LFM300MC SERIES
300 WATT MEDICAL
AC-DC POWER SUPPLY WITH PFC

Features

- Universal Input Range 85~264Vac
- High Efficiency up to 94%
- 25.4mm Low Profile Package
- No Load Input Power Consumption<0.3W
- Approval Safety IEC/EN/UL 60601-1 2 MOPP
- Operating Altitude 5000m
- High Power Density 37.5W/Inches^3
- Active PFC Function
- Over Temperature Protection
- Continuous Short Circuit Protection

E252331

MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT			RIPPLE & NOISE NOTE1	VOLTAGE ACCURACY NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
		With Fan NOTE6	Without Conduction Cooling	With Conduction Cooling NOTE7					
LFM300M120C	12 V	25 A	13.34 A	20.83 A	150 mV	±1%	±0.3%	±0.5%	93%
LFM300M150C	15 V	20 A	10.67 A	16.6 A	150 mV	±1%	±0.3%	±0.5%	93%
LFM300M240C	24 V	12.5 A	6.67 A	10.4 A	240 mV	±1%	±0.3%	±0.5%	94%
LFM300M280C	28 V	10.7 A	5.71 A	8.90 A	280 mV	±1%	±0.3%	±0.5%	94%
LFM300M300C	30 V	10 A	5.33 A	8.33 A	300 mV	±1%	±0.3%	±0.5%	94%
LFM300M480C	48 V	6.25 A	3.33 A	5.20 A	480 mV	±1%	±0.3%	±0.5%	94%
LFM300M540C	54 V	5.56 A	2.96 A	4.63 A	540 mV	±1%	±0.3%	±0.5%	93%

Note:

1. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
2. Voltage accuracy is set at full load.
3. Line regulation is measured from 100Vac to 240V_{ac} with 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. Forced air convection with 14CFM above 115V_{ac}.
7. With addition cooling conduction plate, 22.8 by 22.8 cm with min. 0.2 cm thick, as below.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type	Type
LFM300	O	XX	X	-YZ
LFM300	M：Medical	120：12V 150：15V 240：24V 280：28V 300：30V 480：48V 540：54V	C：With Cover	Blank: Through Hole C0: Threaded Hole

Part Number Example:

LFM300M120C-C0: With Cover, 300W, Medical 12Vdc Output, Threaded Hole

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		All	85		264	V_{ac}
Operating Temperature	See Derating Curve	All	-40		80	℃
Operating Case Temperature	At the center of base plate (T_c = Case temperature)	All	-40		90	℃
Storage Temperature		All	-40		85	℃
Operating Altitude		All			5000	m

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V_{ac}
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% Load, V_{in}=100V_{ac}	All			5.0	A
Leakage Current (Earth)		All			300	uA
Leakage Current (Touch)		All			100	uA
Inrush Current	V_{in}=240V_{ac}, Cold start @25℃	All			105	A
Power Factor	230V_{ac} @ Full load	All		0.92		

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℃	LFM300M120C	11.88	12	12.12	V_{dc}
		LFM300M150C	14.85	15	15.15	
		LFM300M240C	23.76	24	24.24	
		LFM300M280C	27.72	28	28.28	
		LFM300M300C	29.7	30	30.3	
		LFM300M480C	47.52	48	48.48	
		LFM300M540C	53.46	54	54.54	
Operating Output Current Range	Vin=90V_{ac}~264V_{ac}, **See Derating Curve**	LFM300M120C	0		25.0	A
		LFM300M150C	0		20.0	
		LFM300M240C	0		12.5	
		LFM300M280C	0		10.7	
		LFM300M300C	0		10.0	
		LFM300M480C	0		6.25	
		LFM300M540C	0		5.56	
Holdup Time	V_{in}=115V_{ac}	All		12		ms
Output Voltage Regulation						
Load Regulation	10% Load to full load	All			±0.5	%
Line Regulation	V_{in}=High line to low line	All			±0.3	%
Output Voltage Adjustment	P_o≦max rated power, Io≦$I_{o\_max.}$	All	-5		+5	%
Over Voltage Protection	Latch Off (AC recycle to reset)	LFM300M120C			16	V_{dc}
		LFM300M150C			20	
		LFM300M240C			32	
		LFM300M280C			35	
		LFM300M300C			36	
		LFM300M480C			59	
		LFM300M540C			63	
Over Current Protection	Auto recovery (output is rated load)	All	110	120	140	%

