



# LFM300S SERIES 300 WATT AC-DC POWER SUPPLY WITH PFC

## Features

- Universal Input Range 85~264Vac
- High Efficiency up to 94%
- Class I
- 25.4mm Low Profile Package
- No Load Input Power Consumption<0.3W
- Approval IEC/EN/UL 62368-1 Ed 3.0
- Approval EN 55032 and CISPR/FCC Class B
- Meets IEC/EN 60335-1
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Over Voltage Protection
- Over Temperature Protection
- High Power Density 32.1W/Inches<sup>3</sup>
- Active PFC Function
- Over Voltage Category OVC II & OVC III



| MODEL NUMBER | OUTPUT VOLTAGE | OUTPUT CURRENT    |                            |                                  | RIPPLE & NOISE<br>NOTE1 | VOLTAGE ACCURACY<br>NOTE2 | VOLTAGE ADJ. RANGE | LINE REGULATION<br>NOTE3 | LOAD REGULATION<br>NOTE4 | %EFF. (Typ.)<br>NOTE5 |
|--------------|----------------|-------------------|----------------------------|----------------------------------|-------------------------|---------------------------|--------------------|--------------------------|--------------------------|-----------------------|
|              |                | With Fan<br>NOTE6 | Without Conduction Cooling | With Conduction Cooling<br>NOTE7 |                         |                           |                    |                          |                          |                       |
| LFM300S120C  | 12 V           | 25 A              | 13.34 A                    | 20.83 A                          | 150 mV                  | ±1%                       | 11.4-12.6 V        | ±0.3%                    | ±0.5%                    | 93%                   |
| LFM300S150C  | 15 V           | 20 A              | 10.67 A                    | 16.6 A                           | 150 mV                  | ±1%                       | 14.25-15.75 V      | ±0.3%                    | ±0.5%                    | 93%                   |
| LFM300S240C  | 24 V           | 12.5 A            | 6.67 A                     | 10.4 A                           | 240 mV                  | ±1%                       | 22.8-25.2 V        | ±0.3%                    | ±0.5%                    | 94%                   |
| LFM300S280C  | 28 V           | 10.7 A            | 5.71 A                     | 8.90 A                           | 280 mV                  | ±1%                       | 26.6-29.4 V        | ±0.3%                    | ±0.5%                    | 94%                   |
| LFM300S300C  | 30 V           | 10 A              | 5.33 A                     | 8.33 A                           | 300 mV                  | ±1%                       | 28.5-31.5 V        | ±0.3%                    | ±0.5%                    | 94%                   |
| LFM300S480C  | 48 V           | 6.25 A            | 3.33 A                     | 5.20 A                           | 480 mV                  | ±1%                       | 45.6-50.4 V        | ±0.3%                    | ±0.5%                    | 94%                   |
| LFM300S540C  | 54 V           | 5.56 A            | 2.96 A                     | 4.63 A                           | 540 mV                  | ±1%                       | 51.3-56.7 V        | ±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 240Vac with 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. Forced air convection with 14CFM above 115Vac.
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           | Mounting Inserts                           |
|--------|-------------------|-----------------------------------------------------------------------------------------|----------------|--------------------------------------------|
| LFM300 | O                 | XXX                                                                                     | X              | -YZ                                        |
| LFM300 | S : Single        | 120 : 12V<br>150 : 15V<br>240 : 24V<br>280 : 28V<br>300 : 30V<br>480 : 48V<br>540 : 54V | C : With Cover | Blank : Through Hole<br>C0 : Threaded Hole |

Part Number Example:

**LFM300S120C-C0:** With Cover 300W, Single 12Vdc Output, Threaded Hole

[www.cincon.com](http://www.cincon.com)



# LFM300S 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    | 85   |      | 264          | V <sub>ac</sub> |
| Operating Temperature      | See Derating Curve                                                 | All    | -40  |      | 80           | °C              |
| Operating Case Temperature | At the center of base plate<br>(T <sub>c</sub> = Case temperature) | All    | -40  |      | 90           | °C              |
| Storage Temperature        |                                                                    | All    | -40  |      | 90           | °C              |
| Operating Altitude         | IEC/EN/UL 62368-1 OVC II<br>IEC/EN/UL 62368-1 OVC III              | All    |      |      | 5000<br>2000 | m               |

