load power consumption as low as 0.1W
- ◆ 5000m altitude application
- ◆ EMI performance meets CISPR32/EN55032 CLASS B, EN55014
- ◆ Meets surge ±2KV without additional circuits
- ◆ OVC III (design to meet EN61558-1)
- ◆ Three year warranty

Selection Guide

Certification	Part No.*	Output Power (W)	Nominal Output Voltageand Current (Vo/Io)	Efficiency at 230V _{AC} (%)Typ.	Capacitive Load (uF) Max.
	CFAME30S3V3R3	19.8	3.3V/6000mA	85	6600
	CFAME30S05R3	30	5V/6000mA	86	6600
	CFAME30S09R3	30.6	9V/3400mA	88	4400
	CFAME30S12R3	30	12V/2500mA	90	4400
	CFAME30S15R3	30	15V/2000mA	90	3300
	CFAME30S18R3	30	18V/1670mA	87	2000
	CFAME30S24R3	31.2	24V/1300mA	88	1000
	CFAME30S48R3	30.2	48V/630mA	90	470

Note: 1. *Use suffix "Z1" for chassis and suffix "Z" for DIN-Rail mounting.
2. The product picture is for reference only. For details, please refer to the actual product.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		85	--	305	V _{AC}
	DC input	3.3V/5V/9V/12V/15V/18V/24V	100	--	430	V _{DC}
		48V	120	--	430	V _{DC}
Input Frequency			47	--	63	Hz
Input Current	115V _{AC}		--	--	0.75	A
	230V _{AC}		--	--	0.5	
Inrush Current	115V _{AC}		--	25	--	
	230V _{AC}		--	50	--	
Leakage Current	277V _{AC} /50Hz		0.1mA RMS Max.			
BuiltIn Fuse			2A/300V,slow-blow			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	3.3V		--	±3	--	%
	5V/9V/12V/15V/18V/24V/48V		--	±2	--	
Line Regulation	Full load		--	±0.5	--	

Load Regulation	0%-100%load	3.3V	--	±2	--	%
		5V	--	±1.5	--	
		9V/ 12V/ 15V/ 18V/ 24V/ 48V	--	±1	--	
Ripple & Noise*	20MHz band width (peak-to-peak value)	3.3V/5V/9V/ 12V/ 15V	--	--	100	mV
		18V/ 24V/ 48V	--	100	150	
Stand-by Power Consumption	230VAC	3.3V/5V/9V/ 12V/ 15V	--	0.1	0.12	W
		18V	--	0.1	0.15	
		24V/ 48V	--	0.15	0.2	
Temperature Coefficient			--	±0.02	--	%/℃
Short Circuit Protection		Hiccup,continuous,self-recover				
Over-current Protection		≥110%Io,self-recover				
Over-voltage Protection	3.3Vdc Output	≤6.3Vdc(Output voltage hiccup)				
	5Vdc Output	≤16Vdc(Output voltage hiccup)				
	9Vdc Output	≤16Vdc(Output voltage hiccup)				
	12Vdc Output	≤16Vdc(Output voltage hiccup)				
	15Vdc Output	≤25Vdc(Output voltage hiccup)				
	18Vdc Output	≤25Vdc(Output voltage hiccup)				
	24Vdc Output	≤35Vdc(Output voltage hiccup)				
	48Vdc Output	≤60Vdc(Output voltage hiccup)				
Minimum Load		0	--	--	--	%
Hold-up Time	115VAC input	--	10	--	--	ms
	230VAC input	--	50	--	--	

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor, please refer to AC-DC Converter Application Notes for specific information.