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Short Circuit Protection	Auto recovery	All				
Over Temperature Protection	Auto recovery	All				
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℃	LFM300M120C			150	mV
		LFM300M150C			150	
		LFM300M240C			240	
		LFM300M280C			280	
		LFM300M300C			300	
		LFM300M480C			480	
		LFM300M540C			540	
Load Capacitance	1. V_{in}=115V_{ac} and 230V_{ac} 2. Output is max. load 3. Ambient temperature=25℃	LFM300M120C			15400	uF
		LFM300M150C			12200	
		LFM300M240C			7800	
		LFM300M280C			6600	
		LFM300M300C			6200	
		LFM300M480C			3870	
		LFM300M540C			3400	
Efficiency	1. Input Voltage is 230V_{ac} 2. Output is rated load 3. Ambient temperature=25℃	LFM300M120C		93		%
		LFM300M150C		93		
		LFM300M240C		94		
		LFM300M280C		94		
		LFM300M300C		94		
		LFM300M480C		94		
		LFM300M540C		93		

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 Minute (without dielectric breakdown)	All			4250	V_{ac}
Input to Earth (Ground)	1 Minute (without dielectric breakdown)	All			2000	V_{ac}
Output to Earth (Ground)	1 Minute (without dielectric breakdown)	All			2000	V_{ac}
Isolation Resistance	Input to output	All	100			MΩ

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency		All		100		kHz

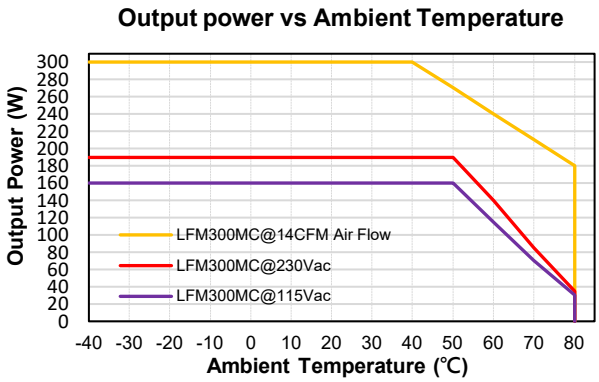
GENERAL SPECIFICATIONS

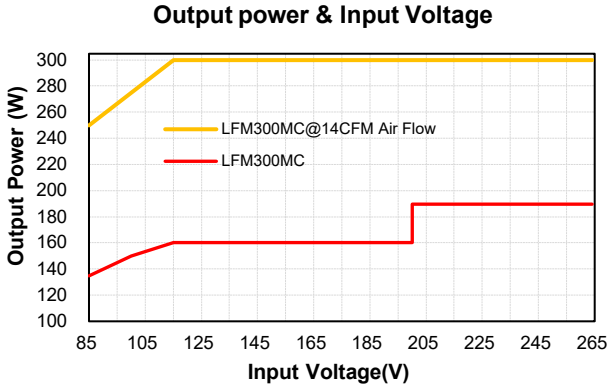
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100%; T_a=25℃ per MIL-HDBK-217F	All	500			k hours
Life Time	@75% Load, 40℃	All	77			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meet MIL-STD-810F Table 516.5,Table 516.5-I 10ms, each axis 3 times(±X、±Y、±Z axis)	All		75		g
Vibration	Meet MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X、Y、Z axis, 1 hour (each axis),. Total 3 hrs.	All		4		g

