



CFM25S SERIES 25 WATT OPEN FRAME AC-DC MODULES

Features

- Universal Input Range 90~264Vac
- High Efficiency up to 87%
- 2"x 1.1" Open Frame Compact Size
- Class II
- No Load Input Power < 0.1W
- Approval IEC/EN/UL 62368-1
- Approval IEC/EN 60335-1
- Approval EN 55032 Class B and CISPR/FCC Class B
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Over Voltage Protection
- Peak Load (2 Times of Rated Current (note7))



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	VOLTAGE ACCURACY NOTE1	RIPPLE& NOISE NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
CFM25S050	5 V	4.0 A	±2%	50mV	±1%	±1%	81%
CFM25S120	12 V	2.1 A	±1%	120mV	±1%	±1%	84%
CFM25S150	15 V	1.67 A	±1%	150mV	±1%	±1%	85%
CFM25S240	24 V	1.05 A	±1%	240mV	±1%	±1%	86%
CFM25S360	36 V	0.7 A	±1%	360mV	±1%	±1%	87%
CFM25S480	48 V	0.52 A	±1%	480mV	±1%	±1%	87%

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°C.
6. T Version wafer with JST B3B-XH/B4B-XH and mate with JST housing XH series or equivalent.
7. PL (peak load function) lasting time <10 seconds with a maximum 10% duty cycle and must add external 33uF/400V capacitor to BC+ & BC-.
8. L version & EL version Safety only approved only IEC/EN 60335-1.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type	Optional
CFM25	X	XXX	-XX	XX
CFM25	S: Single	050: 5V 120: 12V 150: 15V 240: 24V 360: 36V 480: 48V	Blank: PCB Mount E: Encapsulated T: Wafer L: Lead Wire EL: Encapsulated & Lead Wire	Blank: None PL: Peak Load Function

Part Number Example:

CFM25S120-T: Open Frame, 25W, Single 12V_{dc} Output, Wafer



CFM25S 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		70	°C
Storage Temperature		All	-30		85	°C
Operating Altitude	IEC/EN/UL 62368-1	All			5000	m
	IEC/EN 60335-1					

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			0.7	A
Leakage Current		All			0.25	mA
Inrush Current	V _{in} =240V _{ac} , Cold start at 25°C	All			60	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	CFM25S050	4.90	5	5.10	V _{dc}
		CFM25S120	11.88	12	12.12	
		CFM25S150	14.85	15	15.15	
		CFM25S240	23.76	24	24.24	
		CFM25S360	35.64	36	36.36	
		CFM25S480	47.52	48	48.48	
Operating Output Current Range	V _{in} =115V _{ac} and 230V _{ac} , T _c =25°C	CFM25S050			4.0	A
		CFM25S120			2.1	
		CFM25S150			1.67	
		CFM25S240			1.05	
		CFM25S360			0.7	
		CFM25S480			0.52	
Holdup Time	V _{in} =115V _{ac}	All		8		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	Built-in a TVS component to clamp output voltage	CFM25S050	6.45	6.8	7.44	V _{dc}
		CFM25S120	14.3	15	16.2	
		CFM25S150	17.1	18	18.9	
		CFM25S240	28.5	30	31.5	
		CFM25S360	40.9	43	45.6	
		CFM25S480	53.2	56	59.2	
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	CFM25S050			50	mV
		CFM25S120			120	
		CFM25S150			150	
		CFM25S240			240	
		CFM25S360			360	
		CFM25S480			480	



CFM25S Series

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= $25^{\circ}C$	CFM25S050			81000	uF
		CFM25S120			40900	
		CFM25S150			19800	
		CFM25S240			6600	
		CFM25S360			4000	
		CFM25S480			2170	
Efficiency	1. Output is rated load 2. Ambient temperature= $25^{\circ}C$ 3. Input voltage is $230V_{ac}$	CFM25S050		81		%
		CFM25S120		84		
		CFM25S150		85		
		CFM25S240		86		
		CFM25S360		87		
		CFM25S480		87		

