CFM81S SERIES
80 WATT OPEN FRAME AC-DC MODULES

Features

- Universal Input Range 90~264Vac
- High Efficiency up to 91%
- 2"x 3" Open Frame Compact Size
- Class I and Class II
- No Load Power <0.3W
  CFM81S480 No Load Power <0.35W
- Approval IEC/EN/UL 62368-1 Ed 3.0
- Approval IEC/EN 60335-1(For Wafer Versions)
- Approval EN 55032 Class B
  and CISPR/FCC Class B
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Peak Load (2 Times of Rated Current (note7))



E176177

MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	VOLTAGE ACCURACY NOTE1	RIPPLE& NOISE NOTE2	VOLTAGE ADJ. RANCE	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
CFM81S120	12 V	6.7 A	±1%	120 mV	11.4~12.6 V	±0.5%	±1%	89%
CFM81S150	15 V	5.36 A	±1%	150 mV	14.25~15.75 V	±0.5%	±1%	89%
CFM81S240	24 V	3.35 A	±1%	240 mV	22.8~25.2 V	±0.5%	±1%	90%
CFM81S480	48 V	1.67 A	±1%	480 mV	45.6~50.4 V	±0.5%	±1%	91%

Note:

1. Voltage accuracy is set at 100% full load.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measurement @20MHz BW.
3. Line regulation is measured from 90V_{ac} to 264V_{ac} with 100% full load.
4. Load regulation is measured from 10% to 100% full load.
5. Typical efficiency at 230 V_{ac} and 100% full load at 25℃.
6. Standard input and output connectors (CN1 and CN2) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JST housing VHR series and JST SVH-21/41T-P1.1 series crimp terminal.
7. PL (peak load function) lasting time < 10 seconds with a maximum 10% duty cycle.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type
CFM81	X	XX	-XX (Option)
CFM81	S : Single	120 : 12V 150 : 15V 240 : 24V 480 : 48V	Blank : Wafer P : PCB Mount CA : Cover

Part Number Example:

CFM81S120-P: Open Frame, 80W, Single 12Vdc Output, PCB Mount.

Downloaded from Arrow.com.

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	Safety approvals only to the AC input	All	90 120		264 370	V_{ac} V_{dc}
Operating Temperature	See Derating Curve	All	-30		80	℃
Storage Temperature		All	-30		85	℃
Operating Altitude	IEC/EN/UL 62368-1 IEC/EN 60335-1	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	50		60	Hz
Maximum Input Current	100% Load, V_{in}=100V_{ac}	All			1.7	A
Leakage Current		All			0.25	mA
Inrush Current	V_{in}=240V_{ac}, Cold start at 25℃	All			100	A

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	Vin=90V_{ac}~264V_{ac}, I_o=Io max., T_c=25℃	CFM81S120 CFM81S150 CFM81S240 CFM81S480	11.88 14.85 23.76 47.52	12 15 24 48	12.12 15.15 24.24 48.48	V_{dc}
Operating Output Current Range	Vin=90V_{ac}~264V_{ac}, See Derating Curve	CFM81S120 CFM81S150 CFM81S240 CFM81S480			6.7 5.36 3.35 1.67	A
Holdup Time	V_{in}=115V_{ac}	All		12		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	Built-in a TVS component to clamp output voltage	CFM81S120 CFM81S150 CFM81S240 CFM81S480			16.2 18.9 31.5 58.8	V_{dc}
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℃	CFM81S120 CFM81S150 CFM81S240 CFM81S480			120 150 240 480	mV
Load Capacitance	1. V_{in}=115V_{ac} and 230V_{ac} 2. Output is max. load 3. Ambient temperature=25℃	CFM81S120 CFM81S150 CFM81S240 CFM81S480			13400 11000 6700 3340	uF
Efficiency	1. Input voltage is 230V_{ac} 2. Output is rated load 3. Ambient temperature=25℃	CFM81S120 CFM81S150 CFM81S240 CFM81S480		89 89 90 91		%

Downloaded from Arrow.com.

