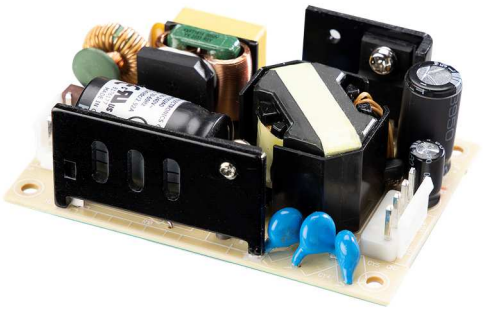
CFM70S SERIES
70 WATT OPEN FRAME AC-DC MODULES

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 Input Power < 0.15W
- Approval IEC/EN/UL 62368-1
- Meets IEC/EN 60335-1
- Approval EN 55032 Class B and CISPR/FCC Class B
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Over Voltage Protection



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	VOLTAGE ACCURACY NOTE1	RIPPLE& NOISE NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
CFM70S050	5 V	10.0 A	±2%	150mV	±0.5%	±1%	86%
CFM70S120	12 V	5.80 A	±2%	120mV	±0.5%	±1%	90%
CFM70S150	15 V	4.65 A	±1%	150mV	±0.5%	±1%	90%
CFM70S240	24 V	2.92 A	±1%	240mV	±0.5%	±1%	90%
CFM70S360	36 V	1.94 A	±1%	360mV	±0.5%	±1%	90%
CFM70S480	48 V	1.46 A	±1%	480mV	±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 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-41T-P1.1 series crimp terminal and output connectors wire 16AWG.
7. 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
CFM70	O	XX	-X (Option)
CFM70	S：Single	050：05V 120：12V 150：15V 240：24V 360：36V 480：48V	None：Wafer P：PCB Mount CA：Cover (note7)

Part Number Example:

CFM70S120: Open Frame, 70W, Single 12V_{dc} Output

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 (DC input no safety)	All	90		264	V_{ac}
			120		370	V_{dc}
Operating Case Temperature	See Derating Curve	All	-30		80	℃
Storage Temperature		All	-30		85	℃
Operating Altitude	IEC/EN/UL 62368-1	All			5000	m
	Meets IEC/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}=100V_{ac}	All			1.5	A
Leakage Current		All			0.1	mA
Inrush Current	V_{in}=240V_{ac}, Cold start at 25℃	All		130		A

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V_{in}=Nominal V_{in}, I_o=Io max., T_c=25℃	CFM70S050	4.90	5	5.10	V_{dc}
		CFM70S120	11.76	12	12.24	
		CFM70S150	14.85	15	15.15	
		CFM70S240	23.76	24	24.24	
		CFM70S360	35.64	36	36.36	
		CFM70S480	47.52	48	48.48	
Operating Output Current Range	V_{in}=115V_{ac} and 230V_{ac},T_c=25℃	CFM70S050			10.0	A
		CFM70S120			5.80	
		CFM70S150			4.65	
		CFM70S240			2.92	
		CFM70S360			1.94	
		CFM70S480			1.46	
Holdup Time	V_{in}=115V_{ac}	All		10		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	Hiccup mode (Auto recovery)	CFM70S050			7.1	V_{dc}
		CFM70S120			15.6	
		CFM70S150			18.0	
		CFM70S240			29.1	
		CFM70S360			43.3	
		CFM70S480			56.8	
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℃	CFM70S050			150	mV
		CFM70S120			120	
		CFM70S150			150	
		CFM70S240			240	
		CFM70S360			360	
		CFM70S480			480	

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Load Capacitance	1. V_{in}=115V_{ac} and 230V_{ac} 2. Output is max. load 3. Ambient temperature=25℃	CFM70S050			10300	uF
		CFM70S120			6000	
		CFM70S150			4700	
		CFM70S240			2920	
		CFM70S360			1980	
		CFM70S480			930	
Efficiency	1. Output is rated load 2. Ambient temperature=25℃ 3. Input voltage is 230V_{ac}	CFM70S050		86		%
		CFM70S120		90		
		CFM70S150		90		
		CFM70S240		90		
		CFM70S360		90		
		CFM70S480		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	Pout=max. rated power	All		65		kHz

