



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 37.1W/Inches³
- Active PFC Function
- Over Voltage Category OVC II & OVC III



| MODEL NUMBER | OUTPUT VOLTAGE | OUTPUT CURRENT | | | RIPPLE & NOISE NOTE1 | VOLTAGE ACCURACY NOTE2 | VOLTAGE ADJ. RANGE | LINE REGULATION NOTE3 | LOAD REGULATION NOTE4 | % EFF. (Typ.) NOTE5 |
|--------------|----------------|----------------|-------------------------------|---------|----------------------|------------------------|--------------------|-----------------------|-----------------------|---------------------|
| | | With Fan NOTE6 | With Conduction Cooling NOTE7 | | | | | | | |
| | | | Baseplate | Cover | | | | | | |
| LFM300S120 | 12 V | 25 A | 14.2 A | 20.83 A | 150 mV | ±1% | 11.4-12.6 V | ±0.3% | ±0.5% | 93% |
| LFM300S150 | 15 V | 20 A | 11.35 A | 16.6 A | 150 mV | ±1% | 14.25-15.75 V | ±0.3% | ±0.5% | 93% |
| LFM300S240 | 24 V | 12.5 A | 7.1 A | 10.4 A | 240 mV | ±1% | 22.8-25.2 V | ±0.3% | ±0.5% | 94% |
| LFM300S280 | 28 V | 10.7 A | 6.07 A | 8.90 A | 280 mV | ±1% | 26.6-29.4 V | ±0.3% | ±0.5% | 94% |
| LFM300S300 | 30 V | 10 A | 5.67 A | 8.33 A | 300 mV | ±1% | 28.5-31.5 V | ±0.3% | ±0.5% | 94% |
| LFM300S480 | 48 V | 6.25 A | 3.54 A | 5.20 A | 480 mV | ±1% | 45.6-50.4 V | ±0.3% | ±0.5% | 94% |
| LFM300S540 | 54 V | 5.56 A | 3.15 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.



LFM300S Series

PART NUMBER

| Series | Number of Outputs | Nominal Output Voltage | Type | Mounting Inserts |
|--------|-------------------|---|--------------------------------------|--|
| LFM300 | O | XXX | X | -YZ |
| LFM300 | S : Single | 120 : 12V 150 : 15V 240 : 24V 280 : 28V 300 : 30V 480 : 48V 540 : 54V | B : With Baseplate C : With Cover | Blank : Through Hole C0 : Threaded Hole |

Part Number Example:

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

LFM300S120B: With Baseplate 300W, Single 12Vdc Output, Through Hole



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 _{ac} |
| Operating Temperature | See derating curve | All | -40 | | 80 | °C |
| Operating Case Temperature | At the center of base plate (T _c = Case temperature) | All | -40 | | 90 | °C |
| Storage Temperature | | All | -40 | | 90 | °C |
| Operating Altitude | IEC/EN/UL 62368-1 OVC II IEC/EN/UL 62368-1 OVC III | All | | | 5000 2000 | 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 | Contact leakage current Earth leakage current | All | | | 100 300 | uA |
| Inrush Current | V _{in} =240V _{ac} , Cold Start @25°C | 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 =I _o max., T _c =25°C | LFM300S120 | 11.88 | 12 | 12.12 | V _{dc} |
| | | LFM300S150 | 14.85 | 15 | 15.15 | |
| | | LFM300S240 | 23.76 | 24 | 24.24 | |
| | | LFM300S280 | 27.72 | 28 | 28.28 | |
| | | LFM300S300 | 29.7 | 30 | 30.3 | |
| | | LFM300S480 | 47.52 | 48 | 48.48 | |
| Operating Output Current Range | V _{in} =85V _{ac} ~264V _{ac} , see derating curve | LFM300S120 | 0 | | 25.0 | A |
| | | LFM300S150 | 0 | | 20.0 | |
| | | LFM300S240 | 0 | | 12.5 | |
| | | LFM300S280 | 0 | | 10.7 | |
| | | LFM300S300 | 0 | | 10.0 | |
| | | LFM300S480 | 0 | | 6.25 | |
| LFM300S540 | 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, I _o ≤ I _o max. | All | -5 | | +5 | % |
| Over Voltage Protection | Latch off (AC recycle to reset) | LFM300S120 | | | 16 | V _{dc} |
| | | LFM300S150 | | | 20 | |
| | | LFM300S240 | | | 32 | |
| | | LFM300S280 | | | 35 | |
| | | LFM300S300 | | | 36 | |
| | | LFM300S480 | | | 59 | |
| LFM300S540 | | | 63 | | | |
| Over Current Protection | Auto recovery (output is rated load) | All | 110 | 120 | 150 | % |



