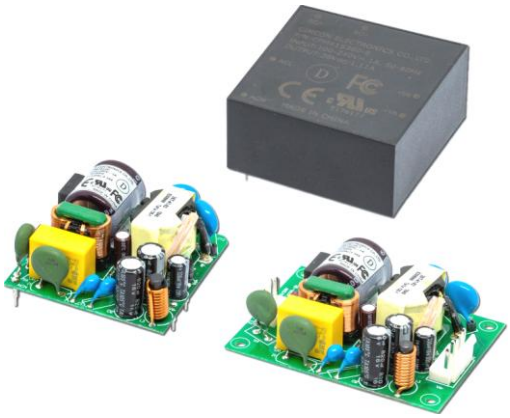
CFM41S SERIES
40 WATT AC-DC
AC-DC MODULES

Features

- Universal Input Range 90~264V_{ac}
- 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)



E176177

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 V_{ac} and full load at 25℃.
6. Peak load 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 (without Peak Load)

Part Number Example:

CFM41S120-E: With Encapsulated, 40W, Single 12V_{dc} Output

CFM41S120-T: With Wafer, 40W, Single 12V_{dc} Output

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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	-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	50		60	Hz
Maximum Input Current	100% Load, V_{in}=100V_{ac}	All			1	A
Inrush Current	V_{in}=240V_{ac}, Cold start @25℃	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℃	CFM41S050 CFM41S120 CFM41S150 CFM41S240 CFM41S360 CFM41S480	4.9 11.88 14.85 23.76 35.64 47.52	5 12 15 24 36 48	5.1 12.12 15.15 24.24 36.36 48.48	V_{dc}
Operating Output Current Range	V_{in}=90V_{ac}~264V_{ac}, See Derating Curve	CFM41S050 CFM41S120 CFM41S150 CFM41S240 CFM41S360 CFM41S480	0 0 0 0 0 0		6 3.34 2.67 1.67 1.11 0.83	A
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 CFM41S120 CFM41S150 CFM41S240 CFM41S360 CFM41S480		6.8 15 18 30 43 56		V_{dc}
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℃	CFM41S050 CFM41S120 CFM41S150 CFM41S240 CFM41S360 CFM41S480			100 120 150 240 360 480	mV

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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℃	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℃	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℃ per MIL-HDBK-217F I_o=100%; T_a=25℃ Telcordia SR332	All	390 3170			k hours
Life Time	@75% Load, 40℃	All	26			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meets MIL-STD-810F Table 516.5,TABLE 516.5-I 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 E：Encapsulated T：WAFER	All		61 142 64		grams
Dimensions	Blank：PCB mount	All	2.00x2.00x1.008 inches (50.8x50.8x25.6 mm)			
	E：Encapsulated		2.14x2.14x1.043 inches (54.4x54.4x26.50 mm)			
	T：WAFER		2.70x2.00x0.941 inches (68.6x50.8x23.90 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, EN 61000-6-3, 47 CFR FCC Part 15 Subpart B					Class B
Radiated Disturbance	EN 55032, EN 61000-6-3, 47 CFR FCC Part 15 Subpart B					Class B
Harmonic Current Emissions	EN 61000-3-2					Class A
Voltage Fluctuations & Flicker	EN 61000-3-3					Criterion A
EMC Immunity	EN 55035, EN 61204-3, EN 61000-6-1, EN 61000-6-2					Criterion A
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 3 Air discharge:±8kV, Level 2 Contact discharge:±4kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3, Level 3: 80~1000MHz, 10V/m					Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4, Level 3: ±2 kV					Criterion A

