

FEATURES

15W,AC-DC converter

- ◆ Wide input voltage range:85-265V_{AC}/100-375V_{DC}
- ◆ Regulated output,Low ripple & noise
- ◆ High efficiency up to 86%
- ◆ Output short circuit,over-current,over-voltage protection
- ◆ Plastic case,meets UL94V-0
- ◆ IEC60950,UL60950,EN60950approval
- ◆ Mounting:PCBmounting,Chassismounting,DIN-Rail mounting available
- ◆ Three year warranty



Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltageand Current		Efficiency (230VAC,%/Typ.)	Max.Capacitive Load(μF)	
			(Vo1/Io1)	(Vo2/Io2)		Vo1	Vo2
	CFAE15S3V3	9.9W	3.3V/3000mA	--	78	36000	--
	CFAE15S05	14W	5V/2800mA	--	78	20000	--
	CFAE15S09	15W	9V/1600mA	--	80	8000	--
	CFAE15S12		12V/1250mA	--	85	5200	--
	CFAE15S15		15V/1000mA	--	85	5000	--
	CFAE15S24		24V/625mA	--	86	900	--
	CFAE15D05		+5V/1500mA	-5V/1500mA	76	12800	12800
	CFAE15D12		+12V/650mA	-12V/650mA	81	2350	2350
	CFAE15D15		+15V/500mA	-15V/500mA	83	3120	3120
	CFAE15D24		+24V/310mA	-24V/310mA	83	400	400
	CFAE15T05H05I		5V/2000mA	±5V/500mA	75	10800	2160
	CFAE15T05M12I		5V/2000mA	±12V/200mA	77	17280	2160
	CFAE15T05M15I		5V/1800mA	±15V/200mA	78	5920	370
	CFAE15T05-24I		5V/2000mA	±24V/100mA	78	1600	130
	CFAE15D5H05I		5V/2200mA	5V/800mA	78	15000	3000
	CFAE15T05H12I		5V/2000mA	12V/400mA	80	12000	1800
	CFAE15T05H15I		5V/2000mA	15V/300mA	81	10000	1500
	CFAE15T05M24I		5V/2000mA	24V/200mA	81	13000	800

Note:*About CFAE15DXX,use both positive and negative output as sampling feedback; and all others use Vo1 as sampling feedback.

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}	--	--	0.37	A
	230V _{AC}	--	--	0.22	
Inrush current	115V _{AC}	--	10	--	
	230V _{AC}	--	20	--	

Leakage current		0.3mA RMStyp./230VAc/50Hz
Recommended External Input Fuse(Special package seriesinclude fuse)		2A/250V,slow fusing
Hot Plug		Unavailable

Output Specifications

Item	Operating Conditions				Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Main circuit	3.3V Output			--	±3	--	%
		Others output			--	±2	--	
Line Regulation	Full load	Main circuit			--	±0.5	--	
		Auxiliary circuit			--	±1.5	--	
Load Regulation	10%-100% load	Single output			--	±1	--	
		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 band width(peak-peakvalue)				--	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			
Min.Load	Single output				0	--	--	%
	Dual output(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,

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output	Testtime:1min	3000	--	--	VAc
	Input- 		2000	--	--	
Operating Temperature			-25	--	+55	°C
Storage Temperature			-40	--	+105	
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		-25℃to-40℃	2.0	--	--	% / °C
		+55℃to+70℃	4.0	--	--	
Safety Standard			IEC60950/EN60950/UL60950			
Safety Certification			IEC60950/EN60950/UL60950			
Safety Class		Single output	CLASS II			
		Other series	CLASS I			
MTBF			MIL-HDBK-217F@25℃>300,000h			

