CFM130S SERIES
130 WATT AC-DC POWER SUPPLY WITH PFC

Features

- Universal Input Range 80~264Vac
- High Efficiency up to 94%
- 2"x 3" Open Frame Compact Size
- Class I & Class II (NOTE8)
- No Load Input Power Consumption<150mW
- Peak Power Operation up to 150Watt for 5s
- Approved Safety IEC/EN/UL 62368-1 Ed 3.0
- Operating Altitude 5000m
- 100W with Natural Convection
- 130W with Fan-Cooled
- Continuous Short Circuit Protection
- Active PFC Function



E176177

MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT		RIPPLE& NOISE NOTE2	VOLTAGE ACCURACY NOTE1	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ) NOTE5
		NATURAL CONVECTION	FAN COOLED NOTE7					
CFM130S120	12 V	8.34 A	10.8 A	120 mV	±2%	±0.5%	±1%	93%
CFM130S180	18 V	5.56 A	7.2 A	180 mV	±2%	±0.5%	±1%	93%
CFM130S190	19 V	5.26 A	6.8 A	190 mV	±2%	±0.5%	±1%	93%
CFM130S240	24 V	4.2 A	5.4 A	240 mV	±2%	±0.5%	±1%	93%
CFM130S360	36 V	2.8 A	3.6 A	360 mV	±2%	±0.5%	±1%	94%
CFM130S480	48 V	2.1 A	2.7 A	480 mV	±2%	±0.5%	±1%	94%

Note:

1. Voltage accuracy is set at full load.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
3. Line regulation is measured from 100Vac to 240Vac with full load.
4. Load regulation is measured from 10% to 100% full load.
5. Typical efficiency at 230 VAC and 75% full load at 25℃.
6. Standard input and output connectors (CN1 and CN2) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JSThousing VHR series or equivalent.
7. Requires 10CFM.
8. Conductive: Class I & Class II meets Class B, Radiation: Class I meet Class B, Class II meet Class A.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type
CFM130	X	XXX	-X (Option)
CFM130	S：Single	120：12V 180：18V 190：19V 240：24V 360：36V 480：48V	Blank：Wafer B：Base Cooling C：Cover

Part Number Example:
CFM130S120-B: Open Frame, 130W, Single 12Vdc Output, Base Cooling

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TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25℃ unless otherwise noted.)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage		All	80		264	V_{ac}
Operating Temperature	**See derating curve**	All	-30		70	℃
Storage Temperature		All	-40		85	℃
Operating Altitude		All			5000	m

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V_{ac}
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% Load, V_{in}=100V_{ac}	All			1.8	A
Inrush Current	V_{in}=240V_{ac}, Cold start @25℃	All			100	A
Leakage Current		All			100	uA
Under Voltage Protection		All	55	62	70	V_{ac}

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V_{in}=80V_{ac}~264V_{ac}, I_o=Full load, Ambient temperature=25℃	CFM130S120	11.76	12	12.24	V_{dc}
		CFM130S180	17.64	18	18.36	
		CFM130S190	18.62	19	19.38	
		CFM130S240	23.52	24	24.48	
		CFM130S360	35.28	36	36.72	
		CFM130S480	47.04	48	48.96	
Operating Output Current Range	V_{in}=80V_{ac}~264V_{ac}, **see derating curve**	CFM130S120			10.8	A
		CFM130S180			7.2	
		CFM130S190			6.8	
		CFM130S240			5.4	
		CFM130S360			3.6	
		CFM130S480			2.7	
Holdup Time	V_{in}=115V_{ac}	All	20			ms
Output Voltage Regulation						
Load Regulation	10% Load to full load	All			±1.0	%
Line Regulation	V_{in}=High line to low line	All			±0.5	%
Over Voltage Protection	Auto recovery	CFM130S120		13.5		V_{dc}
		CFM130S180		20.5		
		CFM130S190		23		
		CFM130S240		30		
		CFM130S360		42		
		CFM130S480		54		
Peak Power	1. V_{in}=115V_{ac} and 230V_{ac} 2. Ambient temperature=25℃ 3. Peak power should be less than 5seconds, with a maximum 10% duty cycle, peak power function by 115% load 5S and 75% load 45S	All		115		%
Over Current Protection	Auto recovery	All	115	130	155	%
Short Circuit Protection	Auto recovery	All				