### INPUT CHARACTERISTICS

| PARAMETER               | NOTES and CONDITIONS                                   | Device | Min. | Typ. | Max.       | Units           |
|-------------------------|--------------------------------------------------------|--------|------|------|------------|-----------------|
| Operating Voltage Range |                                                        | All    | 100  |      | 240        | V <sub>ac</sub> |
| Input Frequency Range   |                                                        | All    | 47   |      | 63         | Hz              |
| Maximum Input Current   | 100% Load, V <sub>in</sub> =100V <sub>ac</sub>         | All    |      |      | 5.0        | A               |
| Leakage Current         | Contact leakage current<br>Earth leakage current       | All    |      |      | 100<br>300 | uA              |
| Inrush Current          | V <sub>in</sub> =240V <sub>ac</sub> , Cold Start @25°C | All    |      |      | 105        | A               |
| Power Factor            | 230V <sub>ac</sub> @ Full load                         | All    |      | 0.92 |            |                 |

### OUTPUT CHARACTERISTICS

| PARAMETER                      | NOTES and CONDITIONS                                                                                 | Device                                                                                         | Min.                                                       | Typ.                                   | Max.                                                       | Units           |
|--------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------|------------------------------------------------------------|-----------------|
| Output Voltage Set Point       | V <sub>in</sub> =Nominal V <sub>in</sub> , I <sub>o</sub> =I <sub>o</sub> max., T <sub>c</sub> =25°C | LFM300S120<br>LFM300S150<br>LFM300S240<br>LFM300S280<br>LFM300S300<br>LFM300S480<br>LFM300S540 | 11.88<br>14.85<br>23.76<br>27.72<br>29.7<br>47.52<br>53.46 | 12<br>15<br>24<br>28<br>30<br>48<br>54 | 12.12<br>15.15<br>24.24<br>28.28<br>30.3<br>48.48<br>54.54 | V <sub>dc</sub> |
| Operating Output Current Range | V <sub>in</sub> =85V <sub>ac</sub> ~264V <sub>ac</sub> , <b>See Derating Curve</b>                   | LFM300S120<br>LFM300S150<br>LFM300S240<br>LFM300S280<br>LFM300S300<br>LFM300S480<br>LFM300S540 | 0<br>0<br>0<br>0<br>0<br>0<br>0                            |                                        | 25.0<br>20.0<br>12.5<br>10.7<br>10.0<br>6.25<br>5.56       | A               |
| Holdup Time                    | V <sub>in</sub> =115V <sub>ac</sub>                                                                  | All                                                                                            |                                                            | 12                                     |                                                            | ms              |
| Output Voltage Regulation      |                                                                                                      |                                                                                                |                                                            |                                        |                                                            |                 |
| Load Regulation                | 10% Load to full load                                                                                | All                                                                                            |                                                            |                                        | ±0.5                                                       | %               |
| Line Regulation                | V <sub>in</sub> =High line to low line                                                               | All                                                                                            |                                                            |                                        | ±0.3                                                       | %               |
| Output Voltage Adjustment      | P <sub>o</sub> ≤ max. rated power, I <sub>o</sub> ≤ I <sub>o</sub> max.                              | All                                                                                            | -5                                                         |                                        | +5                                                         | %               |
| Over Voltage Protection        | Latch off (AC recycle to reset)                                                                      | LFM300S120<br>LFM300S150<br>LFM300S240<br>LFM300S280<br>LFM300S300<br>LFM300S480<br>LFM300S540 |                                                            |                                        | 16<br>20<br>32<br>35<br>36<br>59<br>63                     | V <sub>dc</sub> |
| Over Current Protection        | Auto recovery (output is rated load)                                                                 | All                                                                                            | 110                                                        | 120                                    | 140                                                        | %               |