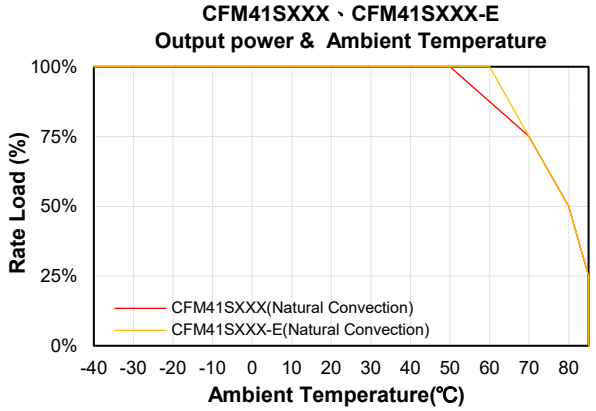
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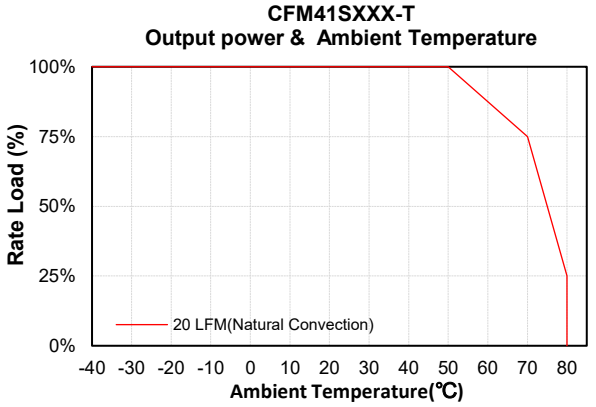
GENERAL SPECIFICATIONS

Surge	IEC 61000-4-5, Level 3: L-N: ±1kV	Criterion A
Conducted Disturbances, Induced by RF Fields	IEC 61000-4-6, Level 3: 0.15~80MHz, 10V	Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8, Level 4: 30A/m	Criterion A
Voltage Dips	IEC 61000-4-11, Dip: 30% 10ms, Dip: 60% 100ms, Dip >95% 5000ms	Criterion A
Voltage Interruptions	IEC 61000-4-11, >95% 5000ms	Criterion B
Application Note Link	CFM41S Series App Notes	