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PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Ripple and Noise	1. Add a 0.1uF ceramic capacitor and a 10uF aluminum electrolytic capacitor to output 2. Oscilloscope is 20MHz band width 3. Ambient temperature=25℃	CFM130S120 CFM130S180 CFM130S190 CFM130S240 CFM130S360 CFM130S480			120 180 190 240 360 480	mV
Load Capacitance	1. Input voltage is 115V_{ac} and 230$V_{ac.}$ 2. Output is max. full load 3. Ambient temperature=25℃	CFM130S120 CFM130S180 CFM130S190 CFM130S240 CFM130S360 CFM130S480			8400 5600 5200 4200 2720 2040	uF
Efficiency	1. Input voltage is 230V_{ac} 2. Output is 75% full load 3. Ambient temperature=25℃	CFM130S120 CFM130S180 CFM130S190 CFM130S240 CFM130S360 CFM130S480		93 93 93 93 94 94		%

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 Minute (without dielectric breakdown)	All			3000	V_{ac}
Input to Earth (Ground)	1 Minute (without dielectric breakdown)	All			1500	V_{ac}
Output to Earth (Ground)	1 Minute (without dielectric breakdown)	All			500	V_{ac}
Isolation Resistance	Input to output	All	100			MΩ

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency		All		105		kHz

GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100%; T_a=25℃ per MIL-HDBK-217F I_o=100%; T_a=25℃ Telcordia SR332	All	500 3160			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meets MIL-STD-810F Table 516.5,TABLE 516.5-I 10ms, each axis 3 times(±-X、±Y、±Z axis)	All		75		g
Vibration	Meets MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X、Y、Z axis, 1 hrs (each axis),. total 3 hrs.	All		4		g
Weight		CFM130S CFM130S-B CFM130S-C		135 170 218		grams
Dimensions	Open Frame (Wafer)	All	3.000x2.000x1.201 Inches (76.20x50.80x30.50 mm)			
	B (Base Cooling)		3.598x2.000x1.299 Inches (91.40x50.80x33.00mm)			
	C (Cover)		3.598x2.520x1.358 Inches (91.40x64.00x34.50mm)			
Safety	Class I, Class II, IEC/EN/UL 62368-1					Ed. 3.0
EMC Emission	EN 55032, 47 CFR FCC Part 15, EN 61204-3, EN 6100-6-3, EN 6100-6-4					Class B
Conducted Disturbance	EN 55032, 47 CFR FCC Part 15 (Class I & Class II meets Class B)					Class B
Radiated Disturbance	EN 55032, 47 CFR FCC Part 15 (Class I Meet Class B; Class II Meet Class A)					Class B

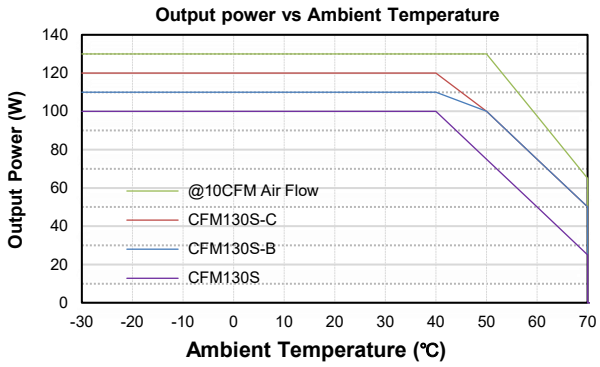
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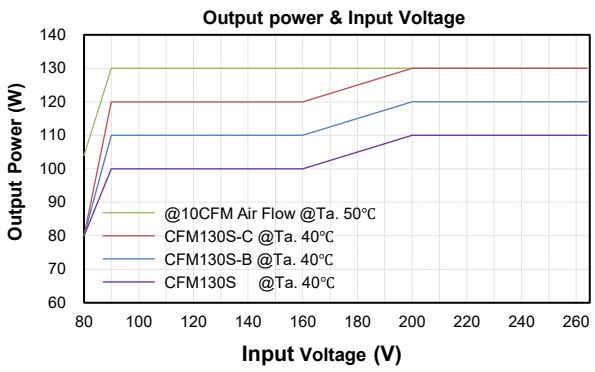
GENERAL SPECIFICATIONS