## LFM300S Series

| 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<br>2. Oscilloscope is 20MHz band width<br>3. Ambient Temperature=25°C | LFM300S120 |      |      | 150   | mV    |
|                             |                                                                                                                                                             | LFM300S150 |      |      | 150   |       |
|                             |                                                                                                                                                             | LFM300S240 |      |      | 240   |       |
|                             |                                                                                                                                                             | LFM300S280 |      |      | 280   |       |
|                             |                                                                                                                                                             | LFM300S300 |      |      | 300   |       |
|                             |                                                                                                                                                             | LFM300S480 |      |      | 480   |       |
|                             |                                                                                                                                                             | LFM300S540 |      |      | 540   |       |
| Load Capacitance            | 1. $V_{in}=115V_{ac}$ and $230V_{ac}$<br>2. Output is max. load<br>3. Ambient temperature=25°C                                                              | LFM300S120 |      |      | 15400 | uF    |
|                             |                                                                                                                                                             | LFM300S150 |      |      | 12200 |       |
|                             |                                                                                                                                                             | LFM300S240 |      |      | 7800  |       |
|                             |                                                                                                                                                             | LFM300S280 |      |      | 6600  |       |
|                             |                                                                                                                                                             | LFM300S300 |      |      | 6200  |       |
|                             |                                                                                                                                                             | LFM300S480 |      |      | 3870  |       |
|                             |                                                                                                                                                             | LFM300S540 |      |      | 3400  |       |
| Efficiency                  | 1. Input Voltage is 230Vac<br>2. Output is rated load<br>3. Ambient temperature=25°C                                                                        | LFM300S120 |      | 93   |       | %     |
|                             |                                                                                                                                                             | LFM300S150 |      | 93   |       |       |
|                             |                                                                                                                                                             | LFM300S240 |      | 94   |       |       |
|                             |                                                                                                                                                             | LFM300S280 |      | 94   |       |       |
|                             |                                                                                                                                                             | LFM300S300 |      | 94   |       |       |
|                             |                                                                                                                                                             | LFM300S480 |      | 94   |       |       |
|                             |                                                                                                                                                             | LFM300S540 |      | 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 | $P_{out}$ =max. rated power | All    |      | 100  |      | kHz   |

### GENERAL SPECIFICATIONS

| PARAMETER | NOTES and CONDITIONS                                                                                    | Device | Min. | Typ. | Max. | Units   |
|-----------|---------------------------------------------------------------------------------------------------------|--------|------|------|------|---------|
| MTBF      | $I_o=100\%$ ; $T_a=25^\circ\text{C}$ per MIL-HDBK-217F                                                  | All    | 500  |      |      | k hours |
| Life Time | @75% Load, $40^\circ\text{C}$                                                                           | 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( $\pm X$ 、 $\pm Y$ 、 $\pm Z$ 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       |