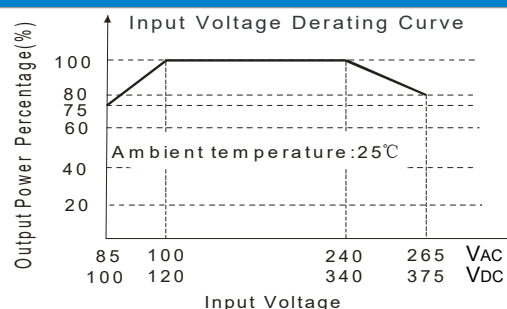
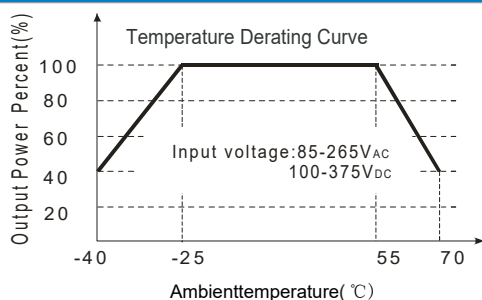
Physical Specifications

Casing Material		Black flame-retardant and heat-resistant plastic(UL94V-0)
Dimension	Horizontal package	62.0*45.0*22.5mm
	Z1 chassis mounting	96.1*54.0*31.0mm
	Z Din-Rail mounting	96.1*54.0*35.6mm
Weight	Horizontal package/Z2 chassis mounting /Z3 chassis mounting/Z4 Din-Rail mounting	85g/135g/175g(Typ.)
Cooling method		Free air convection

EMC Specifications

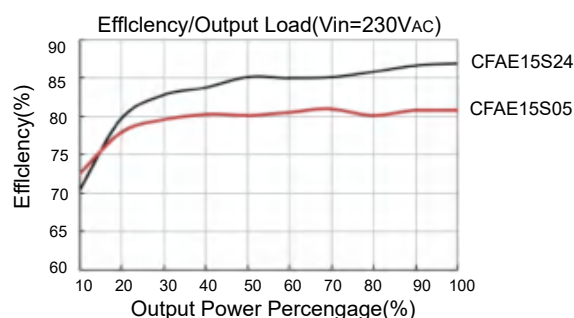
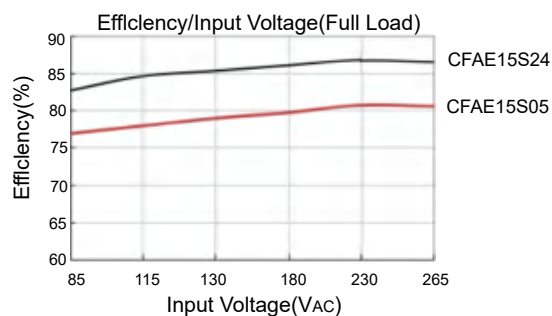
EMI	CE	CISPR22/EN55022 CLASS B		
	RE	CISPR22/EN55022 CLASS B		
EMS	ESD	IEC/EN61000-4-2	Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$	Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 2\text{KV}$	perf. Criteria B
		IEC/EN61000-4-4	$\pm 4\text{KV}$ (See Fig. 5 for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line $\pm 1\text{KV}$ /line to ground $\pm 2\text{KV}$	perf. Criteria B
		IEC/EN61000-4-5	line to line $\pm 2\text{KV}$ /line to ground $\pm 4\text{KV}$ (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_{AC}/340-375V_{AC}, 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,



