



CFM41S SERIES 40 WATT AC-DC AC-DC MODULES

Features

- Universal Input Range 90~264Vac
- High Efficiency up to 90%
- 2"x 2" Open Frame Compact Size
- Class II
- No Load Power Consumption < 0.15W
- Approval IEC/EN/UL 62368-1 Ed 3.0
- Meet IEC/EN 60335-1
- Approval EN55032 and CISPR/FCC Class B
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Over Voltage Protection
- Peak Load (2 Times of Rated Current Note 6)



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE1	Voltage Accuracy NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
CFM41S050	5 V	6 A	100 mV	±2%	±0.5%	±1%	87%
CFM41S120	12 V	3.34 A	120 mV	±1%	±0.5%	±1%	90%
CFM41S150	15 V	2.67 A	150 mV	±1%	±0.5%	±1%	90%
CFM41S240	24 V	1.67 A	240 mV	±1%	±0.5%	±1%	90%
CFM41S360	36 V	1.11 A	360 mV	±1%	±0.5%	±1%	90%
CFM41S480	48 V	0.83 A	480 mV	±1%	±0.5%	±1%	90%

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 measuring @20MHz BW.
3. Line regulation is measured from 0V_{ac} to 264V_{ac} with 100% 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. PL (peak load function) Lasting time < 10 seconds with a maximum 10% duty cycle and must add external 68uF / 400V capacitor to BC+& BC-
7. CFM41SXXX-T input and output connectors (CN1 and CN2) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JST Housing VHR series or equivalent.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type
CFM41S	O	XXX	-X (Option)
CFM41S	S : Single	050 : 5V 120 : 12V 150 : 15V 240 : 24V 360 : 36V 480 : 48V	Blank PCB mount E : Encapsulated T : WAFER

Part Number Example:

- CFM41S120-E:** With Encapsulated, 40W, Single 12Vdc Output
- CFM41S120-T:** With Wafer, 40W, Single 12Vdc Output



CFM41S 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	90		264	V _{ac}
				120		370
Operating Temperature	See Derating Curve	All	-40		85	°C
Storage Temperature		All	-40		85	°C
Operating Altitude		All			5000	m

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		264	V _{ac}
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% Load, V _{in} =100V _{ac}	All			1	A
Inrush Current	V _{in} =240V _{ac} , Cold start @25°C	All			70	A
Leakage Current		All			250	uA

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V _{in} =90V _{ac} ~264V _{ac} , I _o =Full load, Ambient temperature=25°C	CFM41S050	4.9	5	5.1	V _{dc}
		CFM41S120	11.88	12	12.12	
		CFM41S150	14.85	15	15.15	
		CFM41S240	23.76	24	24.24	
		CFM41S360	35.64	36	36.36	
		CFM41S480	47.52	48	48.48	
Operating Output Current Range	V _{in} =90V _{ac} ~264V _{ac} , See Derating Curve	CFM41S050	0		6	A
		CFM41S120	0		3.34	
		CFM41S150	0		2.67	
		CFM41S240	0		1.67	
		CFM41S360	0		1.11	
		CFM41S480	0		0.83	
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	TVS component to clamp output voltage	CFM41S050		6.8		V _{dc}
		CFM41S120		15		
		CFM41S150		18		
		CFM41S240		30		
		CFM41S360		43		
		CFM41S480		56		
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 (CFM41S050: Add a 0.1uF ceramic capacitor and 47uF aluminum electrolytic capacitor to output) 2. Oscilloscope is 20MHz band width 3. Ambient temperature=25°C	CFM41S050			100	mV
		CFM41S120			120	
		CFM41S150			150	
		CFM41S240			240	
		CFM41S360			360	
		CFM130S480			480	



CFM41S Series

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Load Capacitance	1. Input voltage is 115V _{ac} and 230V _{ac} 2. Output is max. full load 3. Ambient temperature=25°C	CFM41S050			6000	uF
		CFM41S120			3330	
		CFM41S150			2650	
		CFM41S240			1650	
		CFM41S360			1090	
		CFM41S480			810	
Efficiency	1. Input voltage is 230V _{ac} 2. Output is 75% full load 3. Ambient temperature=25°C	CFM41S050		87%		%
		CFM41S120		90%		
		CFM41S150		90%		
		CFM41S240		90%		
		CFM41S360		90%		
		CFM41S480		90%		