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 2. Oscilloscope is 20MHz band width 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 $230V_{ac}$ 2. Output is max. load 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 2. Output is rated load 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 | $I_o=100\%$; $T_a=25^\circ C$ per MIL-HDBK-217F $I_o=100\%$; $T_a=25^\circ C$ per Telcordia SR332 | All | 500 | | 1690 | k hours |
| Life Time (Detail Refer to Application Note) | Conduction cooling @75% Load, 40°C Fan cooling @75% Load, 40°C | All | | 112 | 159 | 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 |



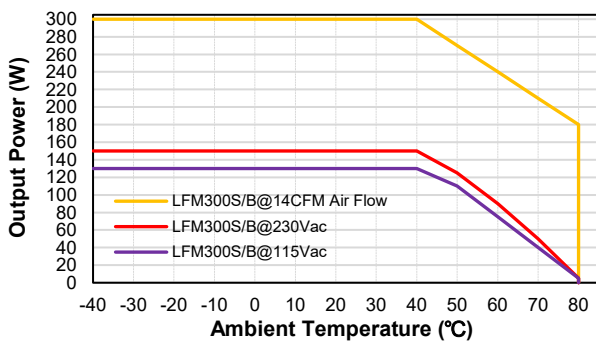
LFM300S Series

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|--|--|--------|--|------------|------|-------------|
| Weight | Baseplate versions Covered versions | All | | 200 280 | | grams |
| Dimensions | Baseplate versions Covered versions | All | 4.04x2.00x1.00 Inches (102.6x50.8x25.4 mm) 4.09x2.28x1.00 Inches (104.0x57.9x25.4 mm) | | | |
| Safety | Class I, IEC/EN/UL 62368-1 | | | | | Ed. 3.0 |
| EMC Emission | EN 55032, EN 61000-6-4, EN 61204-3, EN 61000-3-2, EN 61000-3-3, 47 CFR FCC Part 15 | | | | | |
| 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 | | | | | Class A, D |
| Voltage Fluctuations & Flicker | EN 61000-3-3 | | | | | Criterion A |
| EMC Immunity | EN 55035, EN 61000-6-2, EN 61204-3 | | | | | |
| Electrostatic Discharge (ESD) | IEC 61000-4-2, Level 3: Air Discharge: $\pm 8kV$, Level 2: Contact Discharge: $\pm 4kV$ | | | | | 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: $\pm 2kV$ | | | | | Criterion A |
| Surge | IEC 61000-4-5, Level 4: L-N: $\pm 2kV$, L-E (Ground): $\pm 4kV$ | | | | | 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/EN 61000-4-11, Dip: 30% Reduction IEC/EN 61000-4-11, Dip >95% Reduction | | | | | Criterion A |
| Voltage Interruptions | IEC/EN 61000-4-11, >95% reduction | | | | | Criterion B |
| Application Note Link | LFM300S Series App Notes | | | | | |