GENERAL SPECIFICATIONS

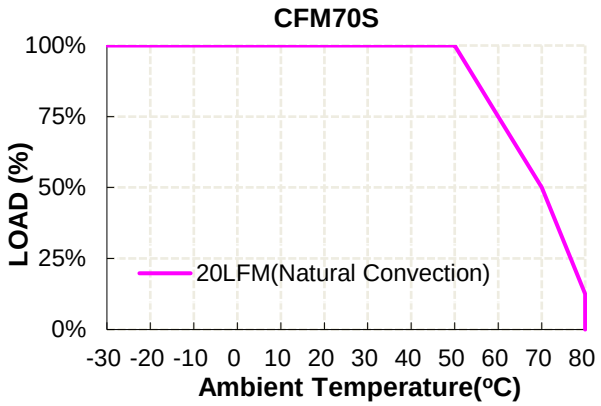
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100%; T_a=25℃ per MIL-HDBK-217F	All	500			k hours
Humidity	Nom-condensing	All			93	% RH
Shock	Meet MIL-STD-810F Table 516.5,Table 516.5-I 10ms, each axis 3 times(±X、±Y、±Z axis)	All		75		g
Vibration	Meet MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X、Y、Z axis, 1 hour (each axis),. Total 3 hrs.	All		4		g
Weight		CFM70S		96.1		grams
		CFM70S-P		94.1		
		CFM70S-CA		135.1		
Dimensions	Open Frame (Wafer)	All	3.000x2.000x1.067 Inches (76.20x50.80x27.1 mm)			
	P (PCB Mount)	All	3.000x2.000x1.142 Inches (76.20x50.80x29mm)			
	CA (Cover)	All	3.200x2.441x1.575 Inches (81.28x62.00x40.00mm)			
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	EN 55032: 2015+AC: 2016, 47 CFR FCC Part 15 Subpart B, EN 61000-3-2: 2019, EN 61000-3-3: 2013					Class B
Conducted Disturbance	EN 55032, 47 CFR FCC Part 15					Class B
Radiated Disturbance	EN 55032, 47 CFR FCC Part 15					Class B
Harmonic Current Emissions	EN 61000-3-2:2019					
Voltage Fluctuations & Flicker	EN 61000-3-3:2013					
EMC Immunity	EN 55035:2017					
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, ±0.5kV, ±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

GENERAL SPECIFICATIONS

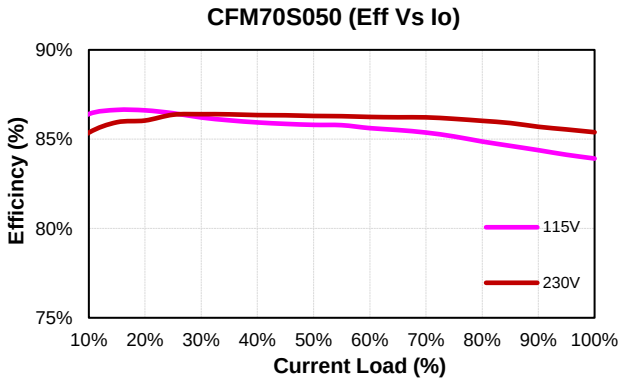
Power Frequency Magnetic Field	IEC 61000-4-8:2009	Criterion A
Voltage Dips	IEC 61000-4-11:2004, Dip: 30% Reduction, Dip >95% Reduction	Criterion A
Voltage Interruptions	IEC 61000-4-11:2004, >95% Reduction	Criterion B
Application Note Link		CFM70S Series App Notes

