



CFM81S SERIES 80 WATT OPEN FRAME AC-DC MODULES

Features

- Universal Input Range 90~264VAC
- Continuous Short Circuit Protection
- High Efficiency up to 91%
- No Load Power <0.3W
- 2" x 3" Size
- Peak Load (2 Times of Rated Current (note7))
- Meets EN60335-1
- Class I & Class II
- Approved IEC/EN/UL 62368-1
- Meets EN55032 Class B and CISPR/FCC Class B



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

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 measurement @20MHz BW.
3. Line regulation is measured from high line to low line 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 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.
8. Safety approvals do not apply to the covered version only to the open frame versions.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type
CFM81	O	XX	-Y (Option)
CFM81	S: Single	120: 12VDC 150: 15VDC 240: 24VDC 480: 48VDC	None: Wafer P: PCB Mount CA: Cover (note8)

Part Number Example:

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



CFM81S 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	Safety approvals only to the AC input	All	90		264	V _{ac}
				120		370
Operating Case Temperature	See Derating Curve	All	-30		80	°C
Storage Temperature		All	-30		85	°C
Operating Altitude	UL 62368-1	All			5000	m
	Meets EN 60335-1				3000	

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} =100Vac	All			1.7	A
Leakage Current		All			0.25	mA
Inrush Current	V _{in} =240Vac, Cold Start at 25°C.	All			100	A

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.	CFM81S120	11.88	12	12.12	V _{dc}
		CFM81S150	14.85	15	15.15	
		CFM81S240	23.76	24	24.24	
		CFM81S480	47.52	48	48.48	
Operating Output Current Range		CFM81S120			6.7	A
		CFM81S150			5.36	
		CFM81S240			3.35	
		CFM81S480			1.67	
Peak Load Output Current Range	Peak load function lasting time <10 seconds with maximum 10% duty cycle. It requires the average power do not exceed 75.08% rated power	CFM81S120			13.4	A
		CFM81S150			10.72	
		CFM81S240			6.7	
		CFM81S480			3.34	
Holdup Time	V _{in} =115Vac	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			±1.0	%
Over Voltage Protection	Use a TVS Component to Clamp Output Voltage	CFM81S120			16.2	V _{dc}
		CFM81S150			18.9	
		CFM81S240			31.5	
		CFM81S480			58.8	
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	CFM81S120			120	mV
		CFM81S150			150	
		CFM81S240			240	
		CFM81S480			480	
Load Capacitance	1. Ambient Temperature=25°C 2. Input Voltage is 115VAC and 230VAC 3. Output is max. Load	CFM81S120			13400	uF
		CFM81S150			11000	
		CFM81S240			6700	
		CFM81S480			3340	



CFM81S Series

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Efficiency	Output is Rated Load Ambient Temperature=25°C @ Input Voltage is 230VAC	CFM81S120 CFM81S150 CFM81S240 CFM81S480		89 89 90 91		%

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		All		65		KHz

GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I _o =100%; T _a =25°C per MIL-HDBK-217F	All	300			K hours
Humidity	Nom-condensing	All			93	% RH
Shock	Meet MIL-STD-810F Table 516.5, Table 516.5-1 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
Safety	Class I, Class II, IEC/EN/UL62368-1 Safety approvals do not apply to the covered version only to the open frame versions					
EMC Emission	EN55032 Class B, 47 CFR FCC Part 15 Subpart B, Oct.2014 EN61000-3-2:2014, EN61000-3-3:2013, EN61000-6-3:2012, EN61000-6-4:2011, EN61204-3:2000					Class B
Conducted Disturbance	EN55032, EN61204-3:2000, EN61000-6-3:2012, EN61000-6-4:2011, Class B, 47 CFR FCC Part 15 Subpart B					Class B
Radiated Disturbance	EN55032, EN61204-3:2000, EN61000-6-3:2012, EN61000-6-4:2011, Class B, 47 CFR FCC Part 15 Subpart B					Class B
Harmonic Current Emissions	EN61000-3-2:2014					
Voltage Fluctuations & Flicker	EN61000-3-3:2013					
EMC Immunity	EN55035, EN61204-3:2000, EN61000-6-1:2019, EN61000-6-2:2019					
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008, Air Discharge: ±8kV, Contact Discharge: ±4kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2010					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	CFM81S Series App Notes					