Design Reference

1. Typical application circuit

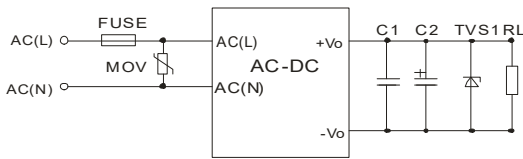


Fig.1:Typic alapplication circuit

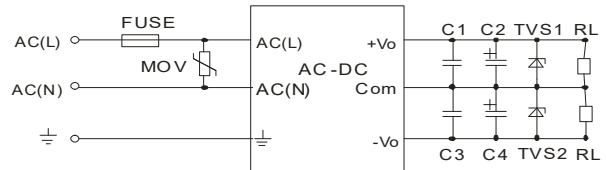


Fig.2:CFAE15DXX(Dual Output)seriestypical application circuit

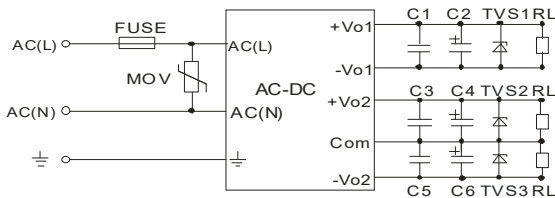


Fig.3:CFAE15T(Triple Output)series typical application circuit

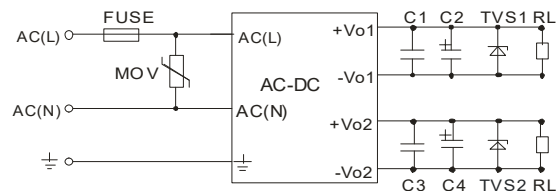


Fig.4:CFAE15DXXI (Isolate TwinOutput)series typical application circuit

Model	C2(μ F)	C4(μ F)	C6(μ F)	TVS1	TVS2	TVS3
CFAE15S3V3	680	--	--	SMBJ7.0A	--	--
CFAE15S05	680	--	--	SMBJ7.0A	--	--
CFAE15S09	470	--	--	SMBJ12A	--	--
CFAE15S12	220	--	--	SMBJ20A	--	--
CFAE15S15	220	--	--	SMBJ20A	--	--
CFAE15S24	68	--	--	SMBJ30A	--	--
CFAE15D05	470	470	--	SMBJ7.0A	SMBJ7.0A	--
CFAE15D12	220	220	--	SMBJ20A	SMBJ20A	--
CFAE15D15	120	120	--	SMBJ20A	SMBJ20A	--
CFAE15D24	68	68	--	SMBJ30A	SMBJ30A	--
CFAE15T05H05I	470	220	220	SMBJ7.0A	SMBJ7.0A	SMBJ7.0A
CFAE15T05M12I	470	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
CFAE15T05M15I	470	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
CFAE15T05-24I	470	120	120	SMBJ7.0A	SMBJ30A	SMBJ30A
CFAE15D5H05I	470	470	--	SMBJ7.0A	SMBJ7.0A	--
CFAE15T05H12I	470	220	--	SMBJ7.0A	SMBJ20A	--
CFAE15T05H15I	470	120	--	SMBJ7.0A	SMBJ20A	--
CFAE15T05M24I	470	47	--	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 withstand voltage derating should be 80%or above.C1,C3,C5 are ceramic capacitors,which is used to filter high-frequency noise,advice use 1 μ F.TVS isa recommended component to protect post-circuits if converter fails. External input MOV model is recommended to use S14K300.

