



CFM130S SERIES 130 WATT OPEN FRAME AC-DC MODULES WITH PFC

Features

- Universal Input Range 80~264VAC
- High Efficiency up to 94%
- 2"x 3" Open Frame Compact Size
- 100W with Natural Convection
- 130W with Fan-Cooled
- Active PFC Function
- Continuous Short Circuit Protection
- No Load Input Power Consumption<150mW
- Operating Altitude 5000m
- Meets IEC/EN/UL 60601-1 2 MOPP, IEC/EN60335-1
- Approved Safety IEC/EN/UL 62368-1
- EMI Safety Meets Class I & Class II (NOTE 8)



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	1%	±2%	±0.5%	±1%	93%
CFM130S240	24 V	4.2 A	5.4 A	1%	±2%	±0.5%	±1%	93%
CFM130S360	36 V	2.8 A	3.6 A	1%	±2%	±0.5%	±1%	94%
CFM130S480	48 V	2.1 A	2.7 A	1%	±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 full load at 25°C.
6. Standard input and output connectors (CN1 and CN2) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JST housing 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	O	XX	-Y (Option)
CFM130	S: Single	120: 12VDC	Blank: Wafer
		240: 24VDC	B: Base Cooling
		360: 36VDC	C: Cover
		480: 48VDC	

Part Number Example:

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



CFM130S Series

TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25°C 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	°C
Storage Temperature		All	-40		85	°C
Input/Output Isolation Voltage	1 minute	All	4000			V _{ac}
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		60	Hz
Maximum Input Current	100% Load, V _{in} =100Vac	All			1.8	A
Inrush Current	Cold Start, V _{in} =240Vac	All			100	A
Leakage Current (Touch)		All			100	uA
Under Voltage Protection		All	55	62	70	V

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V _{in} =Nominal V _{in} , I _o =I _o max., T _c =25°C.	CFM130S120 CFM130S240 CFM130S360 CFM130S480	11.76 23.52 35.28 47.04	12 24 36 48	12.24 24.48 36.72 48.96	V _{dc}
Operating Output Current Range	Safety Approvals do not Apply to the Base Plank & Cover Versions, Only to the Open Frame Versions.	CFM130S120 CFM130S240 CFM130S360 CFM130S480			10.8 5.4 3.6 2.7	A
Holdup Time	V _{in} =115Vac	All		20		ms
Output Voltage Regulation						
Load Regulation	20% 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 CFM130S240 CFM130S360 CFM130S480		13.5 30 42 54		V _{dc}
Over Current Protection	Auto Recovery	All	150	170	190	%
Short Circuit Protection	Auto Recovery	All				
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°C	CFM130S120 CFM130S240 CFM130S360 CFM130S480			120 240 360 480	mV
Load Capacitance	1. Ambient Temperature=25°C 2. Input Voltage is 115VAC and 230VAC 3. Output is max. Load	CFM130S120 CFM130S240 CFM130S360 CFM130S480			8400 4200 2720 2040	uF
Efficiency	Output is rated load Ambient temperature=25°C @ Input voltage is 230VAC	CFM130S120 CFM130S240 CFM130S360 CFM130S480		93 93 94 94		%



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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