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Weight		All		280		grams
Dimensions		All	4.094x2.28x1.0 Inches (104x57.9x25.4 mm)			
Safety	Class I, ANSI/AAMI ES 60601-1:2005/A2:2021, IEC 60601-1:2005+A1:2012+A2:2020, EN 60601-1:2006/A2:2021					Ed. 3.2
EMC Emission	EN 55011, Class B, IEC 61000-3-2:2018, IEC 61000-3-3:2013+A1: 2017, FCC CFR 47 Part 18					
Conducted Disturbance	EN 55011, FCC CFR 47 Part 18					Class B
Radiated Disturbance	EN 55011, FCC CFR 47 Part 18					Class B
Harmonic Current Emissions	IEC 61000-3-2:2018					Class A, D
Voltage Fluctuations & Flicker	EN 61000-3-3:2013+A1: 2017					Criterion A
EMC Immunity	EN 60601-1-2:2015, IEC61000-4-2, 3, 4, 5, 6, 8, 11					Ed 4.1
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008 Air Discharge: ±15kV, Contact Discharge: ±8kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2020					Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4:2012, ±2kV					Criterion A
Surge	IEC 61000-4-5:2014, L-N: ±2kV, L-E (Ground): ±4kV					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% Reduction, Dip >95% Reduction					Criterion A
Voltage Interruptions	IEC 61000-4-11:2020, >95% reduction					Criterion B
Application Note Link	LFM300M Series App Notes					

CHARACTERISTIC CURVE

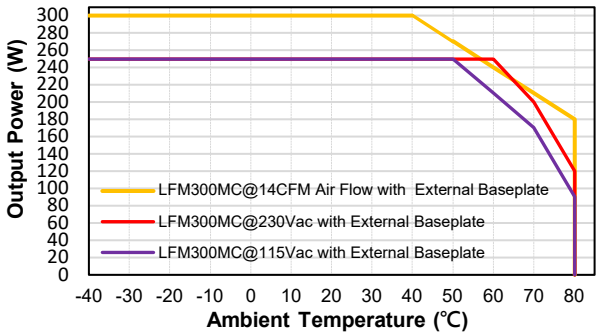
Power Derating Curve



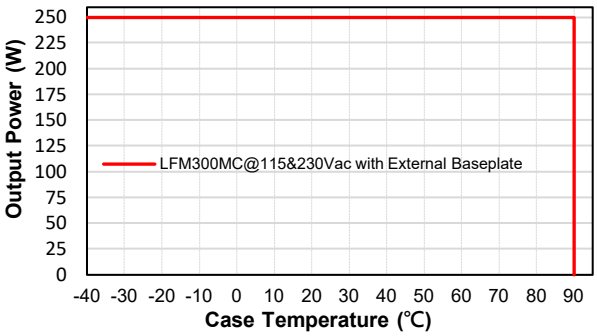


Conduction Convection with External Baseplate (22.8cmx22.8cmx0.2cm)

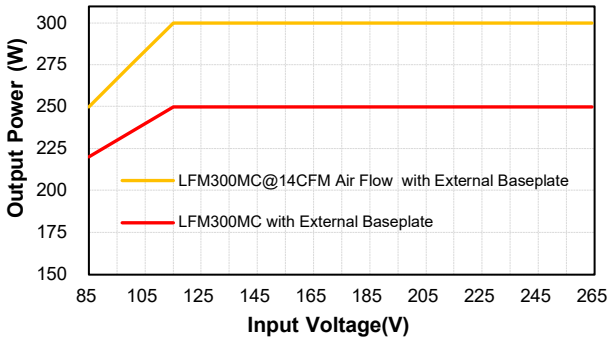
Output power vs Ambient Temperature



Output power vs Case Temperature (Tc)