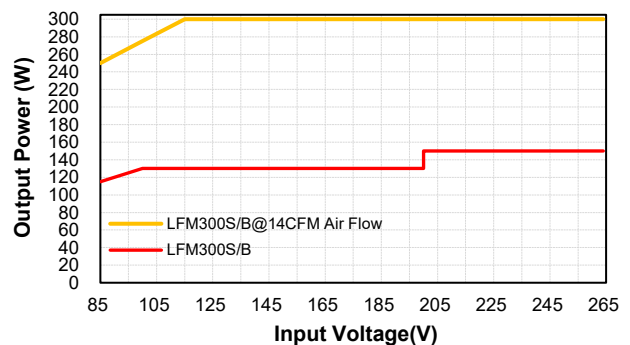
CHARACTERISTIC CURVE

Power Derating Curve

Output Power vs Ambient Temperature



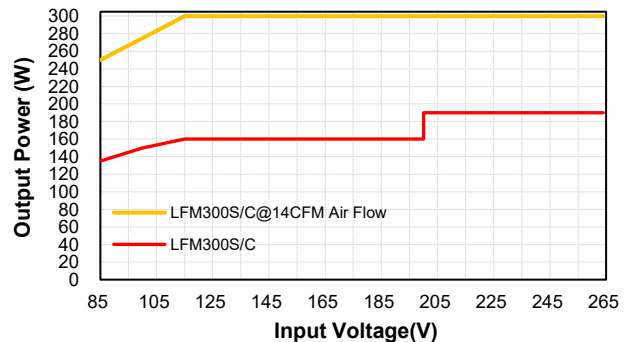
Output Power & Input Voltage



Output Power vs Ambient Temperature



Output Power & Input Voltage

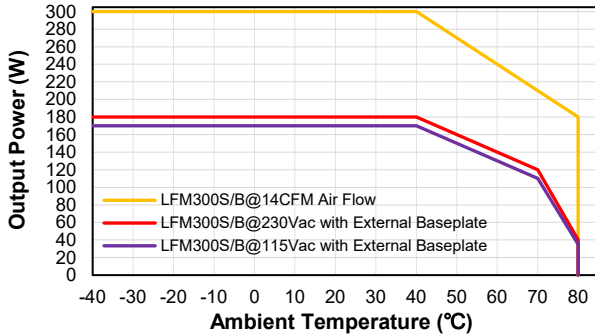




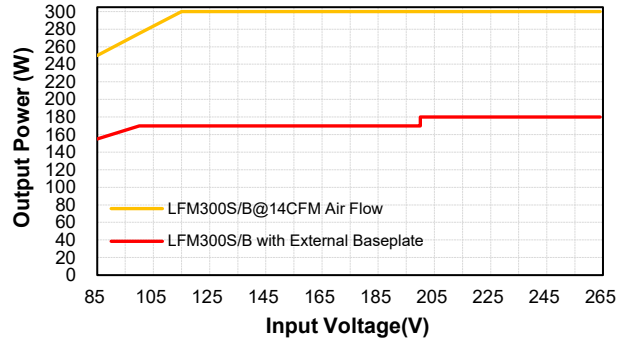
LFM300S Series

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

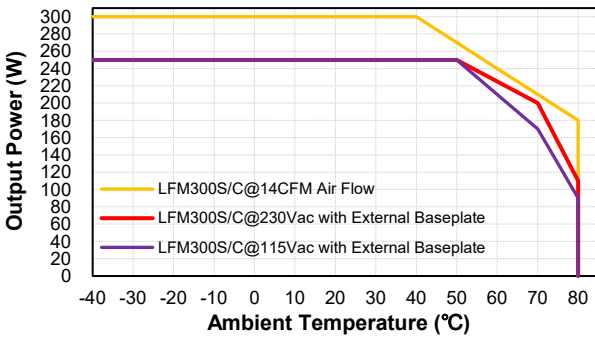
Output Power vs Ambient Temperature



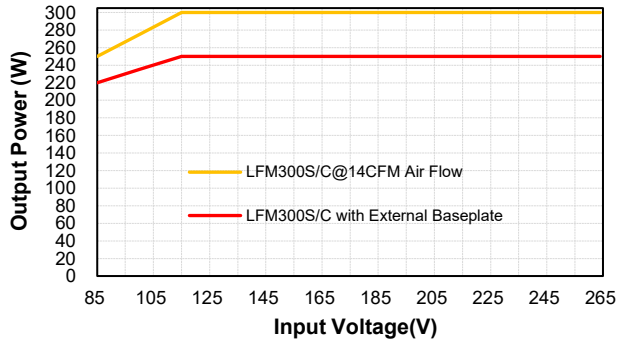