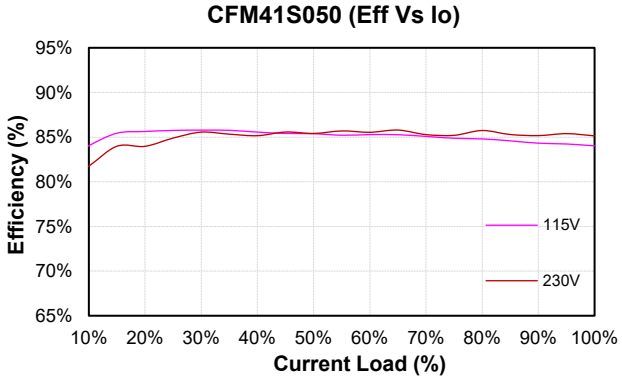
CHARACTERISTIC CURVE

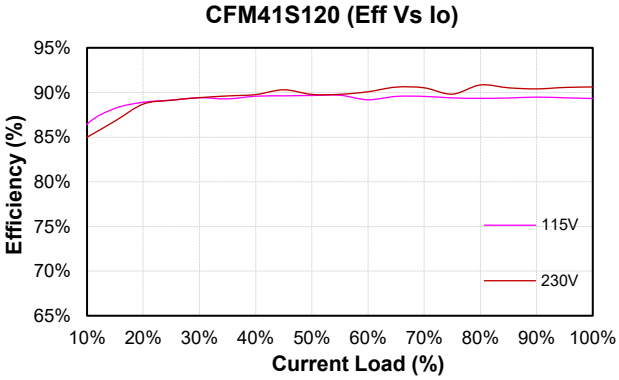
Power Derating Curve

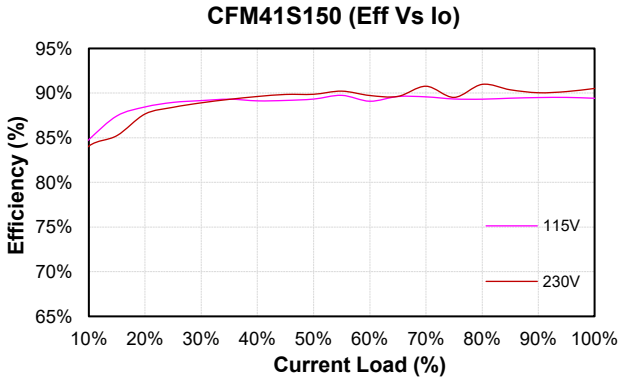


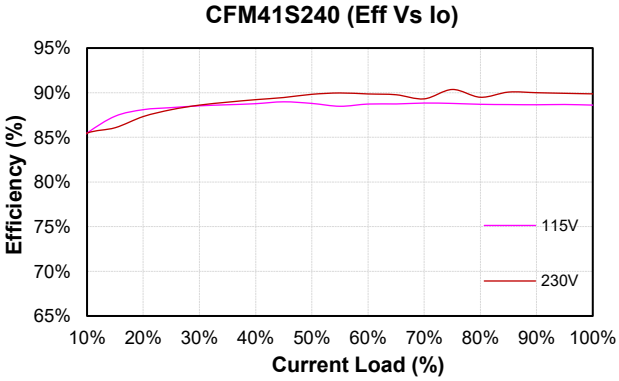


Performance Data

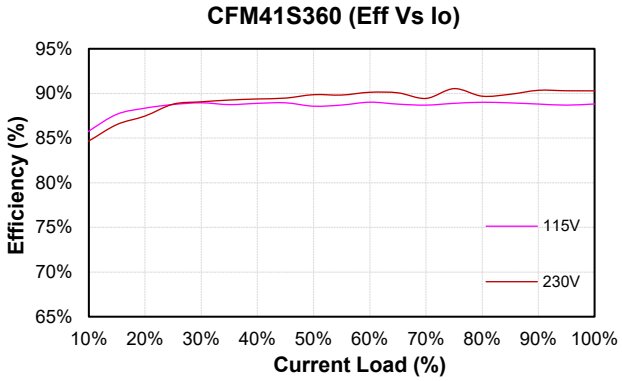


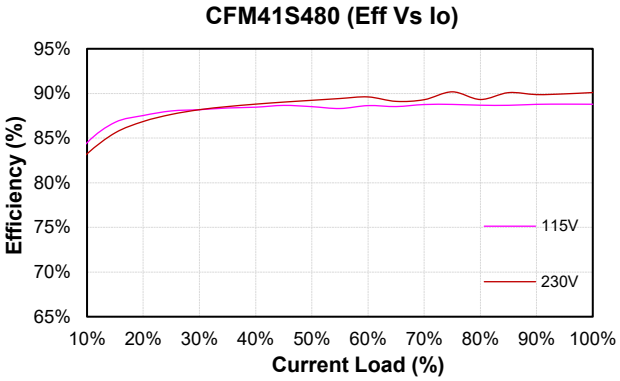




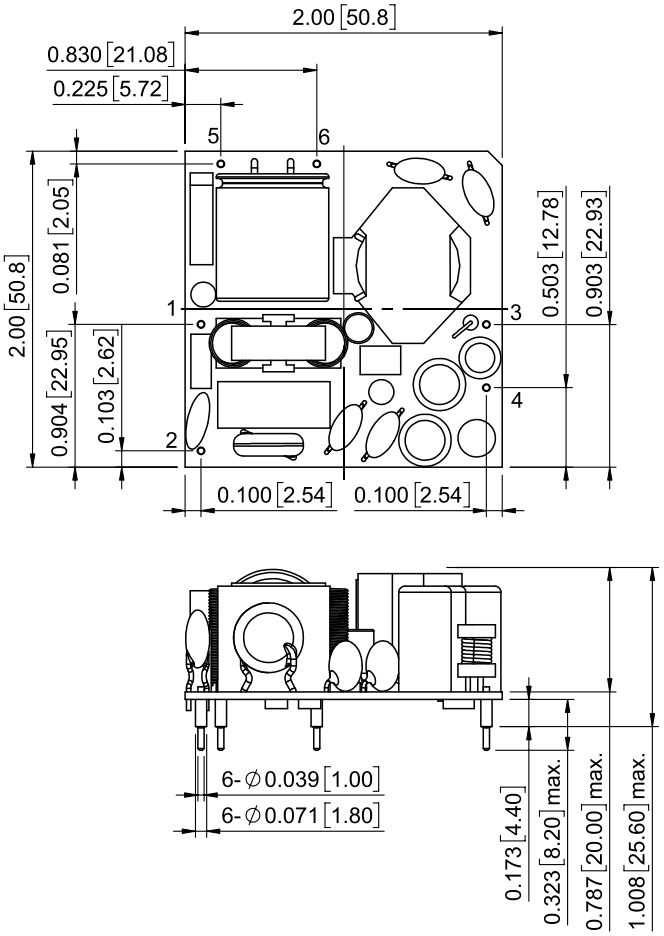


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MECHANICAL SPECIFICATION



CFM41SXXX

All Dimensions in Inches[mm]

