

FEATURES

30W,AC-DC CONVERTER

- ◆ Universal Input:85-265V_{AC}/100-375V_{DC}
- ◆ Regulated output,low ripple/noise
- ◆ High efficiency up to 89%
- ◆ Output short circuit,over-current,over-voltage,protection
- ◆ Plastic case,meets UL94V-0
- ◆ IEC60950,UL60950,EN60950approval
- ◆ Mounting:PCB mounting,Chassismounting, DIN-Rail mounting available
- ◆ Three year warranty



Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltage and Current		Efficiency (230V _{AC} ,%/Typ.)	Max.Capacitive Load(μF)	
			(Vo1/Io1)	(Vo2/Io2)		Vo1	Vo2
	CFAME30S3V3	27.4W	3.3V/8000mA	--	82	48000	--
	CFAME30S05		5V/6000mA	--	86	12240	--
	CFAME30S09		9V/3333mA	--	86	7200	--
	CFAME30S12		12V/2500mA	--	86	5400	--
	CFAME30S15		15V/2000mA	--	86	2720	--
	CFAME30S18		18V/1666mA	--	86	2720	--
	CFAME30S24		24V/1250mA	--	89	1840	--
	CFAME30S28		28V/1071mA	--	89	1840	--
	CFAME30S48		48V/625mA	--	89	880	--
	CFAME30D05		+5V/3000mA	-5V/3000mA	82	8000	8000
	CFAME30D12		+12V/1250mA	-12V/1250mA	88	960	960
	CFAME30D15		+15V/1000mA	-15V/1000mA	88	880	880
	CFAME30T05H05I		5V/4400mA	±5V/800mA	74	11200	4480
	CFAME30T05H12I		5V/4000mA	±12V/400mA	75	16000	1600
	CFAME30T05H15I		5V/3600mA	±15V/400mA	76	13520	370
	CFAME30T05H24I		5V/3600mA	±24V/250mA	77	11200	370
	CFAME30D05H12I		5V/5280mA	12V/500mA	75	32400	3250
	CFAME30D05H15I		5V/5850mA	15V/500mA	76	28000	1980
	CFAME30D05H24I		5V/4560mA	24V/300mA	77	28000	720

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	115V _{AC}	--	--	0.6	A
	230V _{AC}	--	--	0.34	
Inrush current	115V _{AC}	--	16	--	
	230V _{AC}	--	30	--	
Leakage current		0.3mA RMS typ./ 230V _{AC} /50Hz			
Recommended External Input Fuse(Chassis mounting,DIN-Rail mounting package series include fuse)		3.15A/250V,slow fusing,necessary			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage	Main circuit		--	±2	--	
Line Regulation	Full load	Main circuit	--	±0.5	--	
		Auxiliary circuit	--	±1.5	--	
Load Regulation	0%-100% load	Single output	--	±1	--	%
	10%-100% load	Dual output(balanced load)	--	±2	--	
		Isolated triple output (balanced load)	Main circuit Vo1	--	±3	
			Auxiliary circuit ±Vo2	--	±5	
		Isolated and separated twin output(balanced load)	Main circuit Vo1	--	±3	
			Auxiliary circuit Vo2	--	±5	
Ripple/Noise*	Main circuit	20MHz bandwidth(peak-peak value)	--	50	100	mV
Temperature Coefficient	Main circuit		--	±0.02	--	%/°C
Short Circuit Protection			Continuous,self-recovery			
Over-current Protection			≥110%Io self-recovery			
Over-voltage Protection	Main circuit	3.3/5VDC Output	≤7.5VDC			
		9VDC Output	≤13VDC			
		12 /15VDC Output	≤20VDC			
		24VDC Output	≤30VDC			
		48VDC Output	≤60VDC			
Min.Load	Single output models		0	--	--	%
	Dual output models(balanced load)		10	--	--	
	Isolated and separated twin output(balanced load)		10	--	--	
	Isolated triple output(balanced load)		10	--	--	
Hold-up Time	115VAC input		--	15	--	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	Testtime:1 min	3000	--	--	V _{AC}
	Input- 		2000	--	--	
Operating Temperature			-40	--	+70	°C
Storage Temperature			-40	--	+85	
Storage Humidity			--	--	95	%RH

Welding Temperature	Wave-soldering	260±5℃;time:5-10s			
	Manual-welding	360±10℃;time:3-5s			
Switching Frequency		--	65	--	kHz
Power Derating	-40℃ to -25℃	2.0	--	--	% /℃
	+55℃ to +70℃	3.0	--	--	
Safety Standard		IEC60950/EN60950/UL60950			
Safety Certification		IEC60950/EN60950/UL60950			
Safety Class		CLASS I			
MTBF		MIL-HDBK-217F@25℃>300,000h			