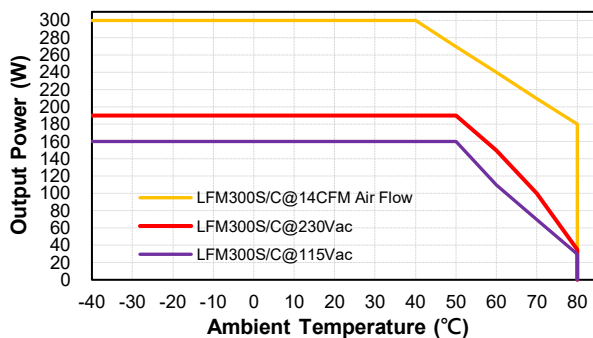
# LFM300S Series

| PARAMETER                                        | NOTES and CONDITIONS                                                                                                                                           | Device | Min.                                        | Typ. | Max. | Units       |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------------------------------------|------|------|-------------|
| Weight                                           |                                                                                                                                                                | All    |                                             | 280  |      | grams       |
| Dimensions                                       |                                                                                                                                                                | All    | 4.09x2.28x1.00 Inches<br>(104x57.9x25.4 mm) |      |      |             |
| <b>Safety</b>                                    | Class I, IEC/EN/UL 62368-1                                                                                                                                     |        |                                             |      |      | Ed. 3.0     |
| <b>EMC Emission</b>                              | EN 55032:2015+A11:2020 (Class B), EN 61000-6-4:2019, EN 61204-3:2018,<br>EN 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A2:2021,<br>47 CFR FCC Part 15 Subpart 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+A1:2021                                                                                                                                      |        |                                             |      |      | Class A, D  |
| Voltage Fluctuations & Flicker                   | EN 61000-3-3:2013+A2:2021                                                                                                                                      |        |                                             |      |      | Criterion A |
| <b>EMC Immunity</b>                              | EN 55035:2017+A11:2020, EN 61000-6-2:2019, EN 61204-3:2018                                                                                                     |        |                                             |      |      |             |
| Electrostatic Discharge (ESD)                    | IEC 61000-4-2:2008 Air Discharge: $\pm 8\text{kV}$ , Contact Discharge: $\pm 4\text{kV}$                                                                       |        |                                             |      |      | Criterion A |
| Radio-Frequency, Continuous Radiated Disturbance | IEC 61000-4-3:2020                                                                                                                                             |        |                                             |      |      | Criterion A |
| Electrical Fast Transient (EFT)                  | IEC 61000-4-4:2012, $\pm 2\text{kV}$                                                                                                                           |        |                                             |      |      | Criterion A |
| Surge                                            | IEC 61000-4-5:2014+A1:2017, L-N: $\pm 2\text{kV}$ , L-E (Ground): $\pm 4\text{kV}$                                                                             |        |                                             |      |      | 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                            | <a href="#">LFM300S Series App Notes</a>                                                                                                                       |        |                                             |      |      |             |

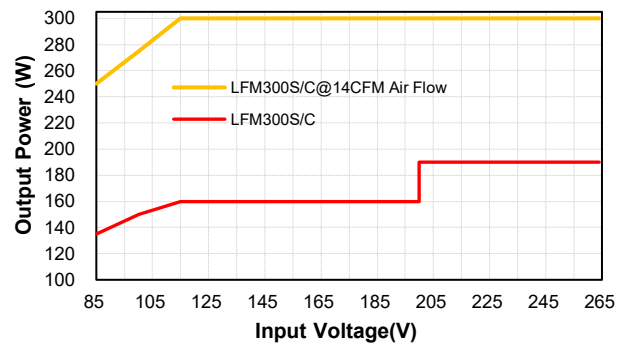
## CHARACTERISTIC CURVE

### Power Derating Curve

Output Power vs Ambient Temperature



Output Power & Input Voltage

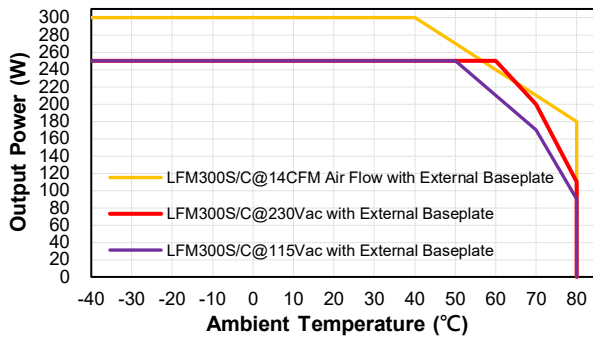




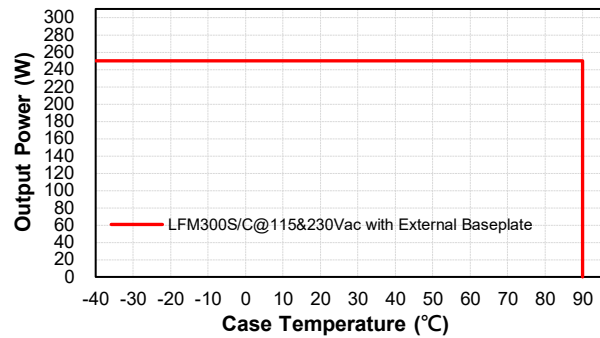
# LFM300S Series

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

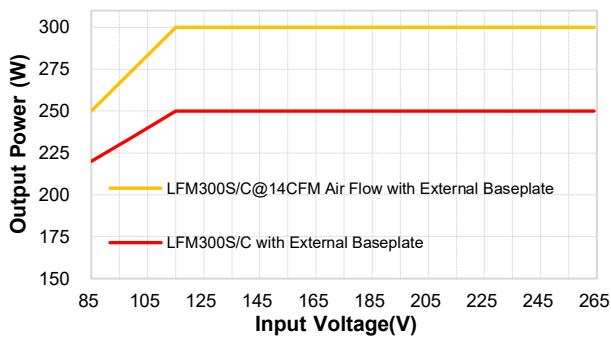
Output Power vs Ambient Temperature



Output Power vs Case Temperature (Tc)

