# CFM300S SERIES
## 300 WATT AC-DC POWER SUPPLY WITH PFC

## Features

- Universal Input Range 90~264Vac
- High Efficiency up to 94%
- 3"x 5" Compact Size
- Meets Class I
- No Load Input Power Consumption<0.3W
- Approval Safety IEC/EN/UL 62368-1
- Meets EN 55032 and EN 55022 Class B
- Active PFC Meets EN 61000-3-2 Class C&D
- Operating Altitude 5000m
- High Power Density 14.1W/Inches$^3$
- Over Temperature Protection
- Continuous Short Circuit Protection
- Remote Voltage Sense
- PS On/Off Remote Control
- Power Good & Power Fail Signal
- +5V Stand-by, 12V Fan Output





E176177

| MODEL NUMBER | OUTPUT VOLTAGE | OUTPUT CURRENT | | RIPPLE& NOISE NOTE2 | VOLTAGE ACCURACY NOTE3 | VOLTAGE ADJ. RANGE | LINE REGULATION NOTE4 | LOAD REGULATION NOTE5 | % EFF. (Typ.) NOTE6 |
|---|---|---|---|---|---|---|---|---|---|
| | | FAN COOLED NOTE1 | NATURAL CONVECTION | | | | | | |
| CFM300S120 | 12 V | 25 A | 16.67 A | 120 mV | ±1% | 11.4~12.6 | ±0.5% | ±1% | 92.5% |
| CFM300S240 | 24 V | 12.5 A | 8.34 A | 150 mV | ±1% | 22.8~25.2 | ±0.5% | ±1% | 93.5% |
| CFM300S360 | 36 V | 8.34 A | 5.56 A | 150 mV | ±1% | 34.2~37.8 | ±0.5% | ±1% | 93.5% |
| CFM300S480 | 48 V | 6.25 A | 4.17 A | 150 mV | ±1% | 45.6~50.4 | ±0.5% | ±1% | 94% |
| Stand-by Output Voltage | | | | | | | | | |
| All | +5 V | 1A | 0.6A | 100 mV | ±3% | -- | ±1% | ±5% | -- |
| Fan Output Voltage | | | | | | | | | |
| All | +12 V | -- | 0.5A | -- | -- | -- | -- | -- | -- |

Note:

1. Requires 10CFM.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
3. Voltage accuracy is set at full load.
4. Line regulation is measured from 100$V_{ac}$ to 240Vac with full load.
5. Load regulation is measured from 10% to 100% full load.
6 Typical efficiency at 230 $V_{ac}$ and 100% full load at 25℃.
7. No load power consumption<0.3W by PS on/off remote control.
8. PS-ON and GND short, $I_{PS-ON}$ =4.5 mA typical.
9. Input connector (CN1) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JST housing VHR series or equivalent.
10. Optional input connector (CN1) wafer with LONG CHU P3060 series and mate with MOLEX housing 5195 series or equivalent.
11. Output connector CN4 wafer with JST PH series and mate with JST housing PH series or equivalent.
12. Output connector CN5 wafer with TAIWAN KING PIN TERMINAL P110I series and mate with JST housing PH series or equivalent.
13. Output connectors (Vo+ & Vo- with M3 screw) mate with round terminal and round terminal of the max. outer diameter is 6.75mm, max. inner diameter is 3.9mm.

## PART NUMBER

| Series | Number of Outputs | Nominal Output Voltage | Type |
|---|---|---|---|
| CFM300 | O | XXX | Y |
| CFM300 | S：Single | 120：12V<br>240：24V<br>360：36V<br>480：48V | None：With Baseplate<br>C：With Cover |

Part Number Example:
**CFM300S120:** With Baseplate, 300W, 12Vdc Output
**CFM300S120C:** With Case, 300W, 12Vdc Output

## 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 | 90<br>120 | | 264<br>370 | $V_{ac}$<br>$V_{dc}$ |
| Operating Temperature | See Derating Curve | All | -40 | | 80 | ℃ |
| 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, $V_{in}$=100$V_{ac}$ | All | | | 4 | A |
| Leakage Current (Earth) | | All | | 0.26 | 3.5 | mA |
| Inrush Current | $V_{in}$=240$V_{ac}$, Cold start @25℃ | All | | | 30 | A |
| Power Factor | 230$V_{ac}$ @ Full load | All | 0.95 | | | |