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			M Ω

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	$I_o=100\%$; $T_a=25^{\circ}C$ per MIL-HDBK-217F	All	500			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($\pm X$ 、 $\pm Y$ 、 $\pm Z$ 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		CFM25S		38		grams
		CFM25S-E		75		
		CFM25S-T		40		
		CFM25S-L		43		
		CFM25S-EL		80		
Dimensions	Blank (PCB mount)	All	2.000x1.100x0.980Inches (50.80x27.94x24.90mm)			
	E (Encapsulated)	All	2.091x1.193x0.976Inches (53.10x30.30x24.80mm)			
	T (Wafer)	All	2.776x1.100x0.906 Inches (70.50x27.94x23.00 mm)			
	L (Lead wire)	All	2.000x1.100x0.906Inches (50.80x27.94x23.00mm)			
	EL (Encapsulated & Lead wire)	All	2.091x1.193x0.976Inches (53.10x30.30x24.80mm)			
Safety	Class II, IEC/EN/UL 60950-1, IEC/EN/UL 62368-1, IEC/EN 60335-1 L Version & EL Version Safety only approved only IEC/EN 60335-1					
EMC Emission	EN55032 Class B, EN61000-3-2:2014, EN61000-3-3:2013, EN61000-6-3:2012, EN61000-6-4:2011, 47 CFR FCC Part 15 Subpart B, Oct.2014					Class B
Conducted Disturbance	EN55032, EN61000-6-3:2012 Class B, 47 CFR FCC Part 15 Subpart B					Class B
Radiated Disturbance	EN55032, EN61000-6-3:2012 Class B, 47 CFR FCC Part 15 Subpart B					Class B
Harmonic Current Emissions	EN 61000-3-2:2014					
Voltage Fluctuations & Flicker	EN 61000-3-3:2013					
EMC Immunity	EN55024, EN61204-3:2000, EN61000-6-1:2007, EN61000-6-2:2005					
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008, Air Discharge: $\pm 8kV$, Contact Discharge: $\pm 4kV$					Criterion A



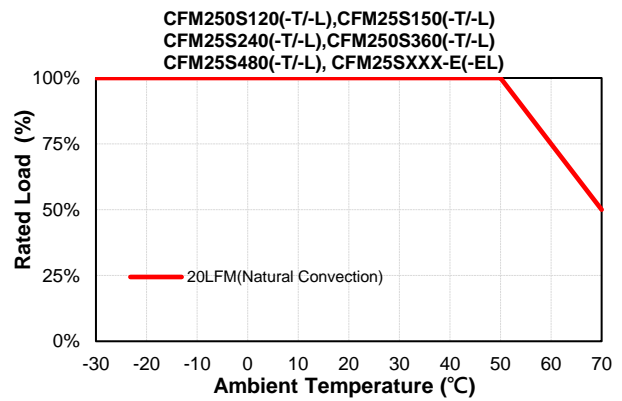
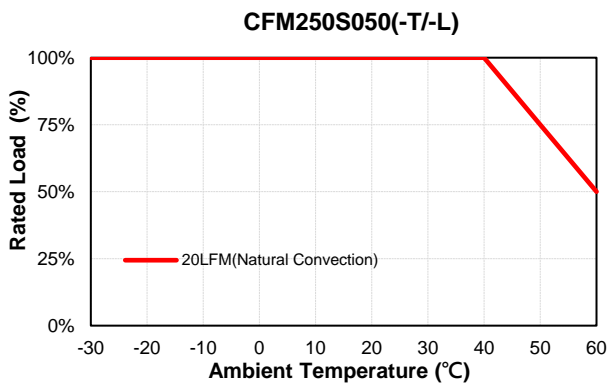
CFM25S Series