2. EMC solution-recommended circuit

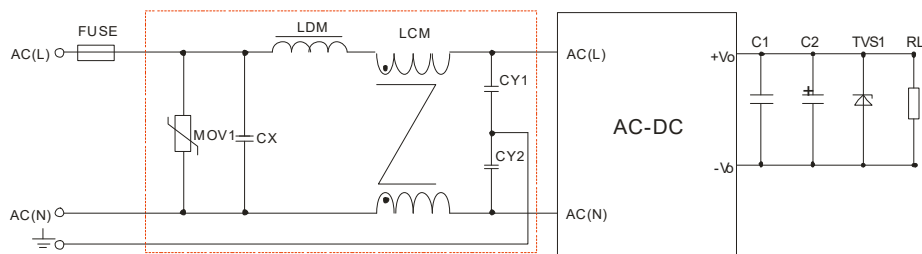
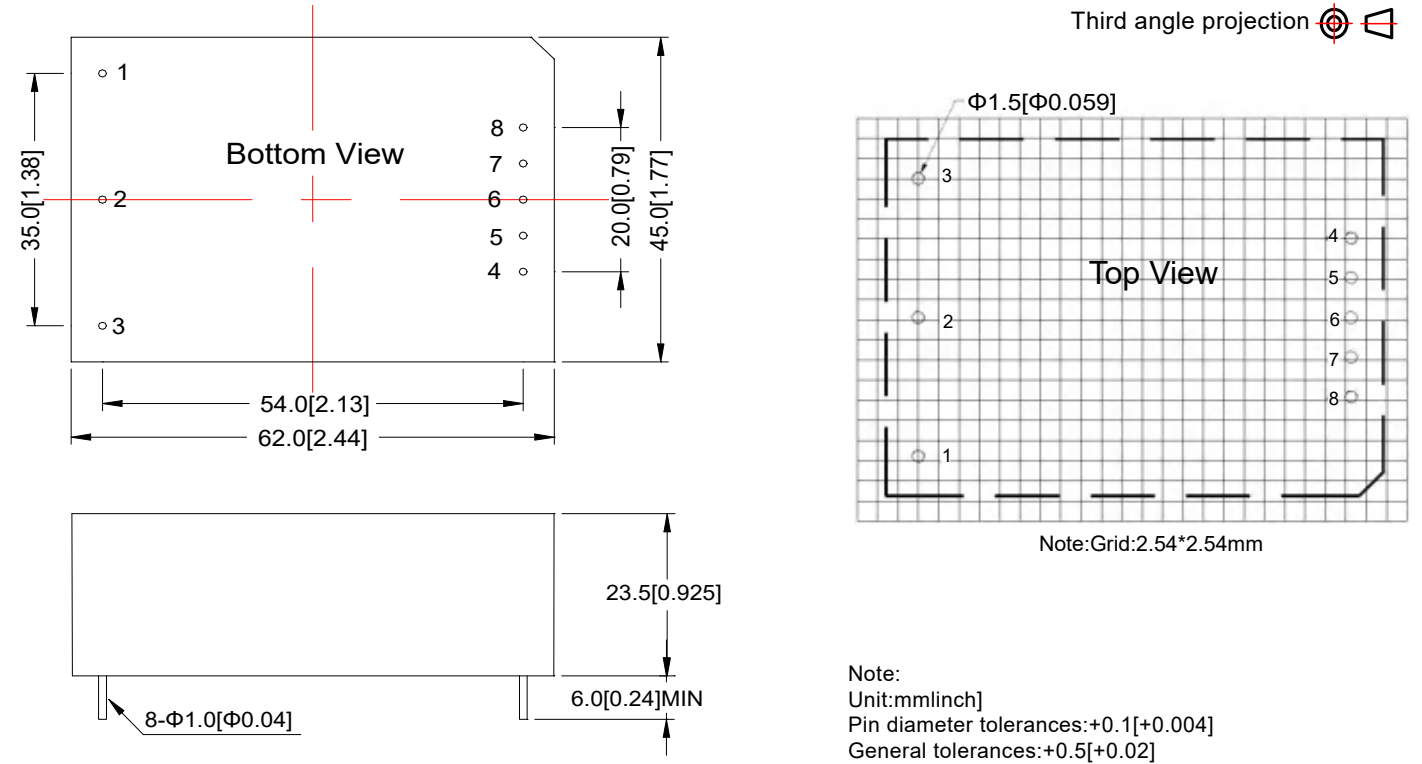


Fig.5:EMC Recommended circuit with higher requirements
(Output external circuit refer to the typical application circuit)

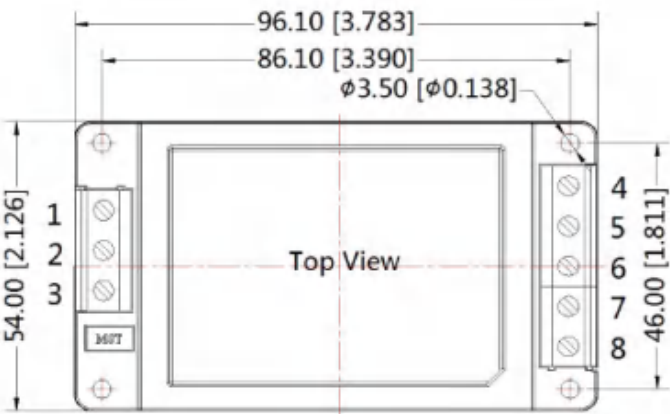
Element model	Recommended value
MOV1	S14K300
CY1,CY2	1000pF/400VAc
CX	0.1μF/275VAc
LCM	10mH
LDM	4.7μH/2A
	2KV/4KV EMC filter
FUSE	2A/250V slow fusing,necessary