### 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℃ | CFM300S120<br>CFM300S120C | 11.4 | 12 | 12.6 | $V_{dc}$ |
| | | CFM300S240<br>CFM300S240C | 22.8 | 24 | 25.2 | |
| | | CFM300S360<br>CFM300S360C | 34.2 | 36 | 37.8 | |
| | | CFM300S480<br>CFM300S480C | 45.6 | 48 | 50.4 | |
| Operating Output Current Range | Vin=90$V_{ac}$~264$V_{ac}$, **See Derating Curve** | CFM300S120<br>CFM300S120C | 0 | | 25 | A |
| | | CFM300S240<br>CFM300S240C | 0 | | 12.5 | |
| | | CFM300S360<br>CFM300S360C | 0 | | 8.34 | |
| | | CFM300S480<br>CFM300S480C | 0 | | 6.25 | |
| Holdup Time | $V_{in}$=115$V_{ac}$ | All | | 20 | | 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 | % |
| Output Voltage Adjustment | $P_o \leqq$ max. rated power, $I_o \leqq I_{o_max.}$ | All | -5 | | +5 | % |
| Over Voltage Protection | Latch off (AC recycle to reset) | CFM300S120<br>CFM300S120C | | 15 | | $V_{dc}$ |
| | | CFM300S240<br>CFM300S240C | | 30 | | |
| | | CFM300S360<br>CFM300S360C | | 43 | | |
| | | CFM300S480<br>CFM300S480C | | 56 | | |
| Over Current Protection | Auto recovery (hiccup mode) | All | 130 | 150 | 180 | % |

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Short Circuit Protection | Auto recovery | All | | | | |
| Over Temperature Protection | Auto recovery (the temperature of C37) | All | | | 110 | ℃ |
| 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℃ | CFM300S120<br>CFM300S120C | | | 120 | mV |
| | | CFM300S240<br>CFM300S240C | | | 150 | |
| | | CFM300S360<br>CFM300S360C | | | 150 | |
| | | CFM300S480<br>CFM300S480C | | | 150 | |
| Load Capacitance | 1. $V_{in}$=115$V_{ac}$ and 230$V_{ac}$<br>2. Output is max. load<br>3. Ambient temperature=25℃ | CFM300S120<br>CFM300S120C | | | 25000 | uF |
| | | CFM300S240<br>CFM300S240C | | | 12500 | |
| | | CFM300S360<br>CFM300S360C | | | 5000 | |
| | | CFM300S480<br>CFM300S480C | | | 3750 | |
| Efficiency | 1. Input Voltage is 230$V_{ac}$<br>2. Output is rated load<br>3. Ambient temperature=25℃ | CFM300S120<br>CFM300S120C | | 92.5 | | % |
| | | CFM300S240<br>CFM300S240C | | 93.5 | | |
| | | CFM300S360<br>CFM300S360C | | 93.5 | | |
| | | CFM300S480<br>CFM300S480C | | 94.0 | | |
| PS-On Signal | Power on<br>Power off (PS-ON and GND open) | All | 0<br>11 | | 2<br>16 | $V_{dc}$ |
| | Power on (PS-ON and GND short)<br>Power-off (PS-ON and GND open) | | Source Current 4.5<br>0 | | | mA |
| Power Good (PG) | 1. Input Voltage is 90 $V_{ac}$ ~230$V_{ac}$<br>2. Output is max. load<br>3. The TTL goes high after power set up | All | 50 | | 250 | ms |
| Power Fail (PG) | 1. Input Voltage is 90 $V_{ac}$ ~230$V_{ac}$<br>2. Output is max. load<br>3. The TTL goes low before Vo below 90% rated value | All | 5 | | 20 | ms |

## ISOLATION CHARACTERISTICS

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Input to Output | 1 Minute (without dielectric breakdown) | All | | | 3000 | $V_{ac}$ |
| Input to Earth (Ground) | 1 Minute (without dielectric breakdown) | All | | | 1800 | $V_{ac}$ |
| Output to Earth (Ground) | 1 Minute (without dielectric breakdown) | All | | | 1800 | $V_{ac}$ |
| 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 | | 70 | | kHz |