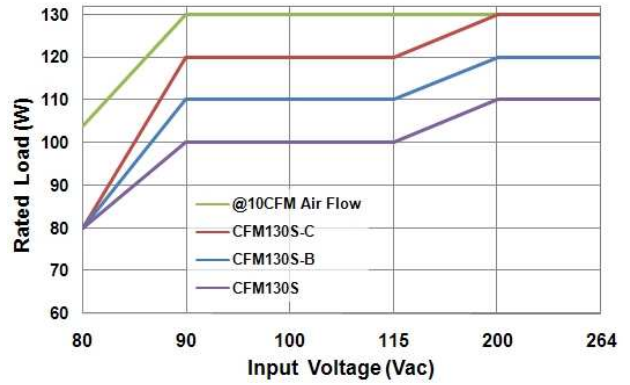
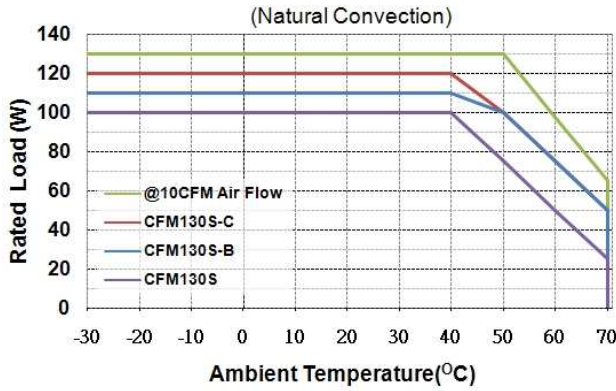
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I _o =100%; T _a =25℃ per MIL-HDBK-217F	All	400			K hours
Humidity	Nom-condensing	All			93	% RH
Shock	Meets MIL-STD-810F Table 516.5, TABLE 516.5-1 10ms, each axis 3 times(+X 、 Y 、 Z axis)	All		75		g
Vibration	Meets MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X 、 Y 、 Z axis, 1 hr(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)	All	3.598x2.000x1.299 Inches (91.40x50.80x33.00mm)			
	C (Cover)	All	3.598x2.520x1.358 Inches (91.40x64.00x34.50mm)			
Safety	Class I, Class II, IEC/EN/UL62368-1 Safety approvals do not apply to the base cooling & covered version only to the open frame versions					
EMC Emission	EN 55032: 2015+A1: 2016, 47 CFR FCC Part 15 Subpart B, EN 61204-3: 2000, EN 6100-6-3: 2007+A1: 2011+AC: 2012, EN 6100-6-4: 2007+A1: 2011					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
Harmonic Current Emissions	EN 61000-3-2:2014					Class A
Voltage Fluctuations & Flicker	EN 61000-3-3:2013					
EMC Immunity	EN 55024: 2010+A1: 2015, EN 61000-6-1: 2007, EN 61000-6-2: 2005+AC, EN 61204-3: 2000					
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008 Air Discharge: ±8kV, Contact Discharge: ±4kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2010					Criterion A
Electrical Fast Transient (EFT)	IEC61000-4-4:2012, ±1kV, ±2kV					Criterion A
Surge	IEC61000-4-5:2014, L-N: ±0.5kV, ±1kV, L-E(Ground): ±0.5kV, ±1kV, ±2kV					Criterion A
Conducted Disturbances, Induced by RF Fields	IEC 61000-4-6:2013					Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8:2009					Criterion A
Voltage Dips	IEC 61000-4-11:2004, Dip: 30% Reduction, Dip >95% Reduction					Criterion A
Voltage Interruptions	IEC 61000-4-11:2004, >95% Reduction					Criterion B
Application Note Link			CFM130S Series App Notes			