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 Minute (without dielectric breakdown)	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 I _o =100%; T _a =25°C Telcordia SR332	All	390			k hours
Life Time	@75% Load, 40°C	All	26			k hours
Humidity	Non-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	Blank : PCB mount	All		61		grams
	E : Encapsulated			142		
	T : WAFER			64		
Dimensions	Blank : PCB mount	All	2.000x2.000x1.01 inches (50.80x50.80x25.6 mm)			
	E : Encapsulated		2.14x2.14x1.043 inches (54.37x54.37x26.5 mm)			
	T : WAFER		2.70x2.00x0.941 inches (68.58x50.80x23.9 mm)			
Safety	Class II, IEC/EN/UL 62368-1					Ed3.0
EMC Emission	EN 55032, EN 61000-3-2, EN 61000-3-3, EN 61000-6-3, EN 61000-6-4, 47 CFR FCC Part 15 Subpart B					Class B
Conducted Disturbance	EN 55032:2015+A11:2020, EN 61000-6-3:2012, 47 CFR FCC Part 15 Subpart B					Class B
Radiated Disturbance	EN 55032:2015+A11:2020, EN 61000-6-3:2012, 47 CFR FCC Part 15 Subpart B					Class B
Harmonic Current Emissions	EN 61000-3-2:2019					Class A
Voltage Fluctuations & Flicker	EN 61000-3-3:2013+A1:2019					Criterion A
EMC Immunity	EN 55035:2017+A11:2020, EN 61204-3:2000, EN 61000-6-1:2019, EN 61000-6-2:2019					Criterion A
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, ±2 kV					Criterion A



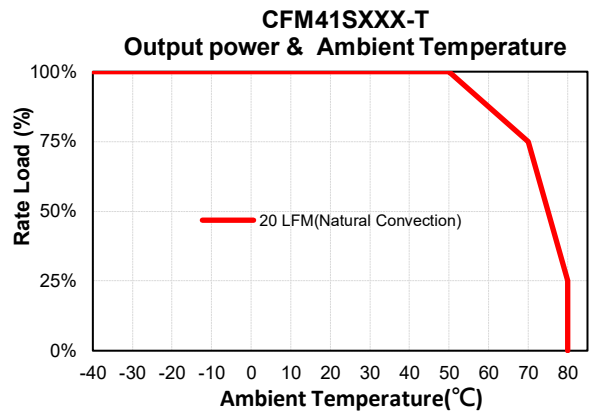
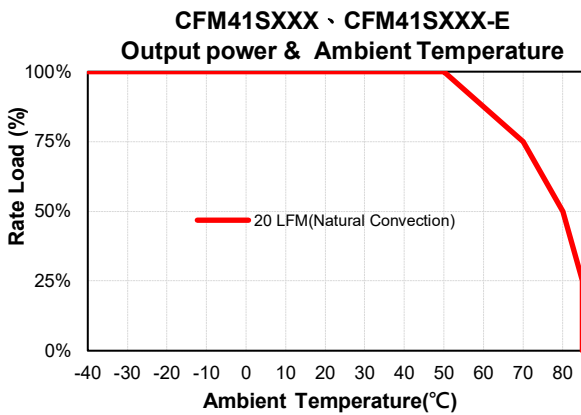
CFM41S Series

GENERAL SPECIFICATIONS

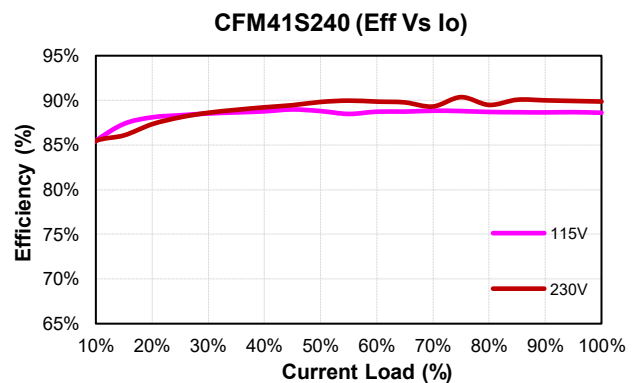
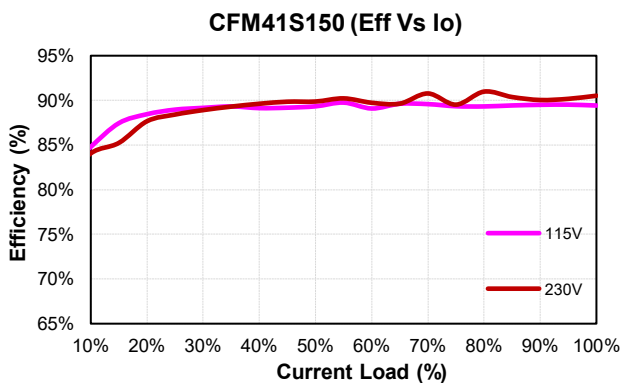
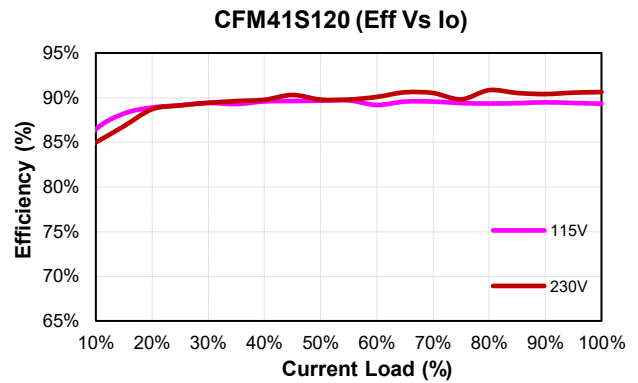
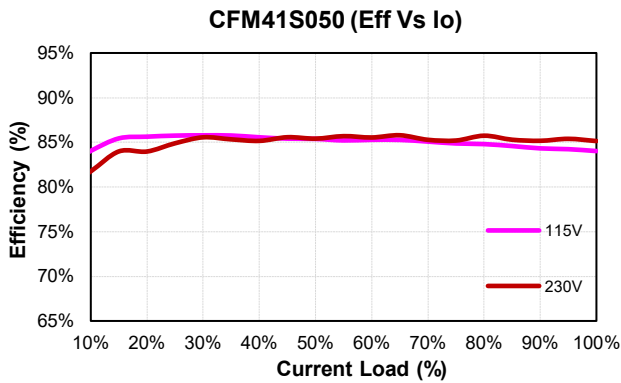
Surge	IEC 61000-4-5:2014+A1:2017, L-N: $\pm 1\text{kV}$	Criterion A
Conducted Disturbances, Induced by RF Fields	IEC 61000-4-6:2013+COR1:2015	Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8:2009	Criterion A
Voltage Dips	IEC 61000-4-11:2020, Dip: 30% 10ms, Dip: 60% 100ms, Dip >95% 5000ms	Criterion A
Voltage Interruptions	IEC 61000-4-11:2020, >95% 5000ms	Criterion B
Application Note Link	CFM41S Series App Notes	