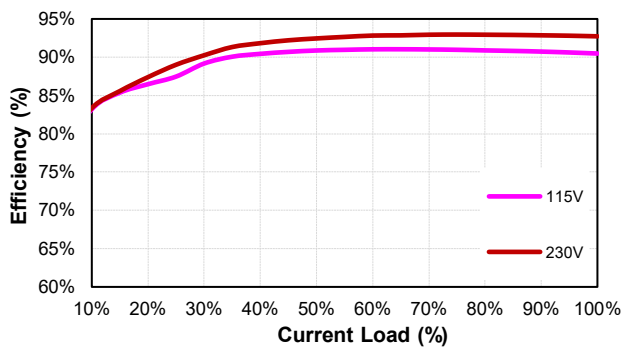


Output Power & Input Voltage

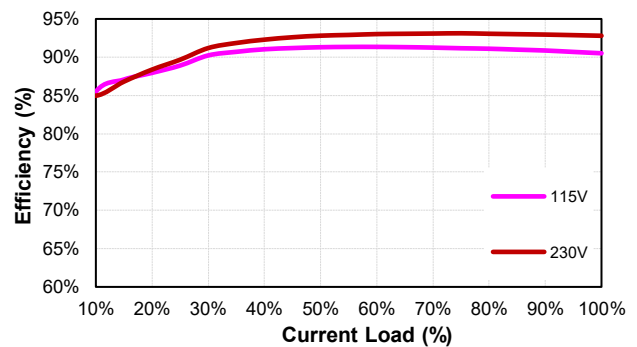


## Performance Data

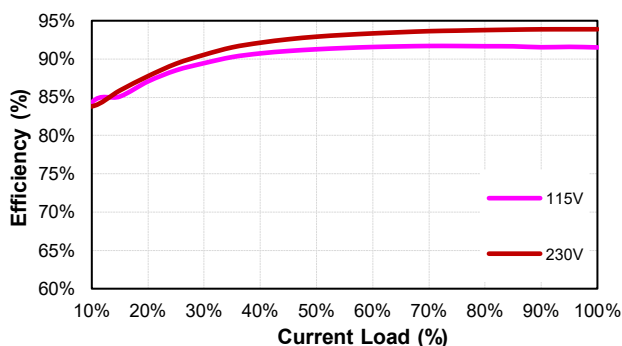
LFM300S120 (Eff Vs Io)



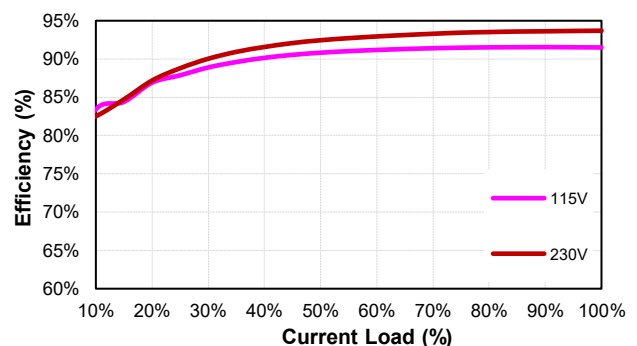
LFM300S150 (Eff Vs Io)



LFM300S240 (Eff Vs Io)



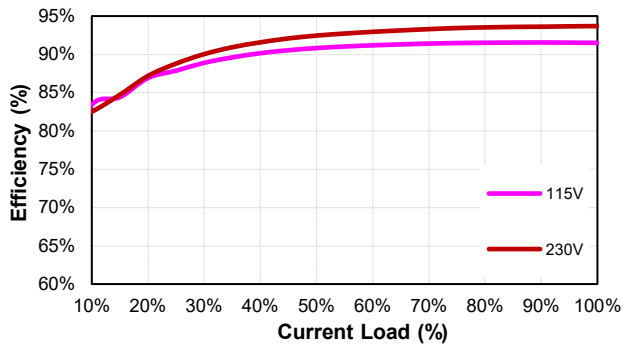
LFM300S280 (Eff Vs Io)