GENERAL SPECIFICATIONS

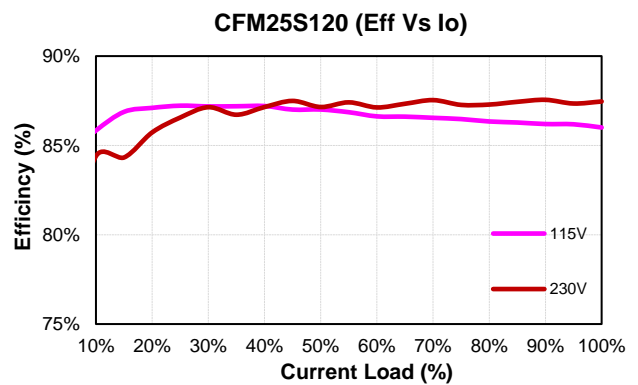
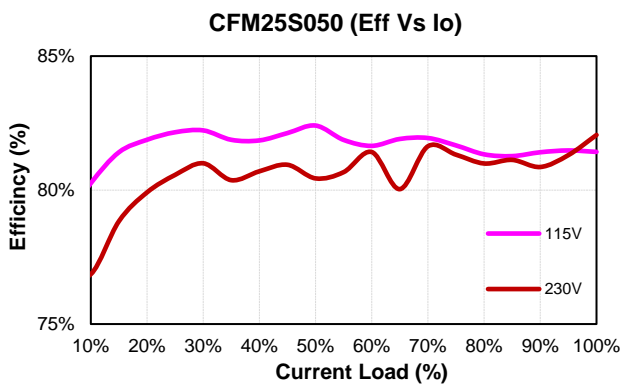
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2010	Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4:2012, $\pm 0.5\text{kV}$, $\pm 1\text{kV}$, $\pm 2\text{kV}$	Criterion A
Surge	IEC 61000-4-5:2014, L-N: $\pm 0.5\text{kV}$, $\pm 1\text{kV}$	Criterion A
Conducted Disturbances, 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	CFM25S Series App Notes	

CHARACTERISTIC CURVE

Power Derating Curve



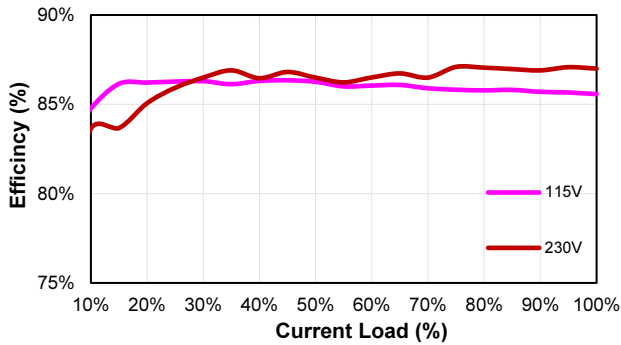
Performance Data



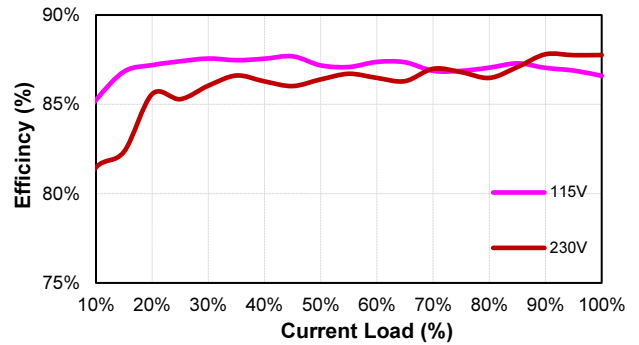


CFM25S Series

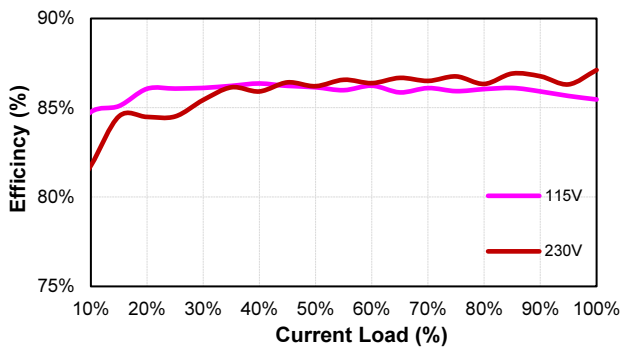
CFM25S150 (Eff Vs Io)