CHARACTERISTIC CURVE

Power Derating Curve



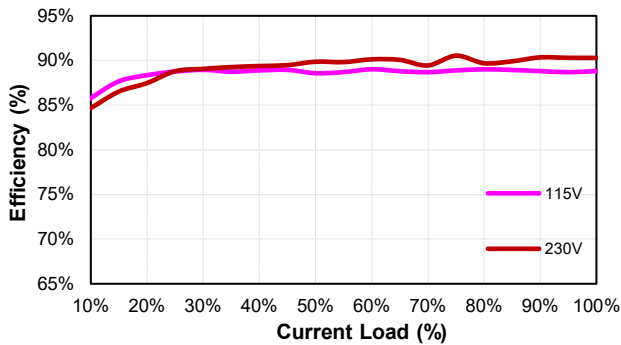
Performance Data



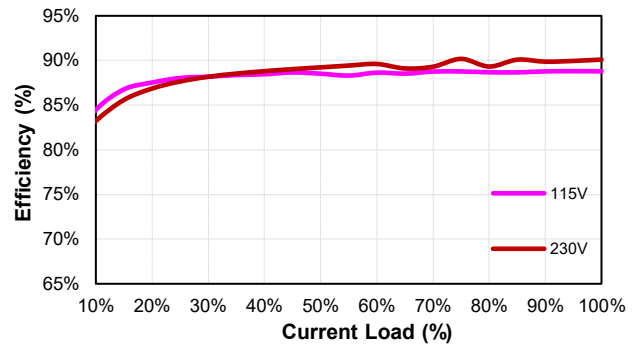


CFM41S Series

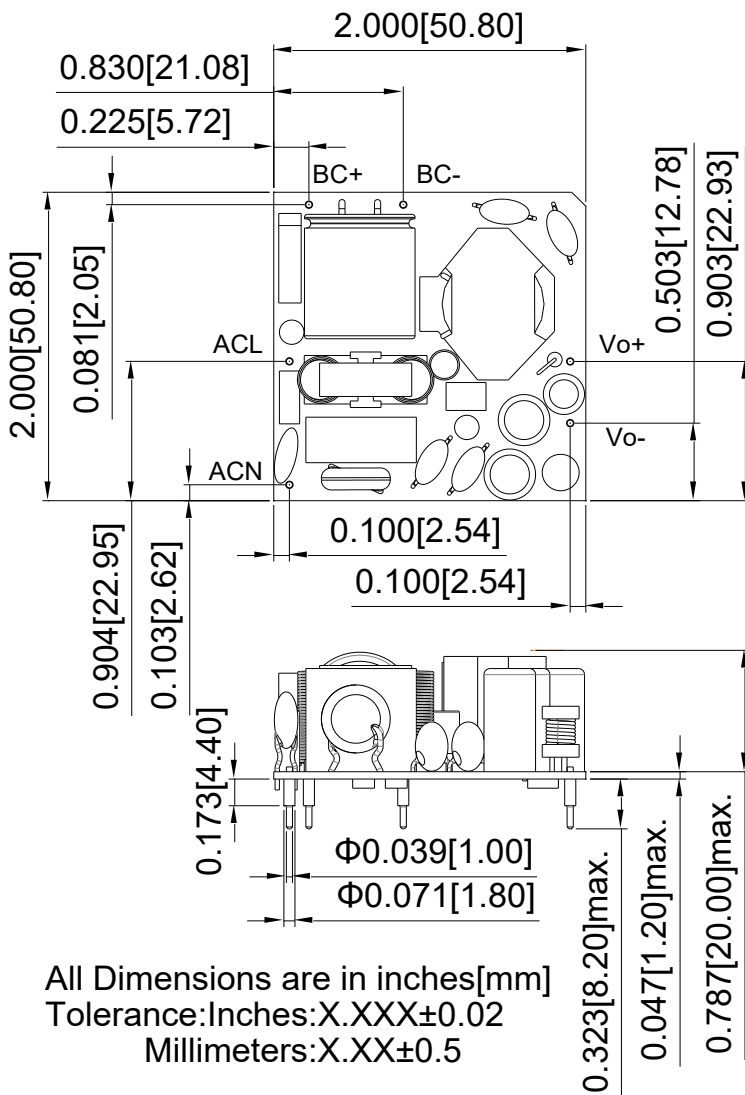
CFM41S360 (Eff Vs Io)



CFM41S480 (Eff Vs Io)



MECHANICAL SPECIFICATION



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

CFM41SXXX

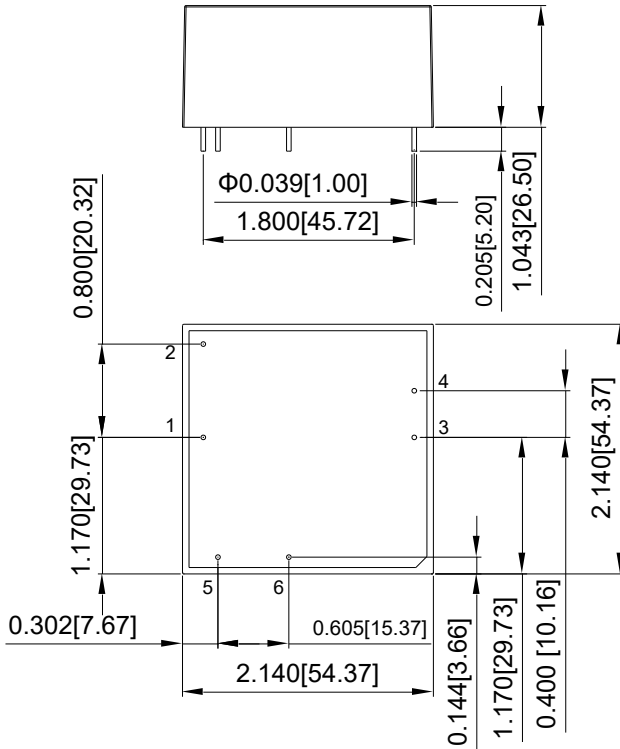
PIN CONNECTION

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