Harmonic Current Emissions	EN IEC 61000-3-2	Class A, D
Voltage Fluctuations & Flicker	EN 61000-3-3	Class A
EMC Immunity	EN 55035, EN 61000-6-1, EN 61000-6-2, EN 61204-3	
Electrostatic Discharge (ESD)	IEC 61000-4-2 Level 3: Air Discharge: ±8kV, Level 2: Contact Discharge: ±4kV	Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3 Level 3: 80~1000MHz, 10V/m	Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4 Level 3: ±2KV	Criterion A
Surge	IEC 61000-4-5 Level 3: L-N: ±1kV, L-E(Ground): ±2kV	Criterion A
Conducted Disturbances, Induced by RF Fields	IEC 61000-4-6 Level 3: 0.15~80MHz, 10V	Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8 Level 4: 30A/m	Criterion A
Voltage Dips	IEC 61000-4-11, Dip: 30% IEC 61000-4-11, Dip:>95%	Criterion A
Voltage Interruptions	IEC 61000-4-11 >95% Reduction	Criterion B
Application Note Link	CFM130S Series App Notes	

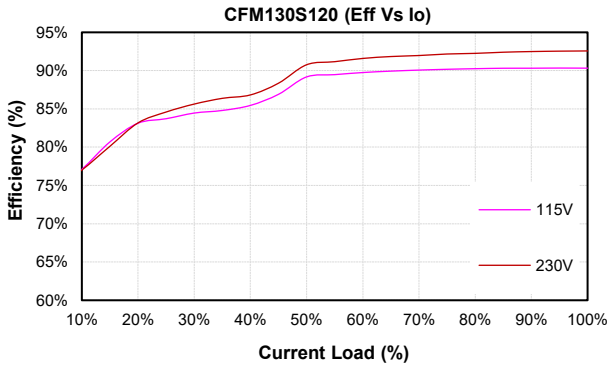
CHARACTERISTIC CURVE

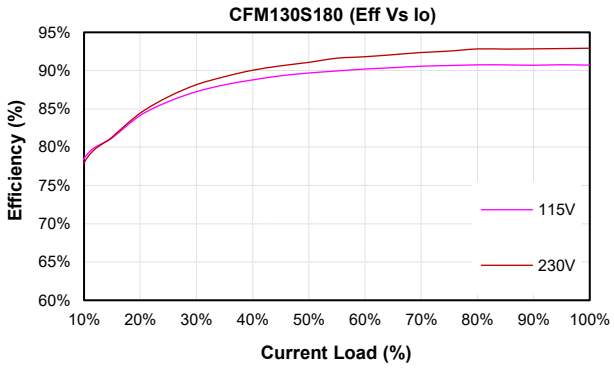
Power Derating Curve



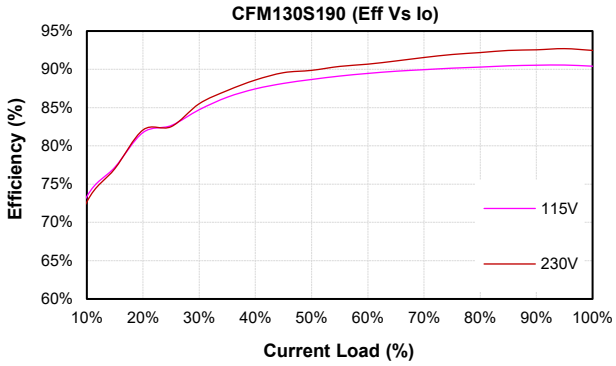


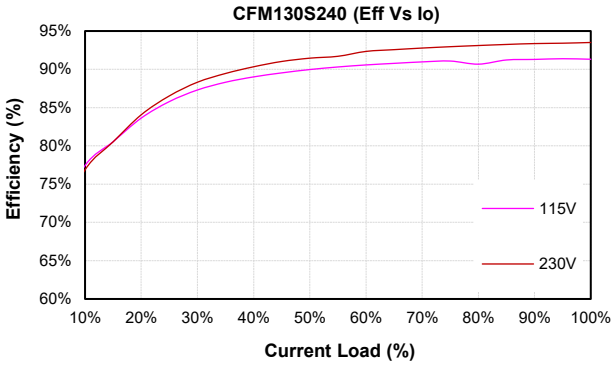
Performance Data

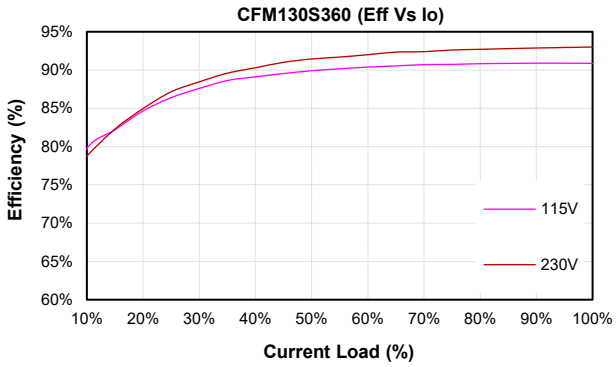


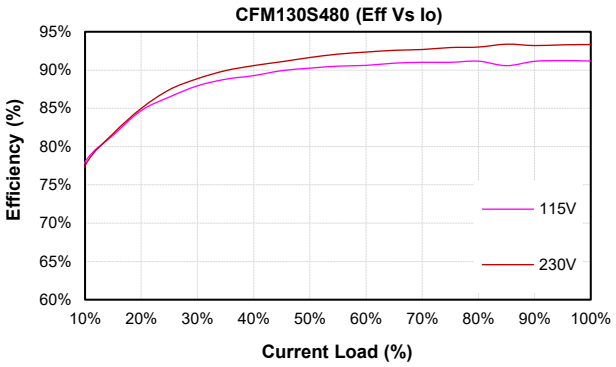


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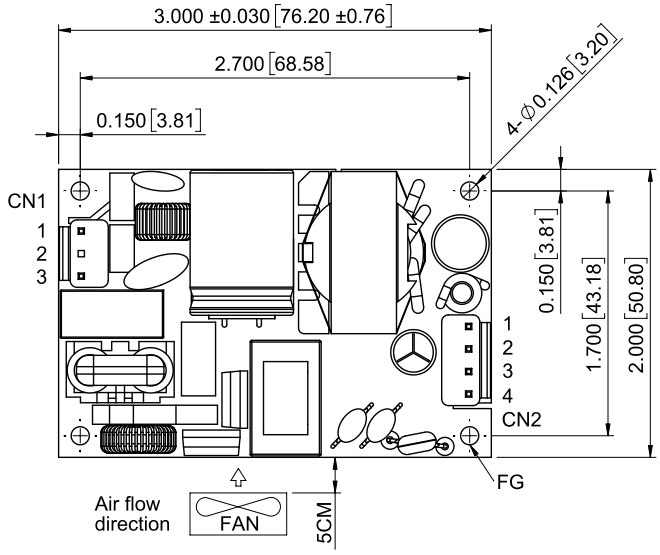


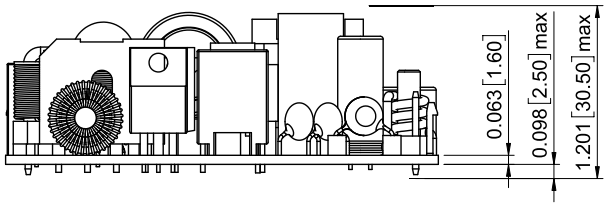




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MECHANICAL SPECIFICATION





CFM130S

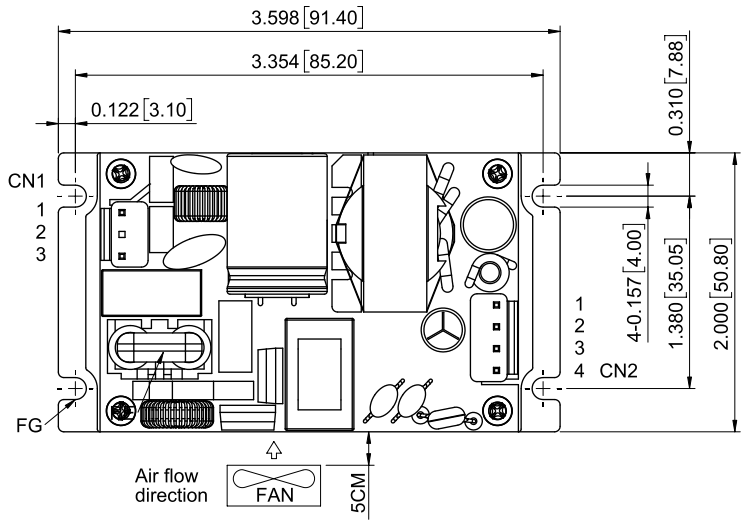
All Dimensions in Inches[mm]
Tolerance Inches: x .xxx=±0.020
Millimeters: x.xx=±0.50