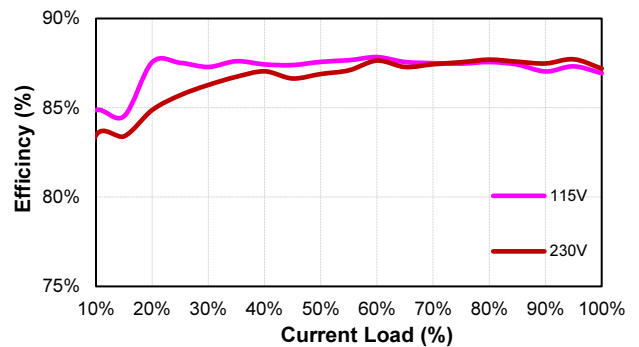
CFM25S240 (Eff Vs Io)



CFM25S360 (Eff Vs Io)

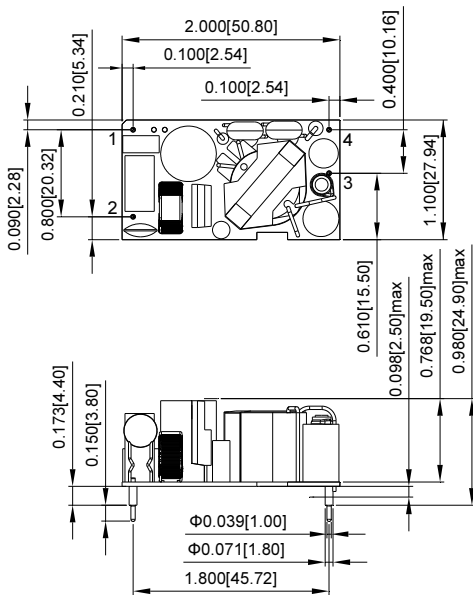


CFM25S480 (Eff Vs Io)

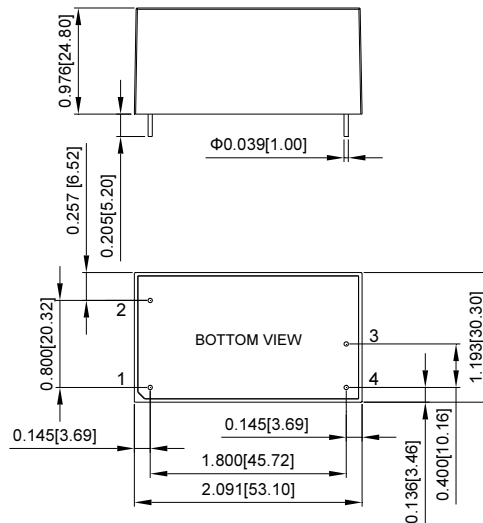


MECHANICAL SPECIFICATION

CFM25SXXX



CFM25SXXX-E



PIN CONNECTION

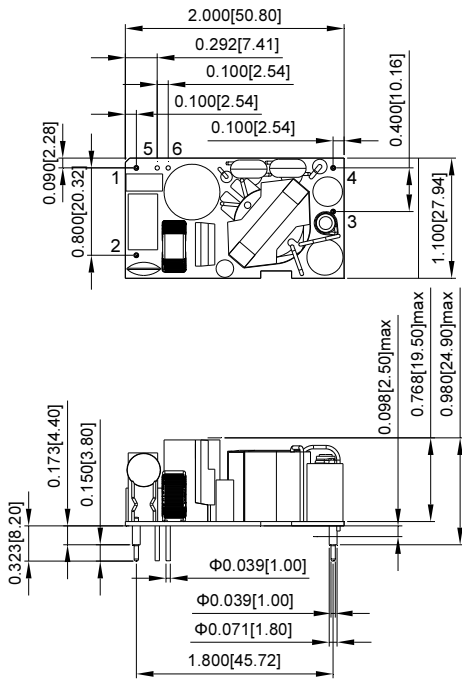
Pin	Function
1	ACL
2	ACN
3	+Vout
4	-Vout