CFM41S Series

MECHANICAL SPECIFICATION

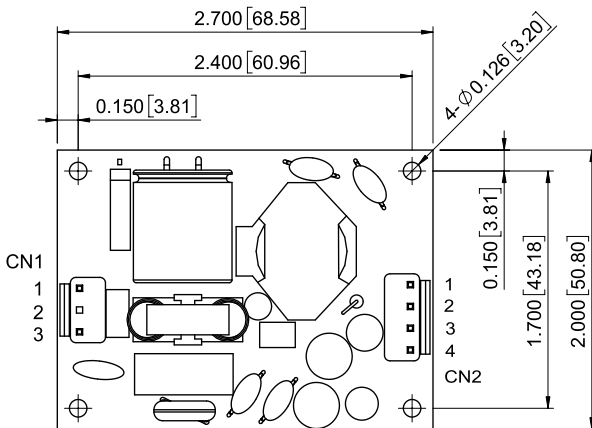


CFM41SXXX-E

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

PIN CONNECTION

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



CFM41SXXX-T

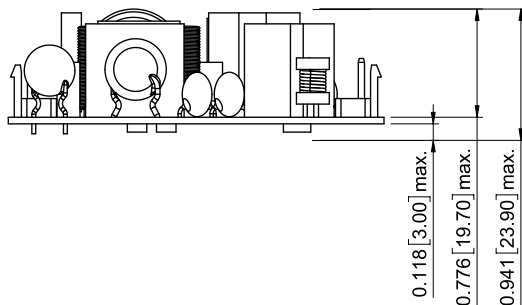
All Dimensions in Inches[mm]
 Tolerance Inches: x.xxx±0.020
 Millimeters: x.xx±0.50

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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