Dimensions and Recommended Layout



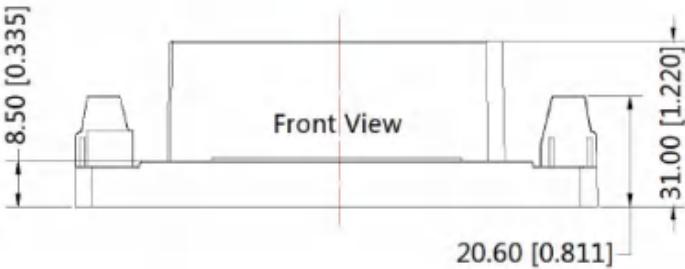
Pin	1	2	3	4	5	6	7	8
Single	L	N	FG	-Vo	NP	NP	NP	+Vo
Two-way land supply	L	N	FG	-Vo2	NP	COM	NP	+Vo1
Two-way isolation	L	N	FG	-Vo1	+Vo1	NC	-Vo2	+Vo2
Triple	L	N	FG	-Vo1	+Vo1	-Vo3	COM	+Vo2

Z1 Dimensions



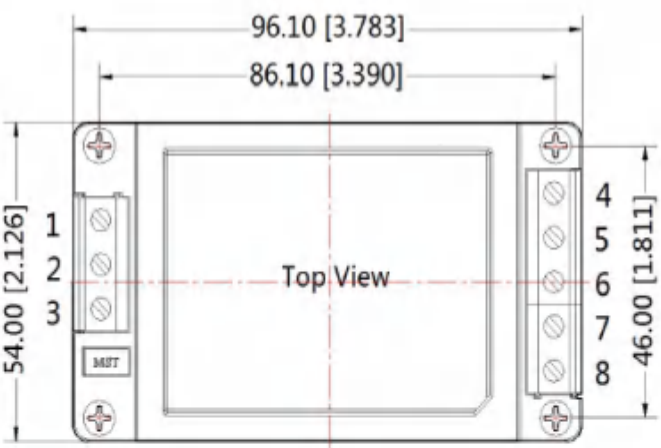
THIRD ANGLE PROJECTION

Pin	双路	单路	三路	双路隔离
1		NC		
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	-Vo	-Vo1	-Vo1
5	NC	NC	+Vo1	+Vo1
6	COM	NC	-Vo2	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2



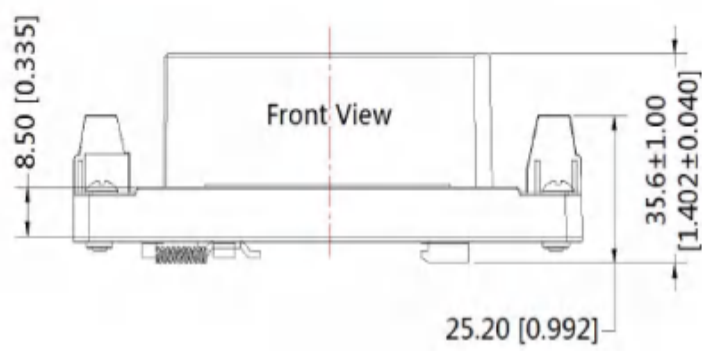
Note:
Unit:mm[inch]
Wire range : 24—12 AWG
Tightening torque: Max 0.4 N·m
General tolerances:±0.50[±0.020]

Z Dimensions



THIRD ANGLE PROJECTION

Pin	双路	单路	三路	双路隔离
1		NC		
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	-Vo	-Vo1	-Vo1
5	NC	NC	+Vo1	+Vo1
6	COM	NC	-Vo2	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: TS35, rail needs to connect safety ground
General tolerances: ±0.50[±0.020]

- Note:
- 1.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;
 - 2.Unless otherwise specified,parameters in this datasheet were measured under the conditions of Ta=25℃,humidity<75% with nominal input voltage and rated output load;
 - 3.All index testing methods in this datasheet are based on our 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 .



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