CFM130S Series

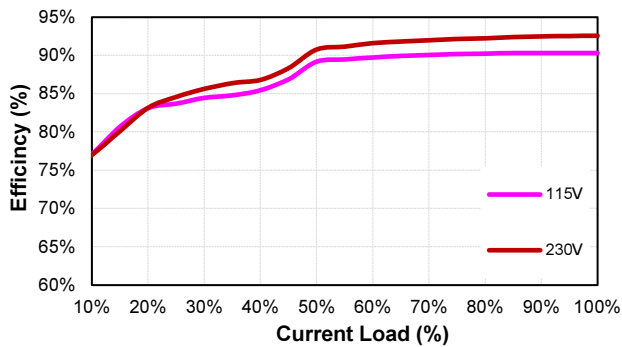
CHARACTERISTIC CURVE

Power Derating Curve

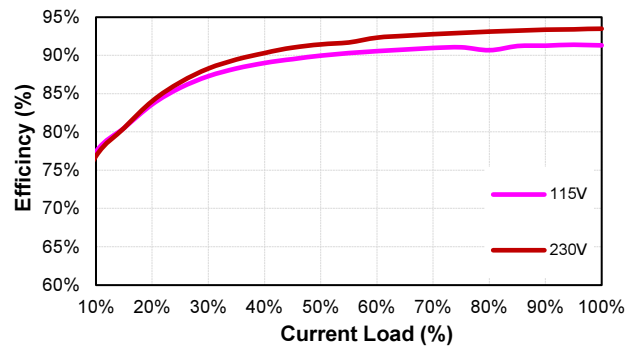


Performance Data

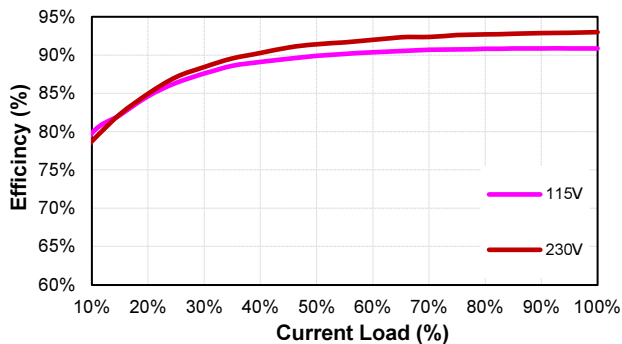
CFM130S120 (Eff Vs Io)



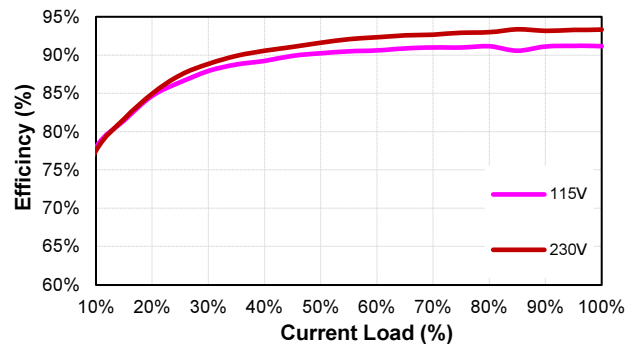
CFM130S240 (Eff Vs Io)



CFM130S360 (Eff Vs Io)



CFM130S480 (Eff Vs Io)

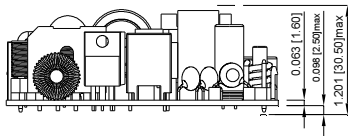
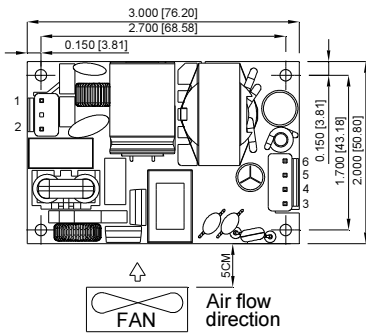




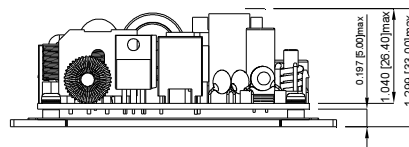
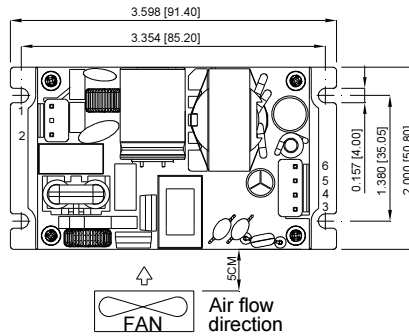
CFM130S Series

MECHANICAL SPECIFICATION

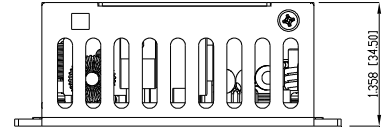
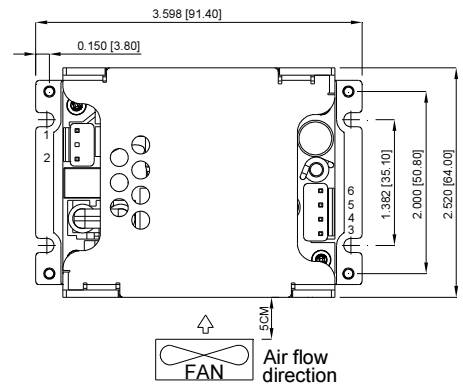
CFM130S



CFM130S-B



CFM130S-C



PIN CONNECTION

Pin	Function
1	ACL
2	ACN
3	-Vout
4	-Vout
5	+Vout
6	+Vout

All Dimensions In Inches[mm]

Tolerance Inches:x.xxx= ± 0.02 , x.xxx= ± 0.010

Millimeters: x.xx = ± 0.5 , x.xx= ± 0.025