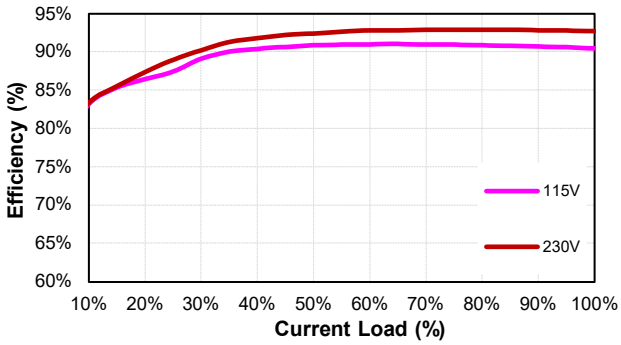


Output power & Input Voltage

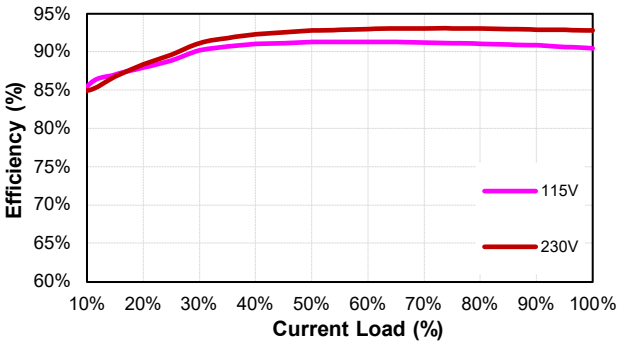


Performance Data

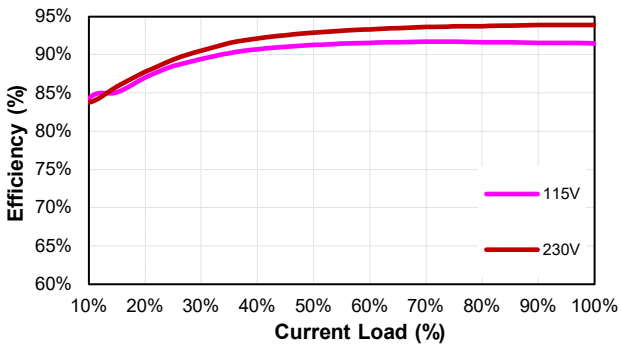
LFM300M120C (Eff Vs Io)



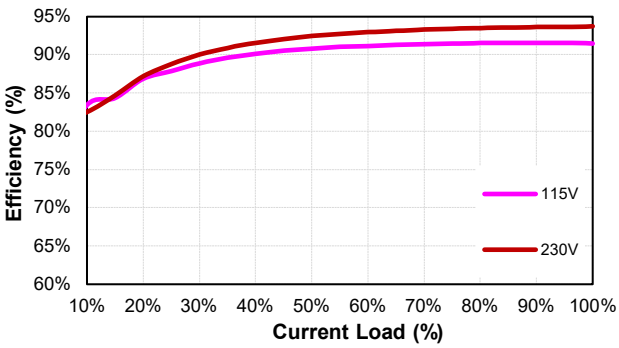
LFM300M150C (Eff Vs Io)



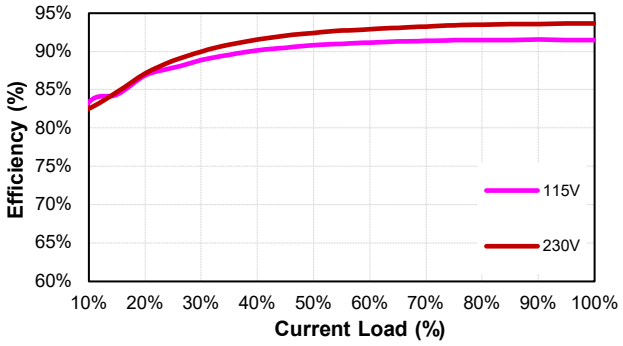
LFM300M240C (Eff Vs Io)



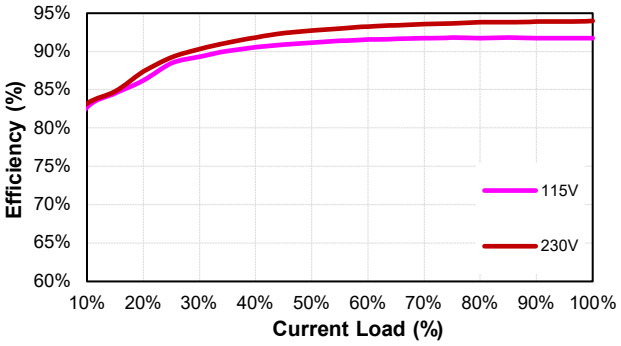
LFM300M280C (Eff Vs Io)