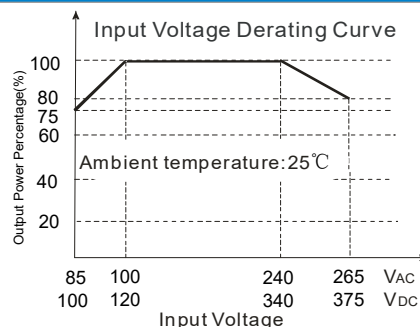
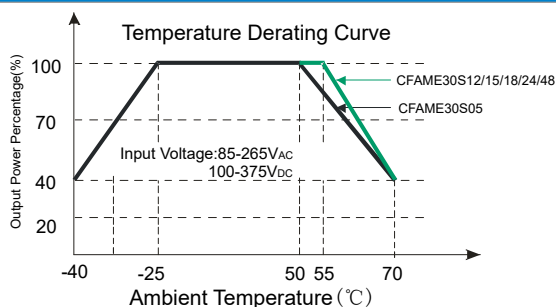
Physical Specifications

Casing Material		Black flame-retardant and heat-resistant plastic(UL94V-0)
Dimension	Horizontal package	70.0*48.0*23.5mm
	Z1 Din-Rail mounting	96.1x54.0x32.0mm
	Z Din-Rail mounting	96.1*54.0*36.6mm
Weight	Horizontal package/Adapter baseDin-Rail mounting	120g/170g/210g(Typ.)
Cooling method		Free air convection

EMC Specifications

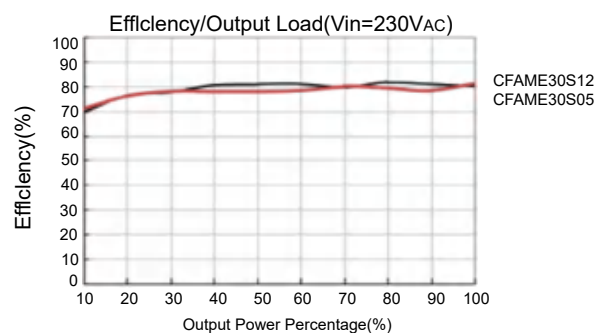
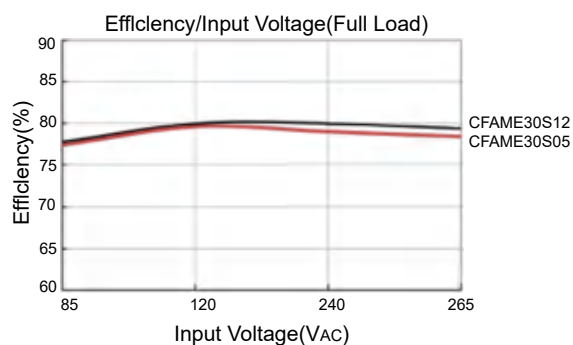
EMI	CE	CISPR22/EN55022 CLASS B	
	RE	CISPR22/EN55022 CLASS B	
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV/Air±8KV	Perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria B
		IEC/EN61000-4-4 ±4KV(See Fig.5 for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±1KV/line to ground ±2KV	perf. Criteria B
		IEC/EN61000-4-5 line to line ±2KV/line to ground ±4KV (See Fig.5 for recommended circuit)	perf. Criteria B
	CS	IEC/EN61000-4-6 10Vr.m.s	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: ① When input 85-100V_{AC}/240-265V_{AC}/100-120V_{DC}/340-375V_{DC}, it need to be voltage derated on basis of temperature derating;