Output Power & Input Voltage



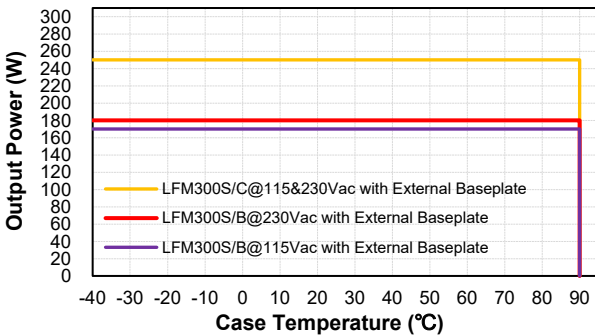
Output Power vs Ambient Temperature



Output Power & Input Voltage

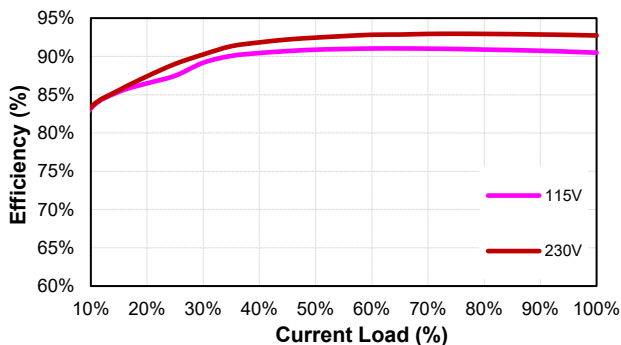


Output Power vs Case Temperature

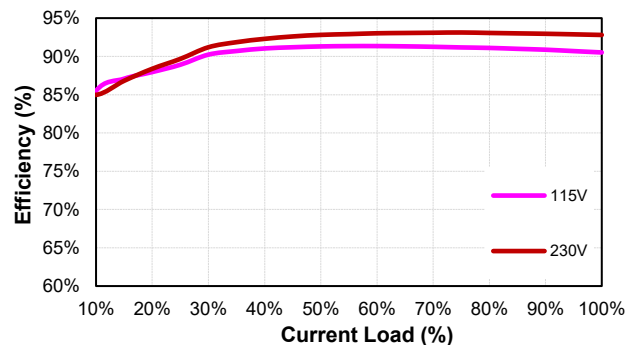


Performance Data

LFM300S120 (Eff Vs Io)



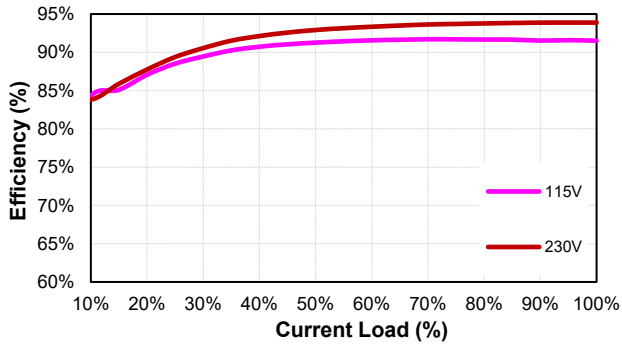
LFM300S150 (Eff Vs Io)



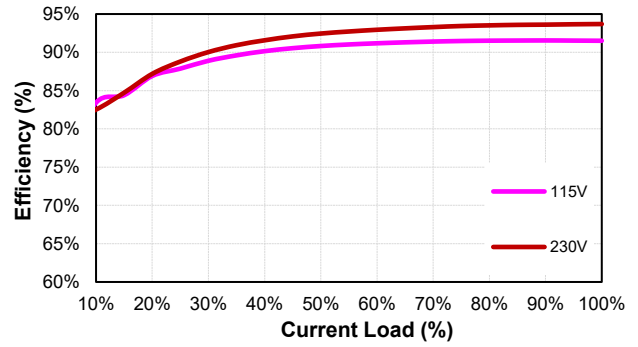


LFM300S Series

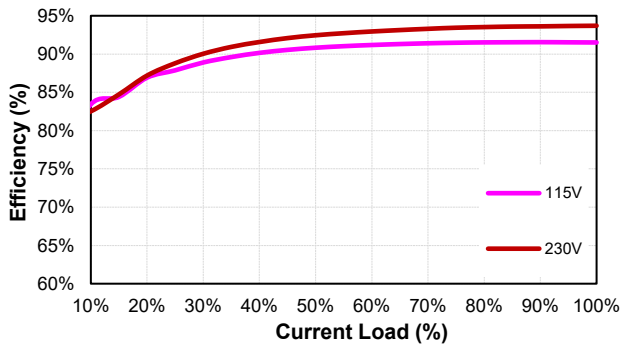
LFM300S240 (Eff Vs Io)



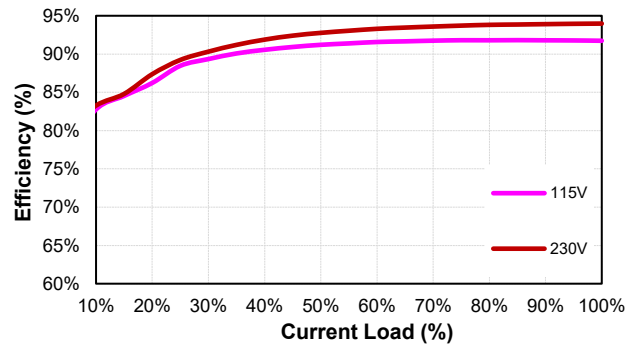
LFM300S280 (Eff Vs Io)