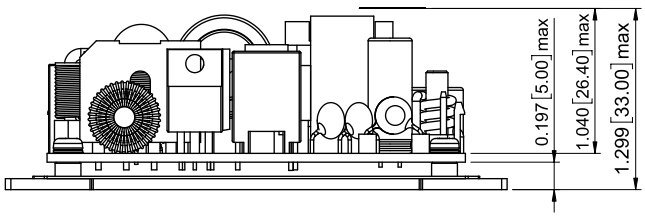
AC Input Connector(CN1):TKP PVHI-03N2 or equivalent

Pin	Function	Mating Housing	Terminal
1	ACL	JST VHR-3N or equivalent	JST SVH-21T-P1.1 or equivalent
2	-		
3	ACN		

DC Output Connector(CN2):TKP PVHI-04 or equivalent

Pin	Function	Mating Housing	Terminal
1	+Vout	JST VHR-4N or equivalent	JST SVH-21T-P1.1 or equivalent
2	+Vout		
3	-Vout		
4	-Vout		





CFM130S-B

All Dimensions in Inches[mm]
Tolerance Inches: x .xxx=±0.020
Millimeters: x.xx=±0.50

AC Input Connector(CN1):TKP PVHI-03N2 or equivalent

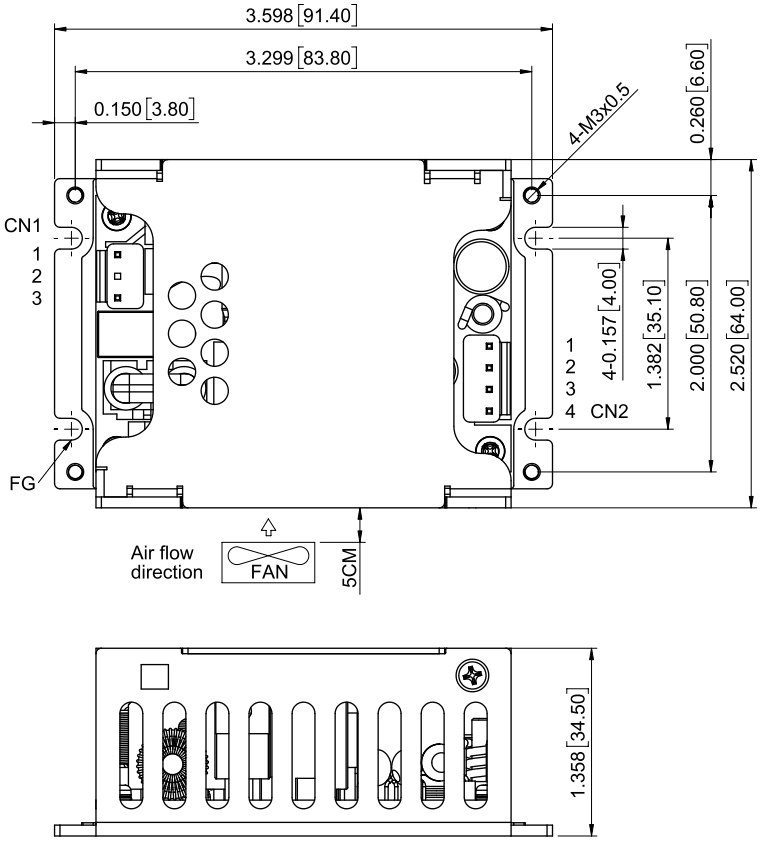
Pin	Function	Mating Housing	Terminal
1	ACL	JST VHR-3N or equivalent	JST SVH-21T-P1.1 or equivalent
2	-		
3	ACN		

DC Output Connector(CN2):TKP PVHI-04 or equivalent

Pin	Function	Mating Housing	Terminal
1	+Vout	JST VHR-4N or equivalent	JST SVH-21T-P1.1 or equivalent
2	+Vout		
3	-Vout		
4	-Vout		

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MECHANICAL SPECIFICATION



CFM130S-C

All Dimensions in Inches[mm]
Tolerance Inches: x .xxx=±0.020
Millimeters: x.xx=±0.50

AC Input Connector(CN1):TKP PVHI-03N2 or equivalent

Pin	Function	Mating Housing	Terminal
1	ACL	JST VHR-3N or equivalent	JST SVH-21T-P1.1 or equivalent
2	-		
3	ACN		

DC Output Connector(CN2):TKP PVHI-04 or equivalent

Pin	Function	Mating Housing	Terminal
1	+Vout	JST VHR-4N or equivalent	JST SVH-21T-P1.1 or equivalent
2	+Vout		
3	-Vout		
4	-Vout		

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