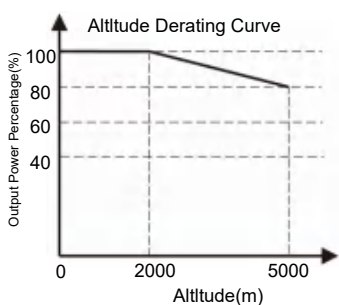
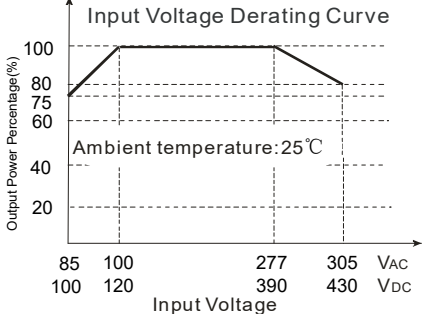
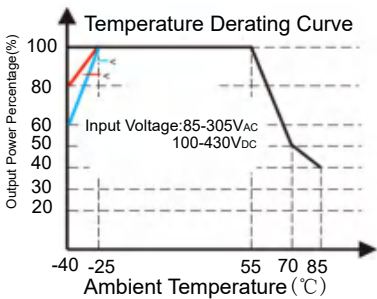
General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input-output	Electric Strength Test for 1min., leakage current<5mA	4200	--	--	VAC
Insulation Resistance	Input-output	At 500Vdc	100	--	--	MΩ
Operating Temperature			-25	--	+55	℃
Storage Temperature			-40	--	+105	
Storage Humidity			--	--	95	%RH
Soldering Temperature	Wave-soldering,Max.10 seconds		255	260	265	℃
	Manual-welding,Max.5 seconds		350	360	370	
Switching Frequency			--	65	--	kHz
Power Derating	-40℃ to -25℃(<115VAC)	5V	2.67	--	--	%/℃
	-40℃ to -25℃(<115VAC)	3.3V/9V/ 12V/ 15V/ 18V/ 24V/ 48V	1.33	--	--	
	+50℃ to +70℃		2.5	--	--	
	+70℃ to +85℃		0.67	--	--	
	85VAC-100VAC		1.33	--	--	%/VAC
	277VAC-305VAC		0.72	--	--	
	2000m-5000m		6.7	--	--	%/Km
Safety Standard	3.3V/5V/9V/12V/15V/24V/48V		EN/IEC62368-1, EN60335-1, EN61558-1 (Report) safety approval; Designrefer to UL62368-1			
	18V		Designrefer to EN61558-1,EN60335-1, EN62368-1			
Safety Class			CLASS II			
Vibration			10-500Hz,5G 10min./1cycle,period for 60min.Eachalong X,Y,Z axes			
MTBF		MIL-HDBK-217F@25℃	≥500,000h			

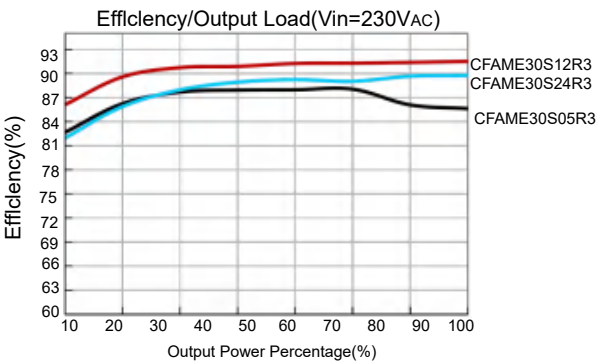
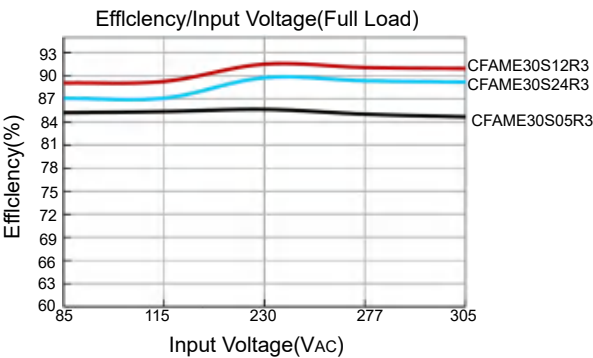
Mechanical Specifications		
Case Material		Black plastic, flame-retardant and heat-resistant (UL94V-0)/Metal
Dimension	DIP package	69.5x39.0x24.0mm
	Z1 chassis mounting	96.1x54.0x32.5mm
	Z Din-Rail mounting	96.1x54.0x37.1mm
Weight	DIP package	100g(Typ.)
	Z1 chassis mounting	147g(Typ.)
	Z Din-Rail mounting	190g(Typ.)
Cooling method		Free air convection