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 Minute	All			3000	V_{ac}
Isolation Resistance	Input to output	All	100			MΩ

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	P_{out}=max. rated power	All		65		kHz

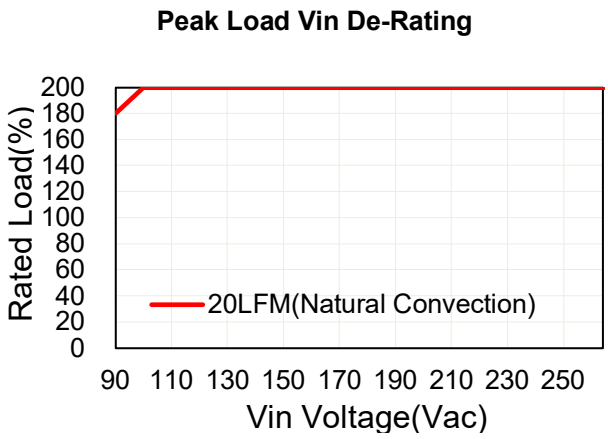
GENERAL SPECIFICATIONS

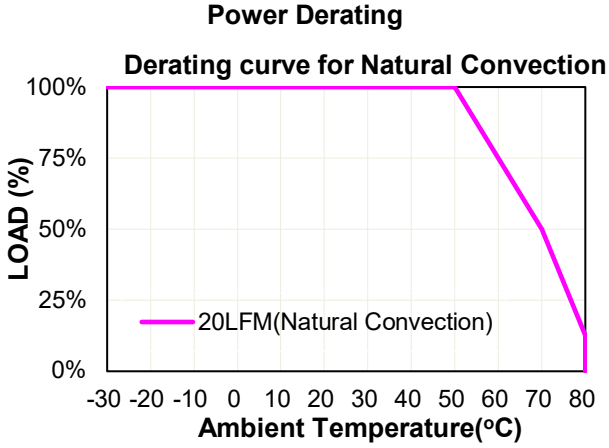
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100%; T_a=25℃ per MIL-HDBK-217F	All	300			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meet MIL-STD-810F Table 516.5,Table 516.5-I 10ms, each axis 3 times(±X、±Y、±Z axis)	All		75		g
Vibration	Meet MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X、Y、Z axis, 1 hour (each axis),. Total 3 hrs.	All		4		g
Weight		CFM81S CFM81S-P CFM81S-CA		135 133 174		grams
Dimensions	Open Frame (Wafer)	All	3.000x2.000x1.339 Inches (76.20x50.80x34.00 mm)			
	P (PCB Mount)		3.000x2.000x1.413 Inches (76.20x50.80x35.90mm)			
	CA (Cover)		3.200x2.441x1.575 Inches (81.28x62.00x40.00mm)			
Safety	Class I, Class II, IEC/EN/UL 62368-1 (Ed 3.0), IEC/EN 60335-1 (For Wafer Versions)					
EMC Emission	EN 55032 Class B, 47 CFR FCC Part 15 Subpart B, Oct.2014 EN 61000-3-2:2019, EN 61000-3-3:2013+A1:2019, EN 61000-6-3:2021, EN 61000-6-4:2019, EN 61204-3:2018					Class B
Conducted Disturbance	EN 55032, EN 61204-3:2018, EN 61000-6-3:2021, EN 61000-6-4:2019, Class B, 47 CFR FCC Part 15 Subpart B					Class B
Radiated Disturbance	EN 55032, EN 61204-3:2018, EN 61000-6-3:2021, EN 61000-6-4:2019, Class B, 47 CFR FCC Part 15 Subpart B					Class B
Harmonic Current Emissions	EN 61000-3-2:2019					
Voltage Fluctuations & Flicker	EN 61000-3-3:2013+A1:2019					
EMC Immunity	EN 55035, EN 61204-3:2018, EN 61000-6-1:2019, EN 61000-6-2:2019					
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008, Air Discharge: ±8kV, Contact Discharge: ±4kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2020					Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4:2012, ±1kV, ±2kV					Criterion A
Surge	IEC 61000-4-5:2014+A1:2017, 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+COR1:2015					Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8:2009					Criterion A
Voltage Dips	IEC 61000-4-11:2020, Dip: 30% Reduction, Dip >95% Reduction					Criterion A
Voltage Interruptions	IEC 61000-4-11:2020, >95% Reduction					Criterion B
Application Note Link	CFM81S Series App Notes					