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

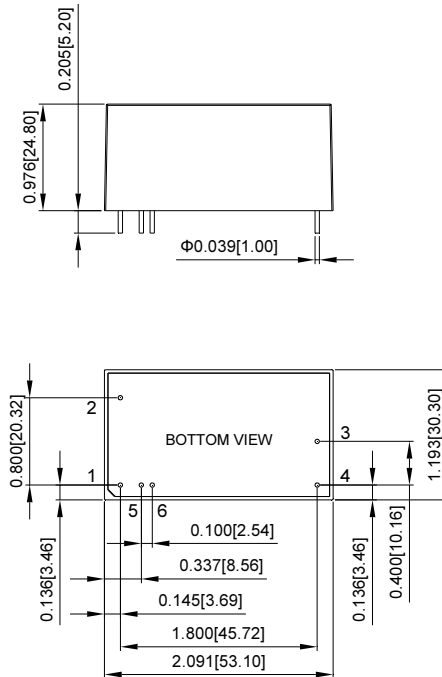


CFM25S Series

CFM25SXXX PL



CFM25SXXX-E PL

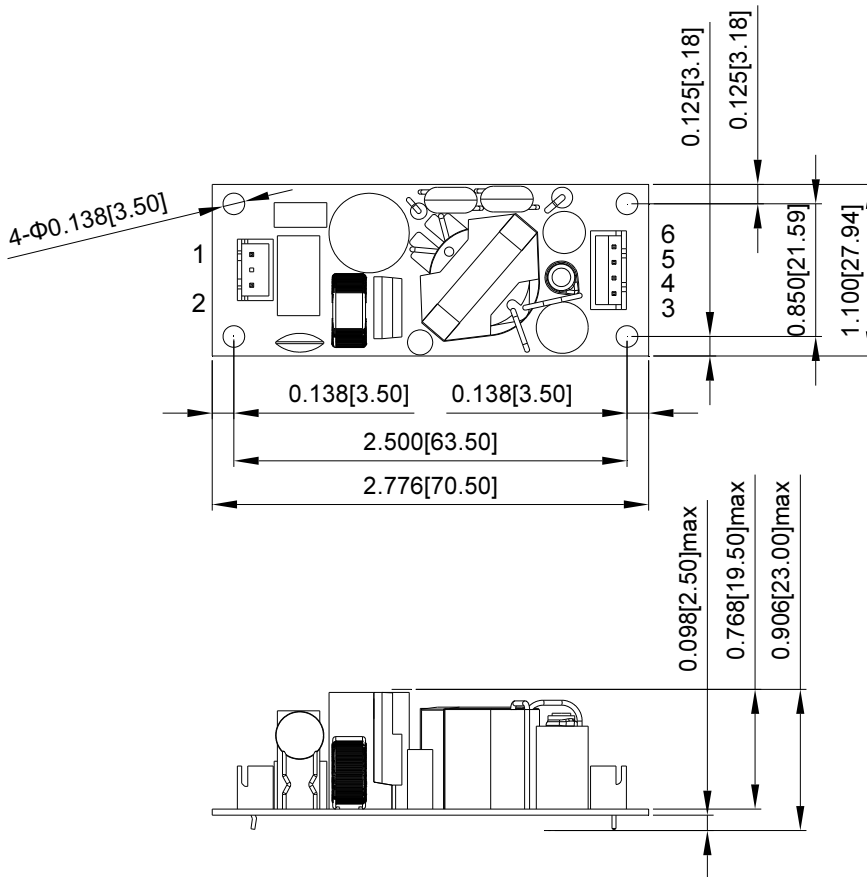


PIN CONNECTION

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

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

CFM25SXXX-T



PIN CONNECTION

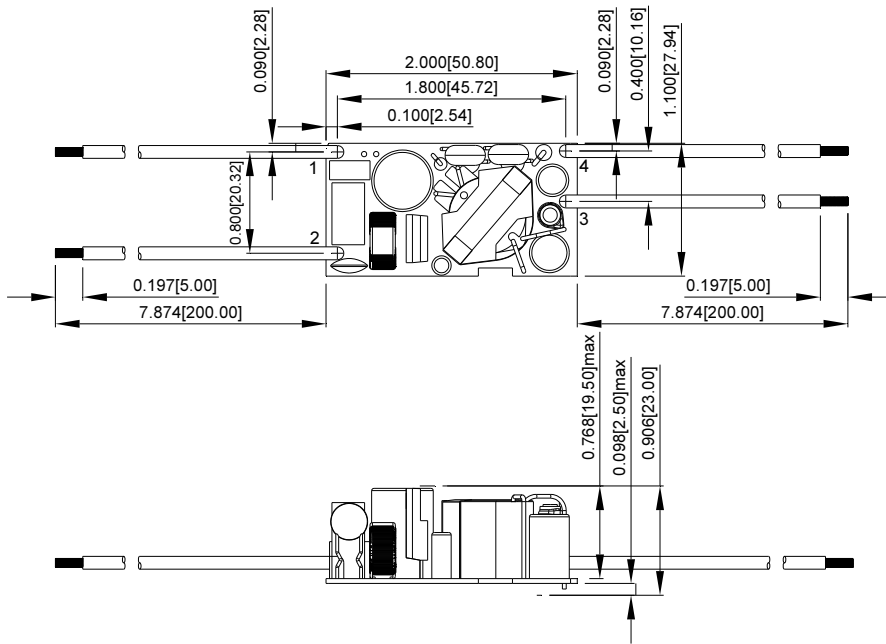
Pin	Function
1	ACL
2	ACN
3	+Vout
4	+Vout
5	-Vout
6	-Vout

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



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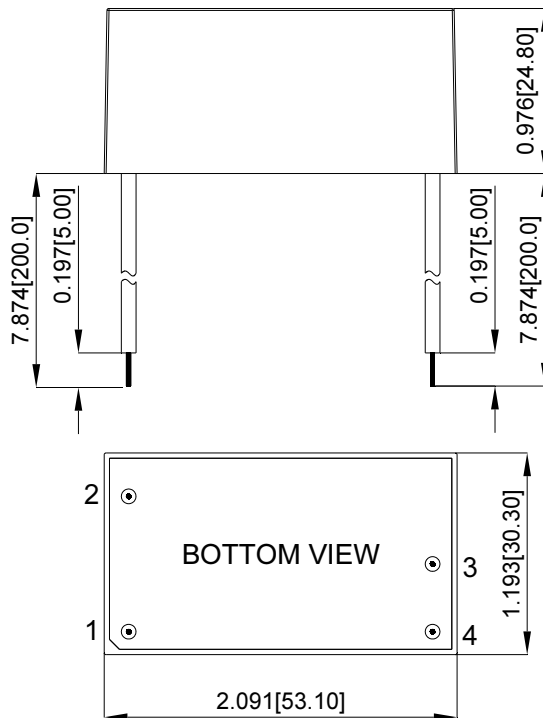
CFM25SXXX-L



PIN CONNECTION	
Pin	Function
1 (Brown)	ACL
2 (Blue)	ACN
3 (Red)	+Vout
4 (Black)	-Vout

Cable: 20AWG/UL 1007, $\Phi 1.8 \pm 0.2\text{mm}$
 All Dimensions In Inches[mm]
 Tolerance Inches:x.xxx= ± 0.02
 Millimeters: x.xx = ± 0.5

CFM25SXXX-EL



CONNECTION	
Pin	Function
1 (Brown)	ACL
2 (Blue)	ACN
3 (Red)	+Vout
4 (Black)	-Vout

Cable: 20AWG/UL 1007, $\Phi 1.8 \pm 0.2\text{mm}$
 All Dimensions In Inches[mm]
 Tolerance Inches:x.xxx= ± 0.02
 Millimeters: x.xx = ± 0.5

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