② This 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

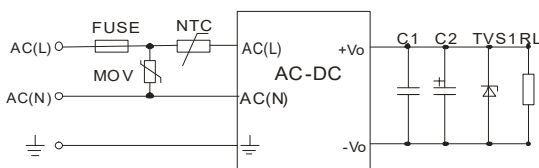


Fig.1:Single way series(Single Output)Typical application circuit

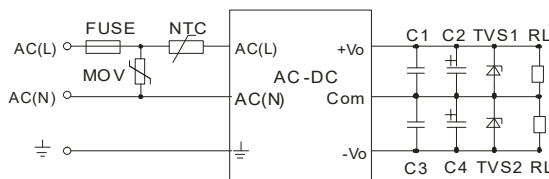


Fig.2:Two way series(Dual Output)typical application circuit

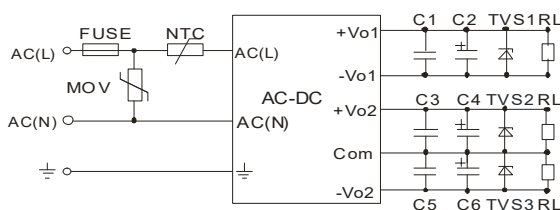


Fig.3:Three way series(Triple Output)typical application circuit

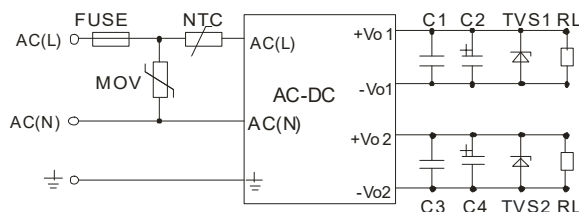


Fig.4:Two way isolation series(Isolate Twin Output)typical application circuit

Model	C2(μ F)	C4(μ F)	C6(μ F)	TVS1	TVS2	TVS3
CFAME30S3V3	330	--	--	SMBJ7.0A	--	--
CFAME30S05	330	--	--	SMBJ7.0A	--	--
CFAME30S09	220	--	--	SMBJ12A	--	--
CFAME30S12	220	--	--	SMBJ20A	--	--
CFAME30S15	220	--	--	SMBJ20A	--	--
CFAME30S24	220	--	--	SMBJ30A	--	--
CFAME30D05	470	470	--	SMBJ7.0A	SMBJ7.0A	--
CFAME30D12	120	120	--	SMBJ20A	SMBJ20A	--
CFAME30D15	68	68	--	SMBJ20A	SMBJ20A	--
CFAME30T05H05I	330	120	120	SMBJ7.0A	SMBJ7.0A	SMBJ7.0A
CFAME30T05H12I	330	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
CFAME30T05H15I	330	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
CFAME30T05H24I	330	47	47	SMBJ7.0A	SMBJ30A	SMBJ30A
CFAME30T05H24I	330	220	--	SMBJ7.0A	SMBJ20A	--
CFAME30D05H15I	330	220	--	SMBJ7.0A	SMBJ20A	--
CFAME30D05H24I	330	120	--	SMBJ7.0A	SMBJ30A	--

Note:

Output filtering capacitors C2,C4,C6 are electrolytic capacitors,it is recommended to use high frequency and low impedance electrolytic capacitor.For capacitance and current of capacitor please refer to manufacture's datasheet.Capacitor voltage reduced to at least 80%.C1,C3,C5 are ceramic capacitors,which is used to filter high-frequency noise.TVS is a recommended component to protect post-circuits if converter fails.External input NTC is recommended to use 5D-9.External input MOV model is recommended to use S14K300.

2. EMC solution-recommended circuit

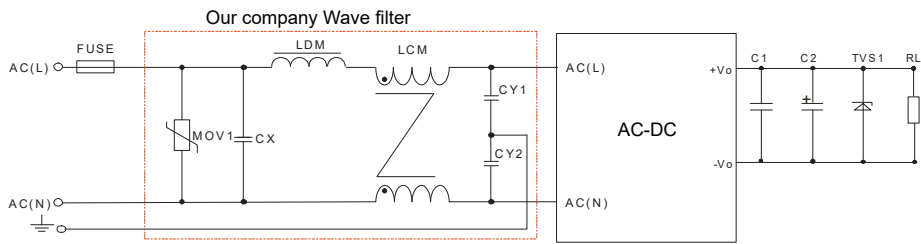
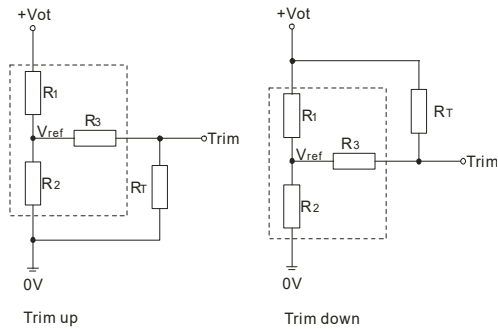


Fig.5:EMC Recommended circuit with higher requirements

Element model	Recommended value
MOV1	S14K300
CY1,CY2	1000pF/400VAc
CX	0.1μF/275VAc
LCM	10mH Common mode inductor
LDM	4.7μH/2A
Wave filter	2KV/4KV EMC filter
FUSE	3.15A/250V slow fusing,necessary

3. Application of Trimand calculation of Trimresistance



Calculation formula of Trimresistance:

up: $R_T = \frac{aR_2}{R_2 - a} - R_3$ $a = \frac{V_{ref}}{V_{ot} - V_{ref}} \cdot R_1$

down: $R_T = \frac{aR_1}{R_1 - a} - R_3$ $a = \frac{V_{ot} - V_{ref}}{V_{ref}} \cdot R_2$

R_T is Trimresistance
 a is a self-defined parameter, with no real meaning.