Electromagnetic Compatibility(EMC)					
Emissions	CE	CISPR32/EN55032 CLASS B			
		EN55014-1			
	RE	CISPR32/EN55032 CLASS B			
		EN55014-1			
Immunity	ESD	IEC/EN61000-4-2 Contact ±8KV/Air ±15KV		perf.Criteria A	
		IEC/EN55014-2			
	RS	IEC/EN61000-4-3 10V/m			
		IEC/EN55014-2			
	EFT	IEC/EN61000-4-4 ±2KV			
		IEC/EN61000-4-4 ±4KV(See Fig.2, Fig.3 for recommended circuit)			
		IEC/EN55014-2			
	Surge	IEC/EN61000-4-5 line to line±2KV			
		IEC/EN61000-4-5 line to line ±2KV/linetoPE±4KV (See Fig.2, Fig.3 for recommended circuit)			
		IEC/EN55014-2			
	CS	IEC/EN61000-4-6 10Vr.m.s			
		IEC/EN55014-2			
	Voltage variation*	IEC61000-6-2/IEC61000-4-11		70%Un,25/30cycle(50/60Hz)	perf.Criteria B
				40%Un,10/12cycle(50/60Hz)	
IEC/EN55014-2		0%Un,1cycle			
voltage interruption*		IEC61000-6-2/IEC61000-4-11		0% Un, 250/ 300 cycle(50/ 60Hz)	
	IEC/EN55014-2				
	Note: 1. When the output terminal of the product needs to be connected to PE through a Y capacitor, or close to the metal frame, please refer to the Fig. 3 for recommended circuit. 2. *Un is the maximum input nominal voltage.				

Product Characteristic Curve



Note: ① With an AC input between 85-100V/277-305VAC and a DC input between 100-120V/390-430VDC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult CHAWENS FAE.



Design Reference

1. Typical application

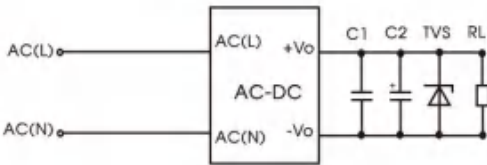


Fig. 2: EMC application circuit with higher requirements

Part No.	C1	C2	TVS
CFAME30S3V3R3	1uF/100V	10uF/50V	SMBJ7.0A
CFAME30S05R3			SMBJ7.0A
CFAME30S09R3			SMBJ12A
CFAME30S12R3			SMBJ20A
CFAME30S15R3			SMBJ20A
CFAME30S18R3			SMBJ30A
CFAME30S24R3			SMBJ30A
CFAME30S48R3		10uF/63V	SMBJ64A

Output Filter Components:
C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

2. EMC compliance recommended circuit

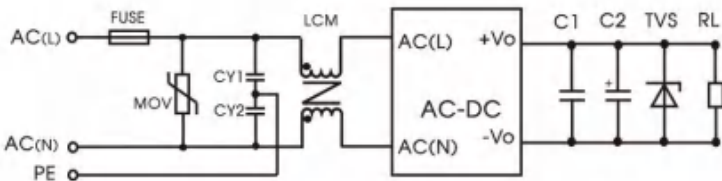


Fig.2:EMC application circuit with higher requirements

Component	Recommended value
FUSE	3.15A/300V,slow-blow,required
MOV	S14K350
CY1/CY2	1nF/400VAc
LCM	10mH

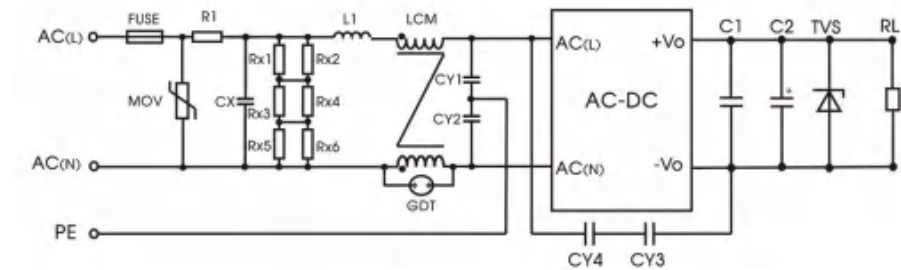


Fig.3:Recommended circuit for class I equipment

(Recommended when the output terminal of the product needs to be connected to PE or connected to PE through a Y capacitor)