Tolerance Inches: x.xx=±0.03, x.xxx=±0.020

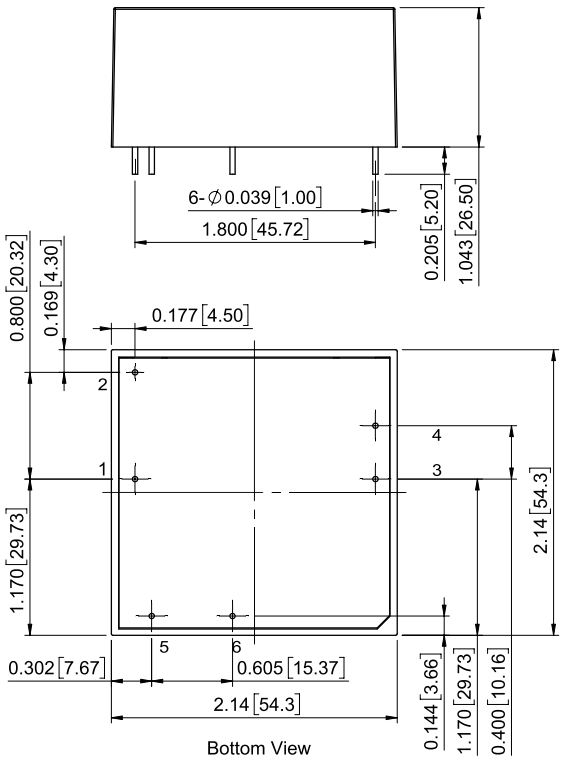
Millimeters: x.x=±0.7, x.xx=±0.50

PIN CONNECTION

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

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MECHANICAL SPECIFICATION

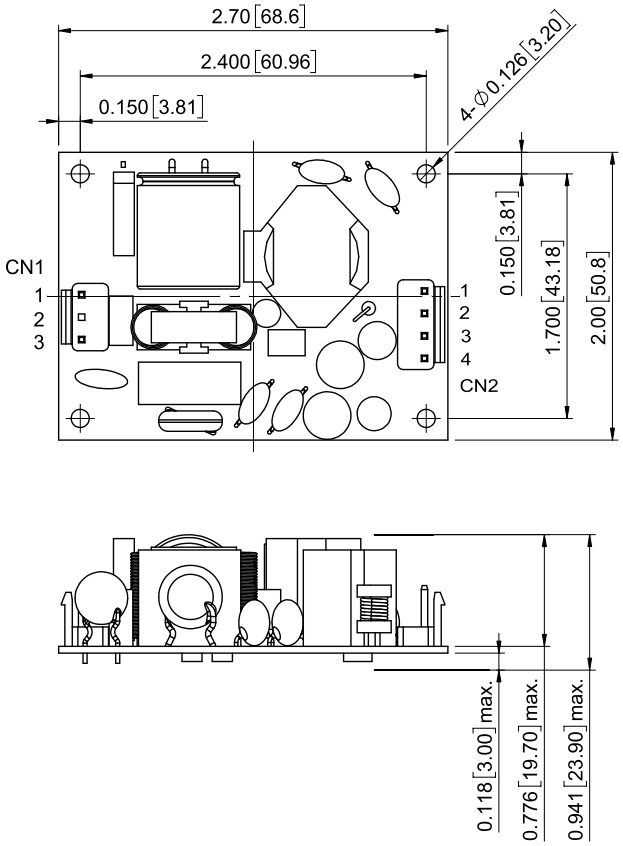


CFM41SXXX-E

All Dimensions in Inches[mm]
Tolerance Inches: x.xx=±0.03, x.xxx=±0.020
Millimeters: x.x=±0.7, x.xx=±0.50

PIN CONNECTION

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



CFM41SXXX-T

All Dimensions in Inches[mm]
Tolerance Inches: x.xx=±0.03, x.xxx=±0.020
Millimeters: x.x=±0.7, 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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