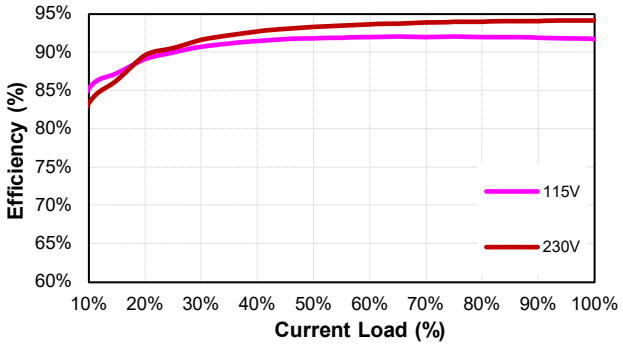
LFM300M300C (Eff Vs Io)



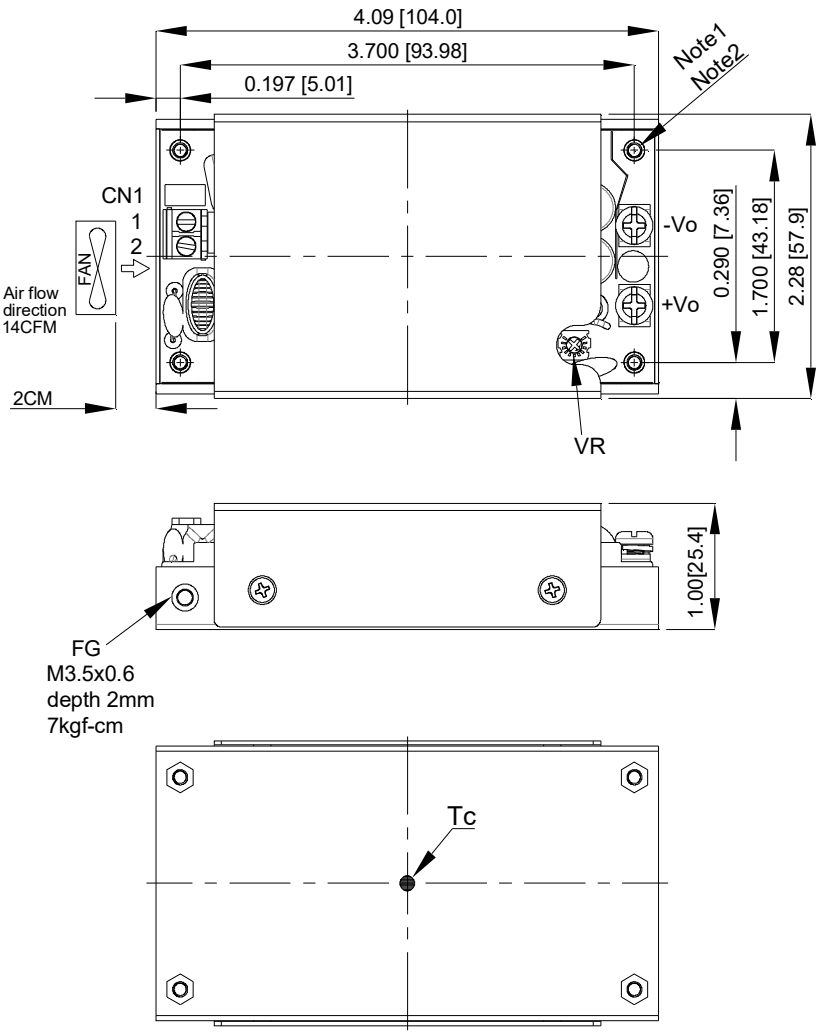
LFM300M480C (Eff Vs Io)



LFM300M540C (Eff Vs Io)



MECHANICAL SPECIFICATION



LFM300MXXXC
LFM300MXXXC-C0

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):ECE ETB22

Pin	Function	Mating Wire Range
1	ACL	14~18 AWG
2	ACN	

DC Output Connector:KANG YANG PCB-58M4

Function	The Screw Locked Torque
+Vo	M4 7kgf-cm
-Vo	

Note1:Φ3.2 Through depth 10.5mm
Note2:M3x0.5 Threaded depth 10.5mm

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