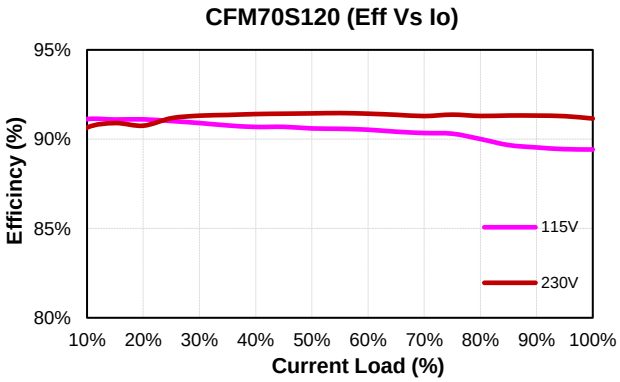
CHARACTERISTIC CURVE

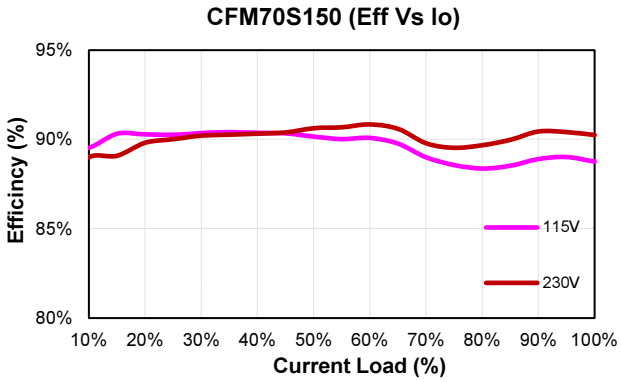
Power Derating Curve

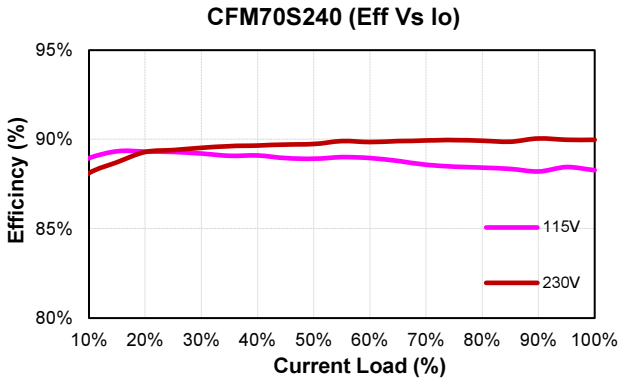


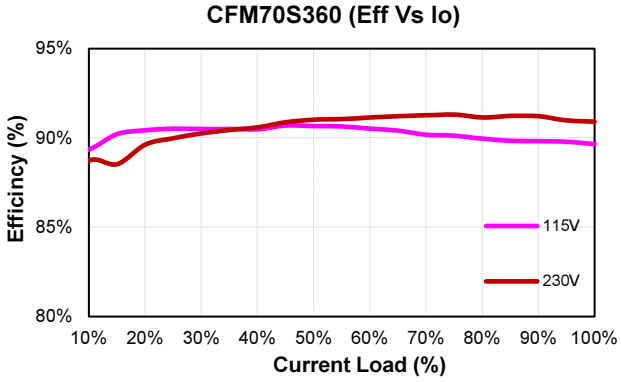
Performance Data

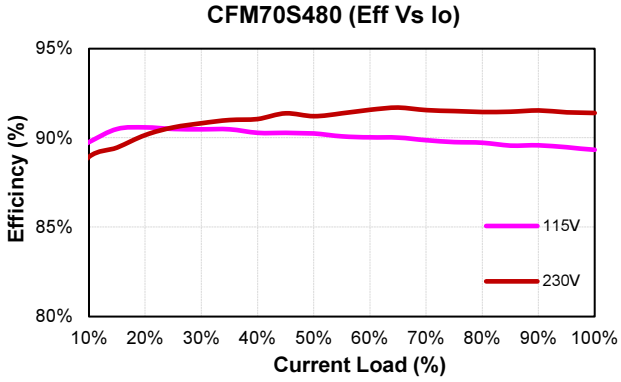




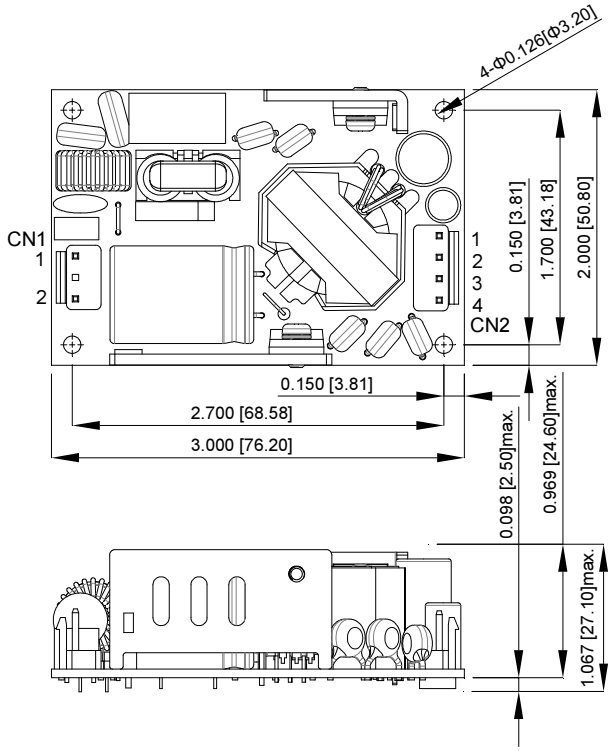








MECHANICAL SPECIFICATION



CN1

PIN CONNECTION	
PIN	Function
1	ACL
2	ACN

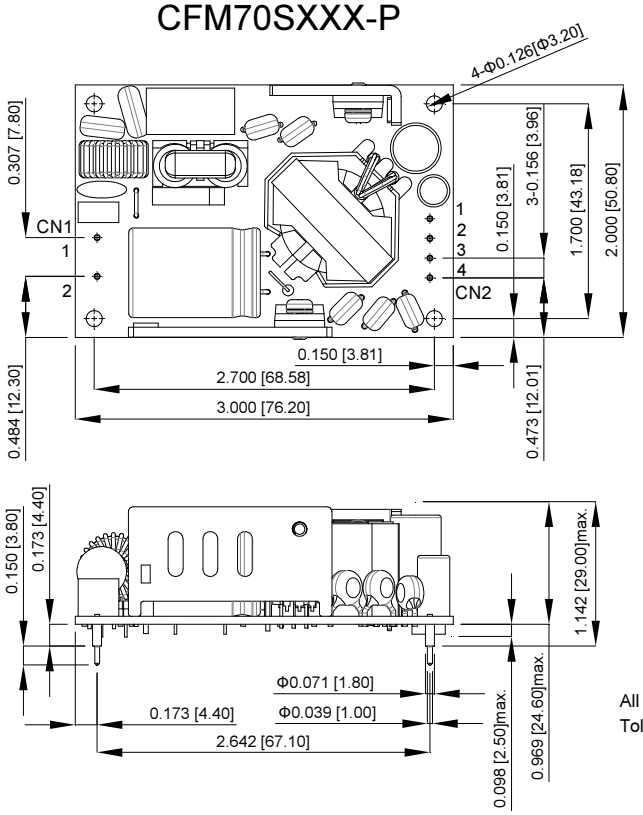
CN2

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

All Dimensions in Inches[mm]
Tolerance Inches：X.XXX=±0.02
Millimeters：X.XX=±0.5