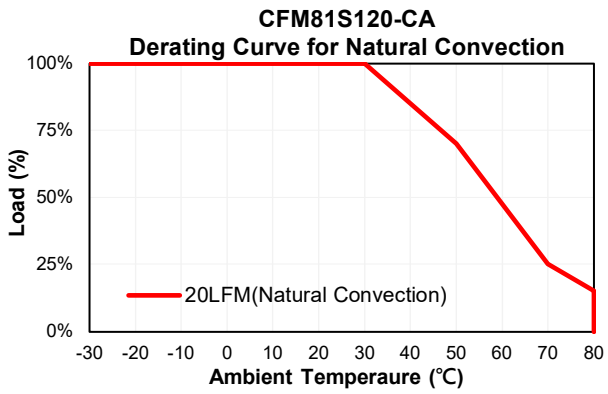
Downloaded from Arrow.com.

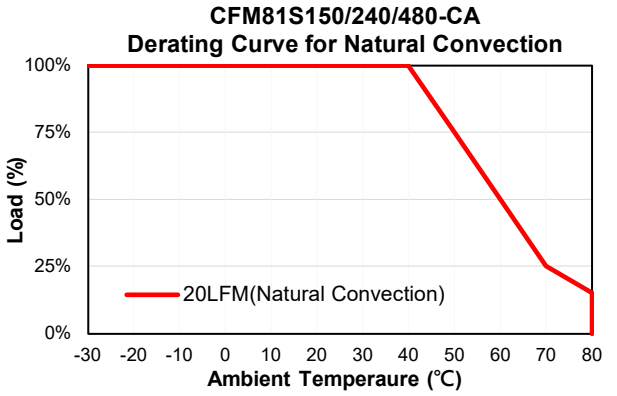
CHARACTERISTIC CURVE

Power Derating Curve

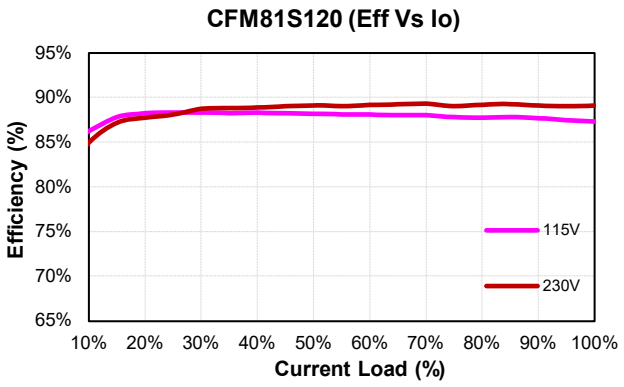


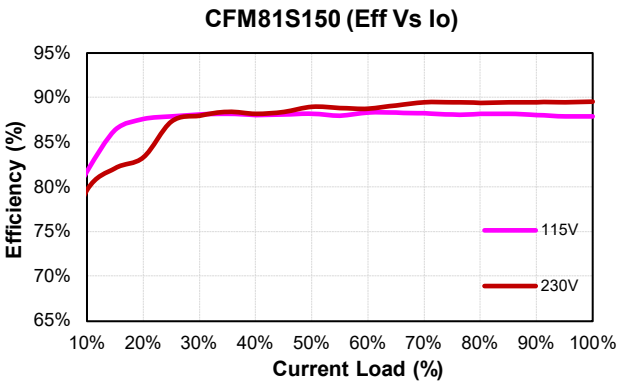




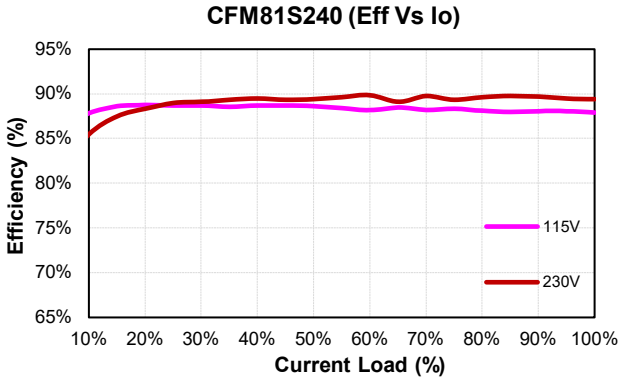


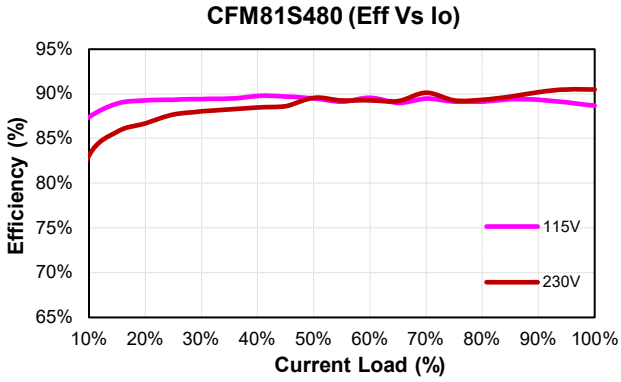