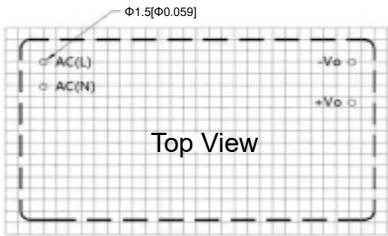
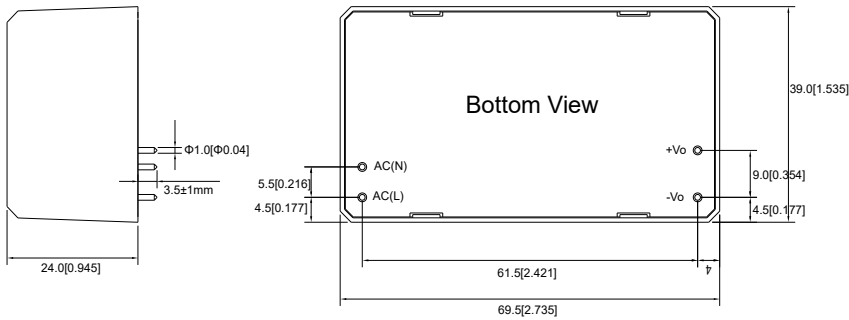
Component	Recommended value
FUSE	3.15A/300V,slow-blow,required
MOV	S14K350
CX	334K/305V _{AC}
R1	6.8Ω/5W(wire-wound resistor)
L1	1.2mH/0.5A
CY1/CY2	2.2nF/400V _{AC}
CY3/CY4	1nF/400V _{AC}
GDT	300V/ 1KA
LCM	20mH

Note: Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleeder resistance of CX, and the recommended resistance value is 1.5MΩ/150V_{dc}.

3. For additional information please refer to application notes on WWW.CHAWENS.COM

Dimensions and Recommended Layout

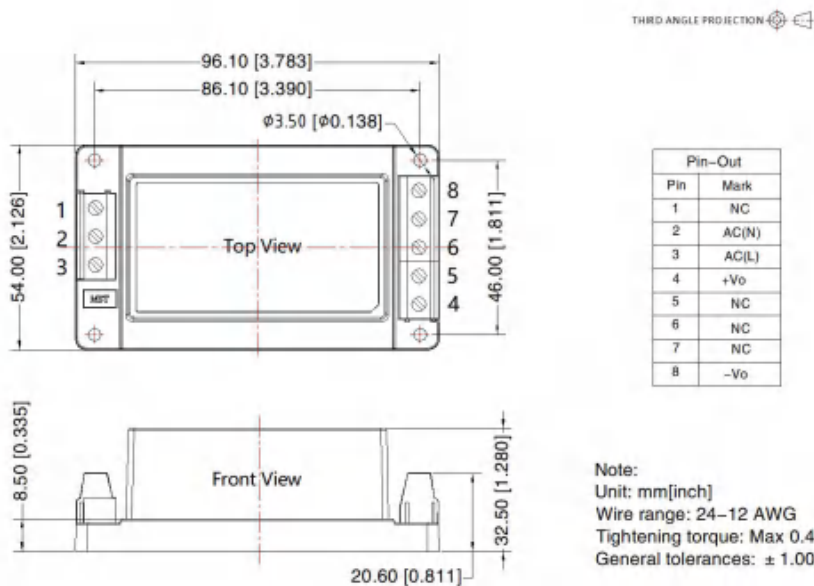
THIRD ANGLE PROJECTION



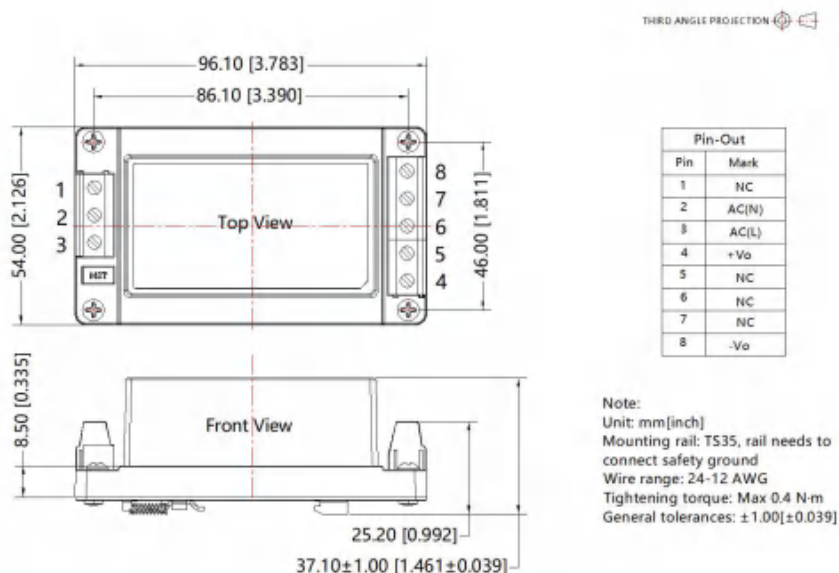
Note:Grid:2.54*2.54mm

Note:
Unit:mm[inch]
Pin diameter tolerances:+0.1[+0.004]
General tolerances:+0.5[+0.02]

Z1 Dimensions



Z Dimensions



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