MECHANICAL SPECIFICATION

CFM70SXXX-P



CN1

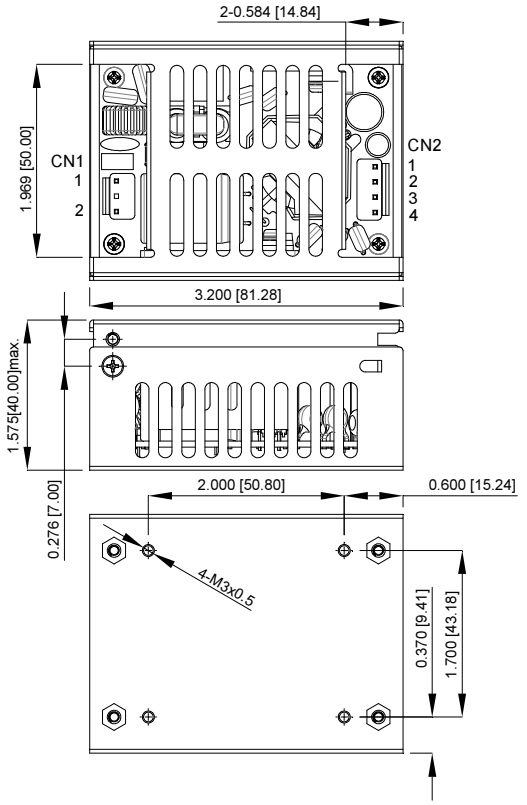
PIN CONNECTION	
PIN	Function
1	ACL
2	ACN

CN2

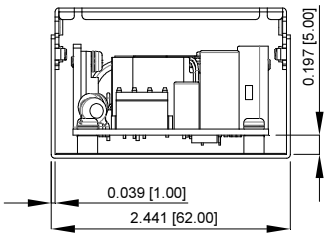
PIN CONNECTION	
PIN	Function
1	+Vout
2	+Vout
3	-Vout
4	-Vout

All Dimensions in Inches[mm]
Tolerance Inches：X.XXX=±0.02
Millimeters：X.XX=±0.5

CFM70SXXX-CA



All Dimensions in Inches[mm]
Tolerance Inches：X.XXX=±0.02
Millimeters：X.XX=±0.5



CN1

PIN CONNECTION	
PIN	Function
1	ACL
2	ACN

CN2

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

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