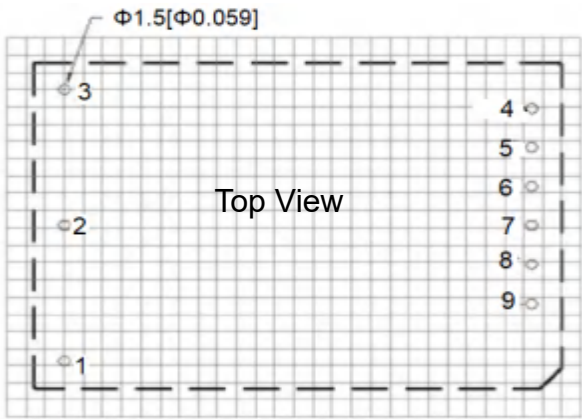
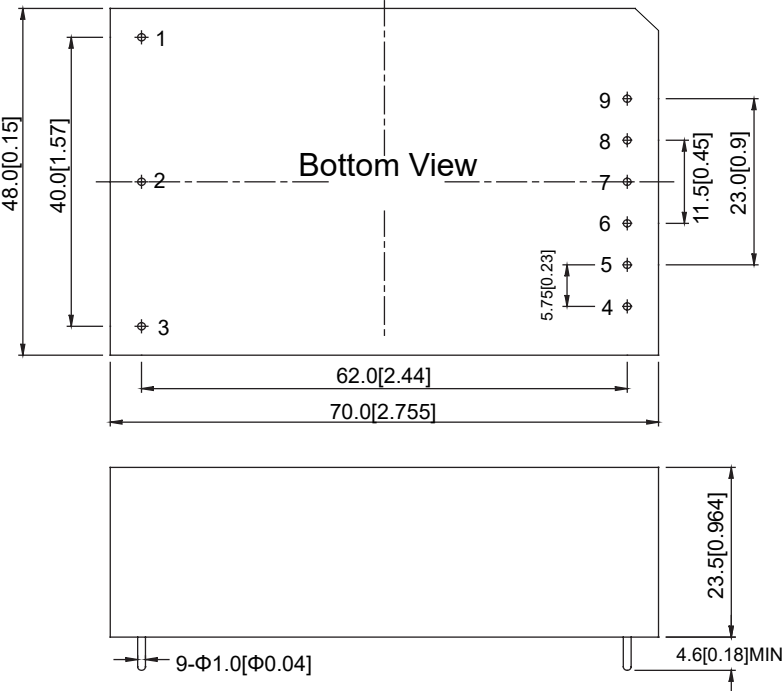
Application of Trimand calculation of Trimresistance

Vout	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref(V)	Vot(V)
3.3V	3.3	1.98	1	1.24	Output voltage after regulation, variation≤±10%
5V	3.3	3.3	1	2.5	
9V	7.5	2.87	1	2.5	
12V	3.83	1	1	2.5	
15V	7.5	1.5	1	2.5	
24V	8.66	1	1	2.5	
48V	68	3.73	1	2.5	