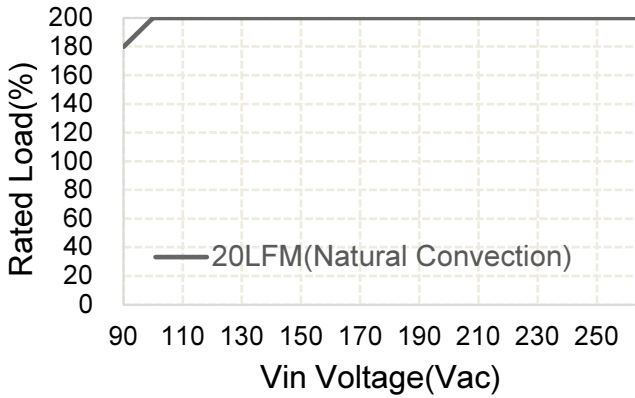


CFM81S Series

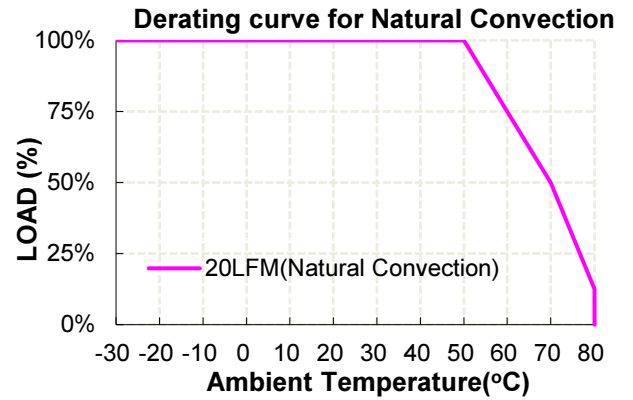
CHARACTERISTIC CURVE

Power Derating Curve

Peak Load Vin De-Rating

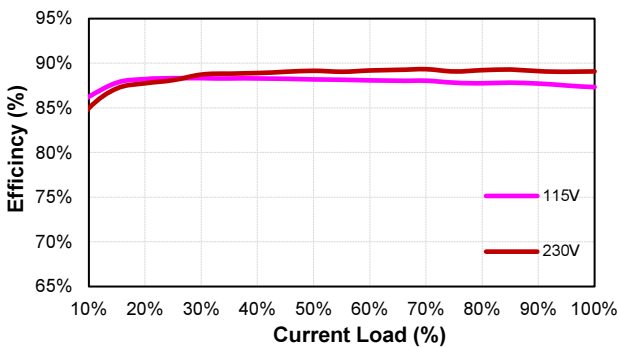


Power Derating

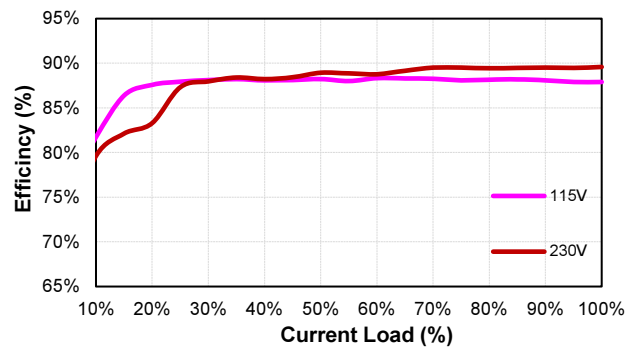


Performance Data

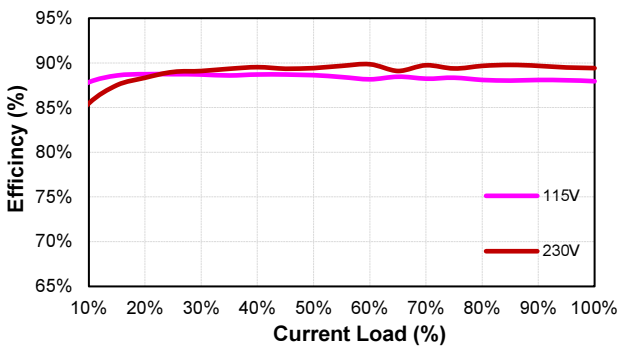
CFM81S120 (Eff Vs Io)