Performance Data





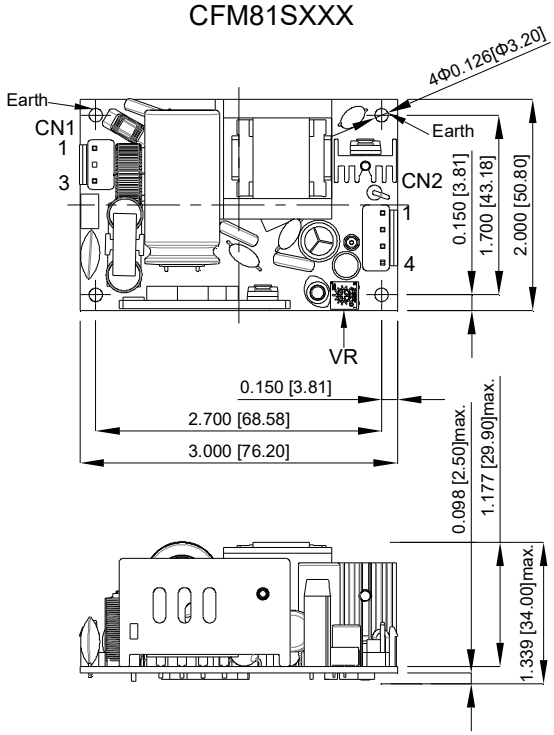
Downloaded from Arrow.com.





MECHANICAL SPECIFICATION

CFM81SXXX



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

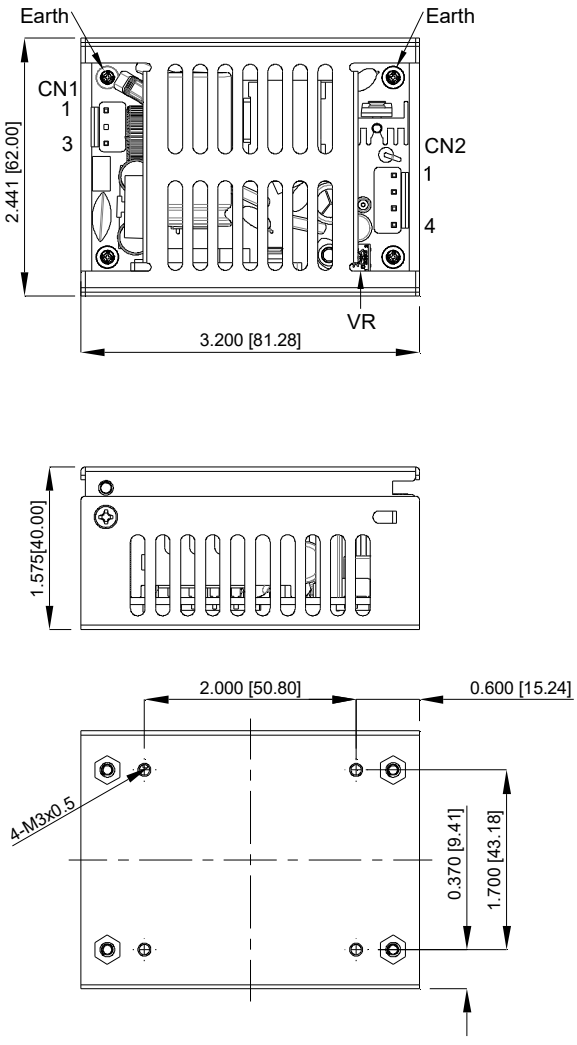
Pin	Function	Mating Housing	Terminal
1	ACN	JST VHR-3N or equivalent	JST SVH-21T-P1.1 or equivalent
2	-		
3	ACL		