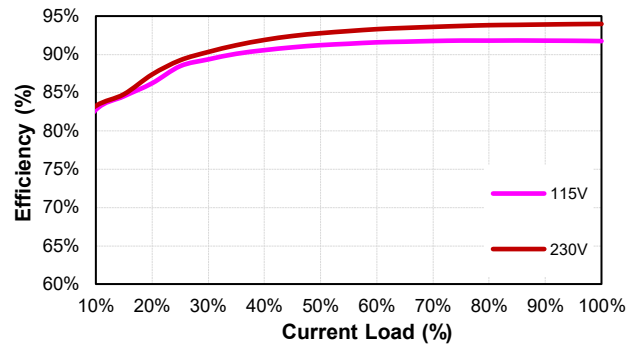


# LFM300S Series

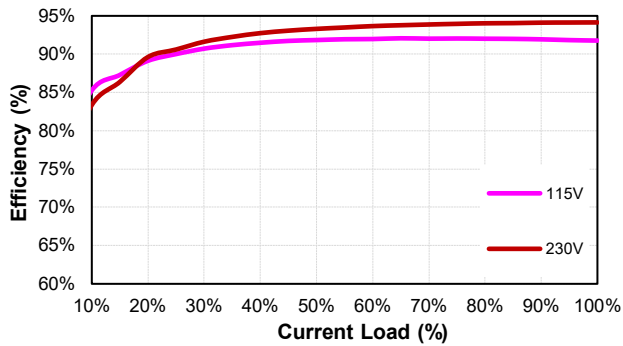
LFM300S300 (Eff Vs Io)



LFM300S480 (Eff Vs Io)



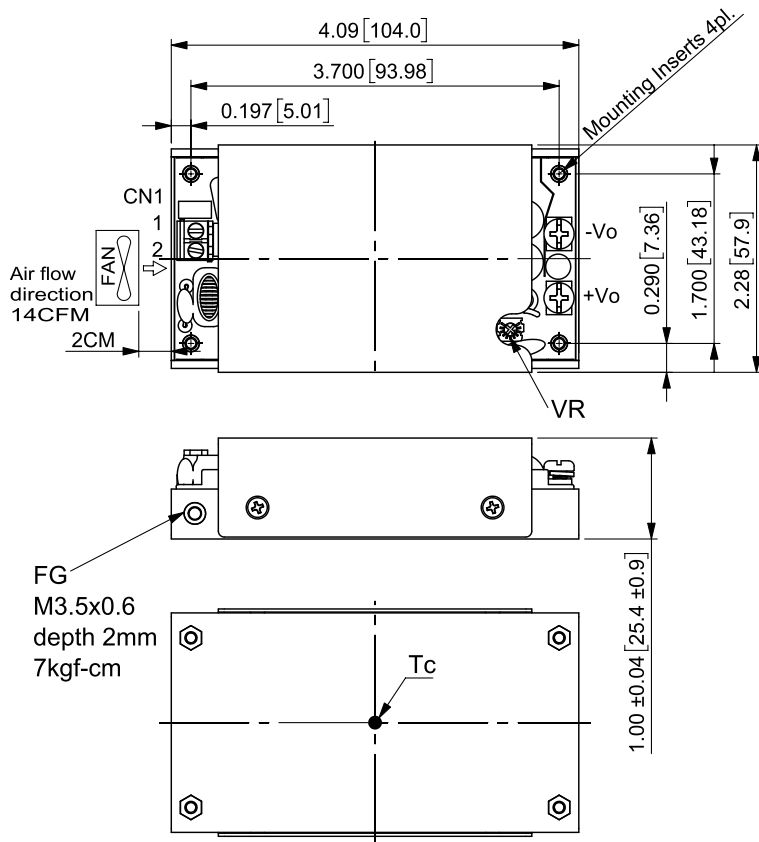
LFM300S540 (Eff Vs Io)





# LFM300S Series

## MECHANICAL SPECIFICATION



### LFM300SXXXC LFM300SXXXC-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      |                         |

Mounting Inserts

| Series | Option                       |
|--------|------------------------------|
| Blank  | Ø 3.2 Through depth 10.5mm   |
| -C0    | M3x0.5 Threaded depth 10.5mm |