4. Formore information, Please find the application note on WWW.CHAWENS.COM

Dimensions and Recommended Layout

THIRD ANGLE PROJEON 

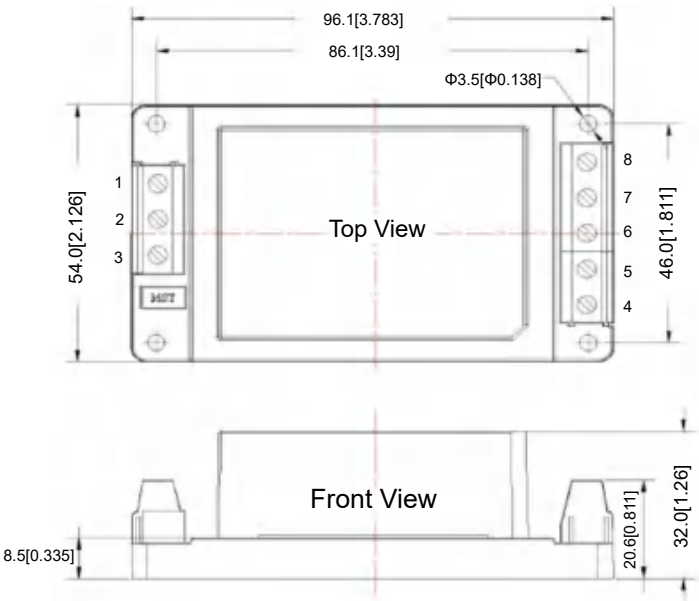


Note: Grid: 2.54*2.54mm

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

Pin	1	2	3	4	5	6	7	8	9
Tingle	L	N	FG	TRIM	-Vo	NP	NP	NP	+Vo
Two-way land supply	L	N	FG	NP	-Vo2	NP	COM	NP	+Vo1
Dual-path isolation	L	N	FG	NP	-Vo1	+Vo1	NP	-Vo2	+Vo2
Triple	L	N	FG	NP	-Vo1	+Vo1	-Vo3	COM	+Vo2

Z1 Dimensions

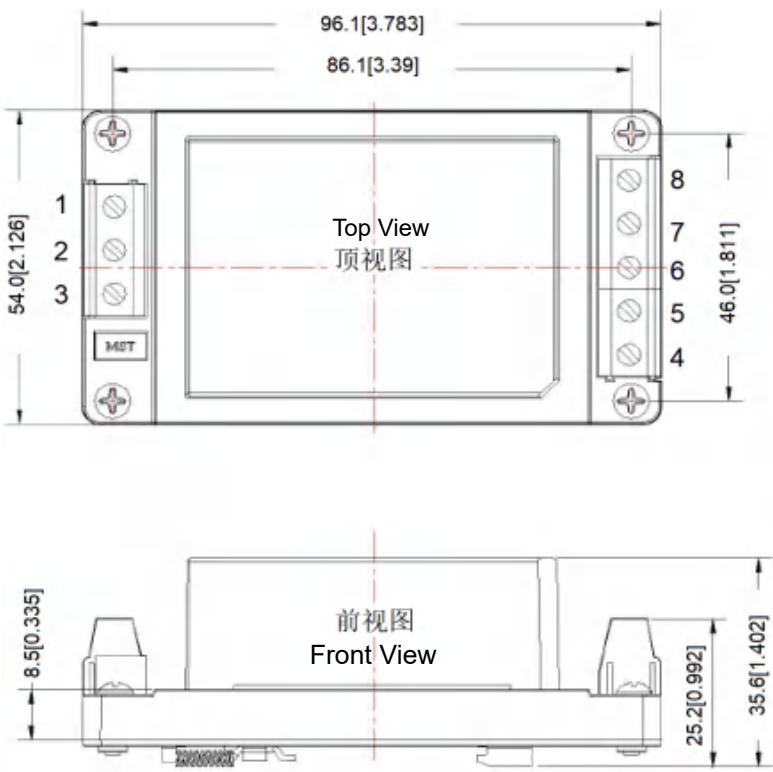


Third angle projection

Pin	Two way	Single	Three way	Two way isllation
1	FG	FG	FG	FG
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	Trim	-Vo1	-Vo1
5	NC	-Vo	+Vo1	+Vo1
6	COM	NC	-Vo3	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2

Note:
Unit:mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
Mounting rail: T\$35, rail needs to connect safety ground
General tolerances:±0.5[±0.02]

Z Dimensions



Third angle projection

Pin	Two way	Single	Three way	Two way isllation
1	FG	FG	FG	FG
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	Trim	-Vo1	-Vo1
5	NC	-Vo	+Vo1	+Vo1
6	COM	NC	-Vo3	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2

Note:
Unit:mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
Mounting rail: T\$35, rail needs to connect safety ground
General tolerances:±0.5[±0.02]

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.chewins.net. Packing bag number of Horizontal package:58220006,the Packing bag number of Adapter basepackage:58220010;
2. If the product is not operated within the required load range,the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. Unless otherwise specified,parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$,humidity<75% with nominal input voltage and rated output load;
4. All index testing methods in this datasheet are based on our Company's corporate standards;
5. We can provide product customization service,please contact our technicians directly for specific information;
6. Specifications are subject to change without prior notice.



Beijing Huayang Changfeng Technology Co., Ltd

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

TEL:+86-10-68817997

cell phone:15600309099

E-mail:sales@chewins.net