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		

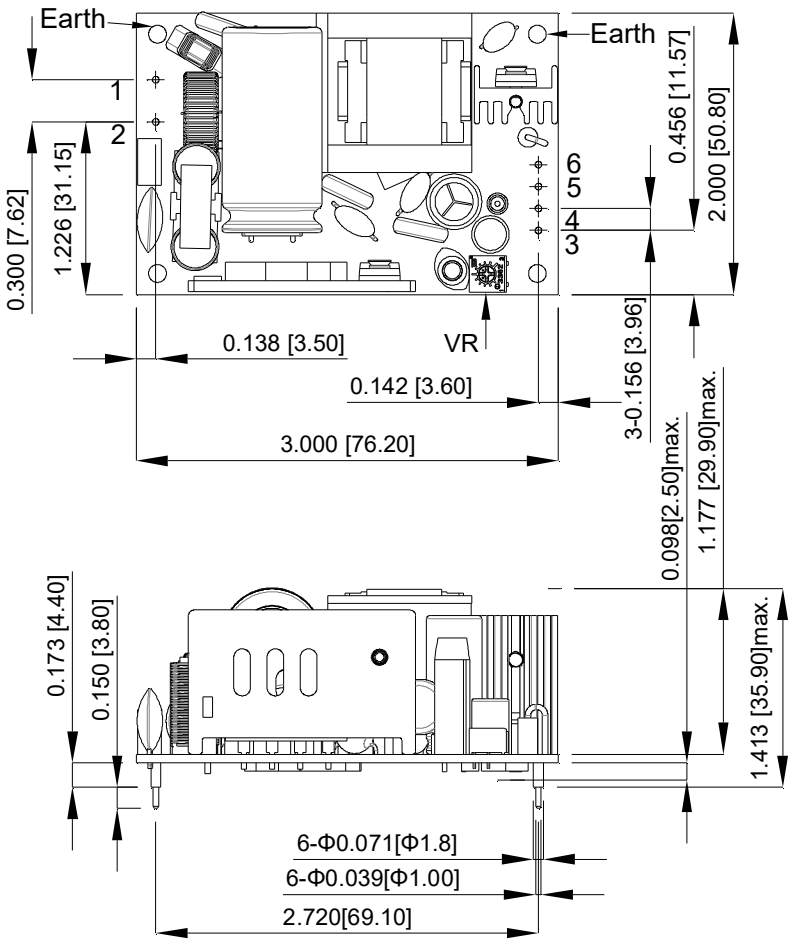
All Dimensions In Inches[mm]
Tolerance Inches:x.xxx= +0.039/-0
Millimeters:x.xx= +1.0/-0

CFM81SXXX-CA



Downloaded from Arrow.com.

MECHANICAL SPECIFICATION



CFM81SXXX-P

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

All Dimensions In Inches[mm]
Tolerance Inches:x.xxx= +0.039/-0
Millimeters:x.xx= +1.0/-0

CINCON Electronics Co. Ltd.
Add: 14F, No. 306, Sec.4, Hsin Yi Rd., Taipei, Taiwan
Tel: 886-2-27086210
Fax: 886-2-27029852
E-mail: sales@cincon.com.tw
Web: www.cincon.com

Downloaded from Arrow.com.