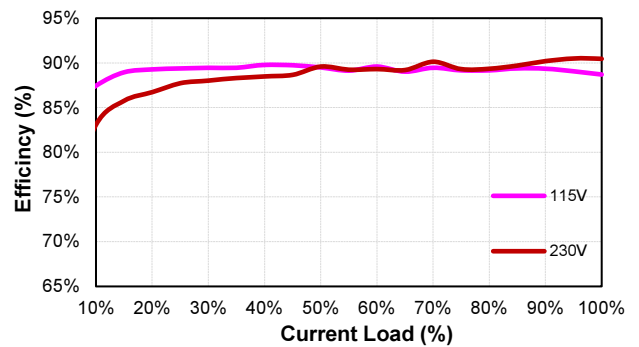
CFM81S150 (Eff Vs Io)



CFM81S240 (Eff Vs Io)



CFM81S480 (Eff Vs Io)

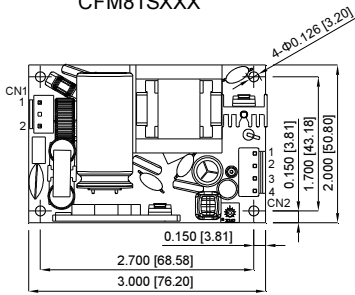




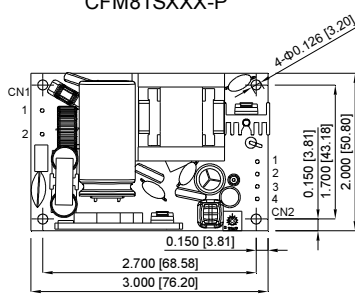
CFM81S Series

MECHANICAL SPECIFICATION

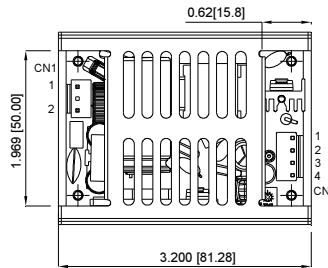
CFM81SXXX



CFM81SXXX-P



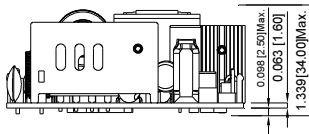
CFM81SXXX-CA



CN1

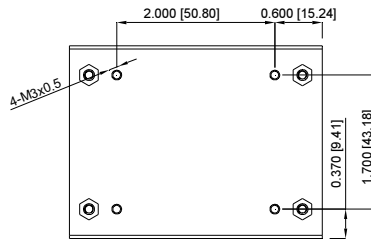
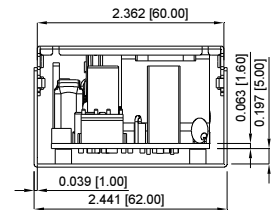
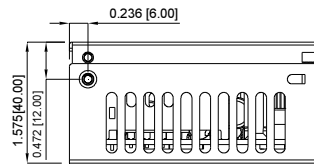
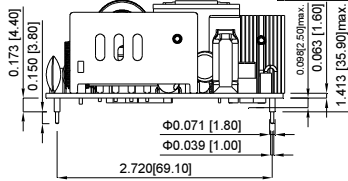
PIN CONNECTION	
Pin	Function
1	ACN
2	ACL

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



CN2

PIN CONNECTION	
Pin	Function
1	-Vout
2	-Vout
3	+Vout
4	+Vout



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