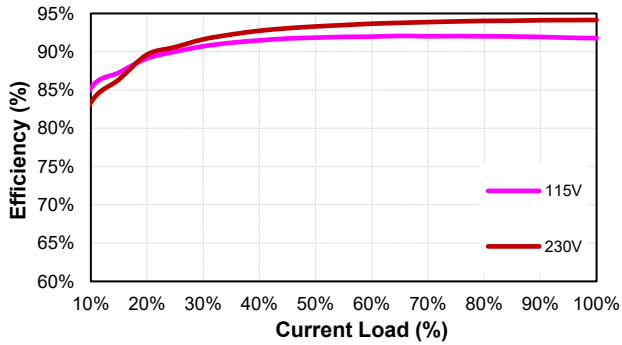
LFM300S300 (Eff Vs Io)



LFM300S480 (Eff Vs Io)



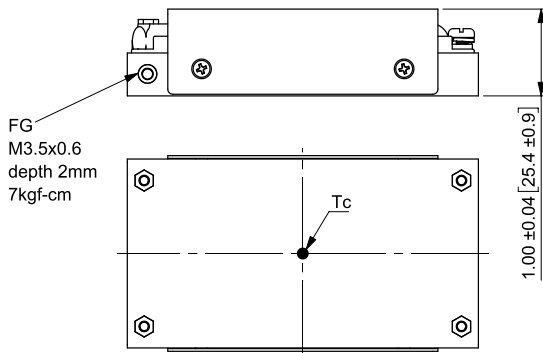
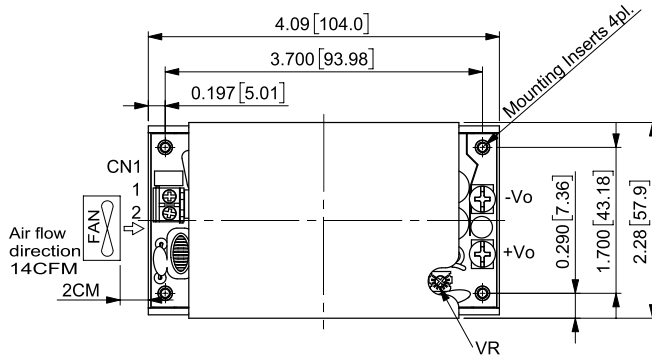
LFM300S540 (Eff Vs Io)





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

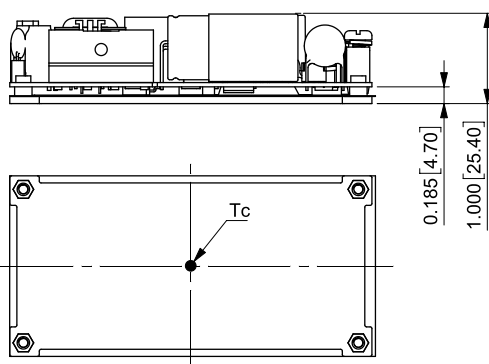
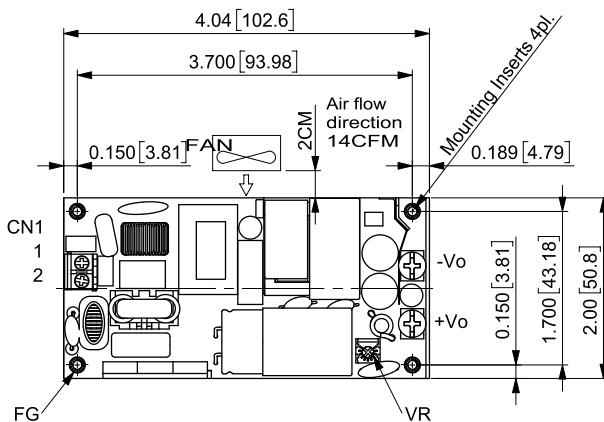
| Pin | Function | Mating Wire Range |
|-----|----------|-------------------|
| 1 | ACL | 14~18 AWG |
| 2 | ACN | |

DC Output Connector:KANG YANG PCB-58M4

| Function | The screw locked torque |
|----------|-------------------------|
| +Vo | M4 7kgf-cm |
| -Vo | |

Mounting Inserts

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



LFM300SXXXB LFM300SXXXB-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 | ∅3.2 Through depth 7.8mm |
| -C0 | M3x0.5 Threaded depth 7.8mm |

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