## GENERAL SPECIFICATIONS

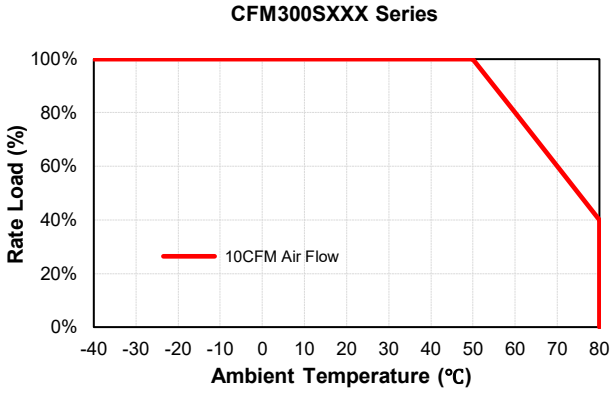
| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| MTBF | $I_o$=100%; $T_a$=25℃ per MIL-HDBK-217F | All | | 160 | | k hours |
| | $I_o$=100%; $T_a$=25℃, Telcordia SR332 | | 1295 | | | |
| Life Time | @75% Load, 40℃ with fan | All | 128 | | | k hours |
| 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 |

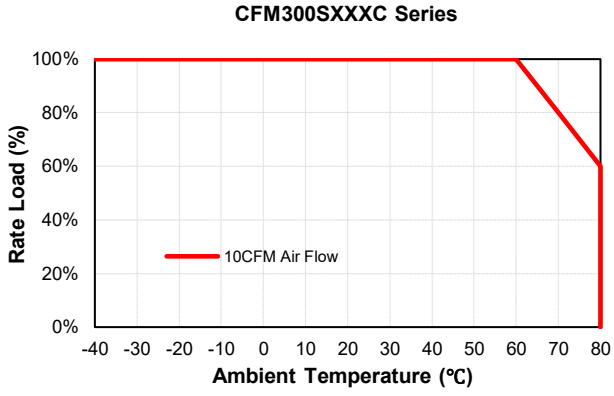
## GENERAL SPECIFICATIONS

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| 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 | | CFM300SXXX<br>CFM300SXXXC | | 420<br>550 | | grams |
| Dimensions | With Baseplate | All | | 5.000x3.000x1.421 Inches (127.00x76.20x36.10 mm) | | |
| | With Cover | | | 5.354x3.425x1.591 Inches (136.00x87.00x40.40 mm) | | |
| **Safety** | Class I<br>IEC/EN/UL 62368-1 | | | | | Ed. 3.0 |
| **EMC Emission** | EN 55032, EN 55022, EN 61000-3-2, EN 61000-3-3, FCC CFR 47 Part 15 Subpart B | | | | | |
| Conducted Disturbance | EN 55032:2012+AC:2013, EN 55032:2015+A11:2020, Class B, FCC CFR 47 Part 15 Subpart B | | | | | Class B |
| Radiated Disturbance | EN 55032:2012+AC:2013, EN 55032:2015+A11:2020, Class B, FCC CFR 47 Part 15 Subpart B | | | | | Class B |
| Harmonic Current Emissions | IEC 61000-3-2:2019 | | | | | Class C&D |
| Voltage Fluctuations & Flicker | IEC 61000-3-3:2013+A1:2019 | | | | | Criterion A |
| **EMC Immunity** | IEC 61000-4-2, 3, 4, 5, 6, 8, 11 | | | | | |
| Electrostatic Discharge (ESD) | IEC 61000-4-2:2008, ±2kV, ±4kV | | | | | Criterion A |
| Radio-Frequency, Continuous Radiated Disturbance | IEC 61000-4-3:2020 | | | | | Criterion A |
| Electrical Fast Transient (EFT) | IEC 61000-4-4:2012, ±0.5kV, ±1kV, ±2kV | | | | | Criterion A |
| Surge | IEC 61000-4-5:2014+A1:2017, L-N: ±0.5kV, ±1kV, L-PE, N-PE: ±0.5kV, ±1kV, ±2kV | | | | | 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 61000-4-11:2020, Dip: 30% reduction, Dip: 70% reduction | | | | | Criterion A |
| Voltage Interruptions | IEC 61000-4-11:2020, >95% reduction | | | | | Criterion B |
| Application Note Link | CFM300S Series App Notes | | | | | |

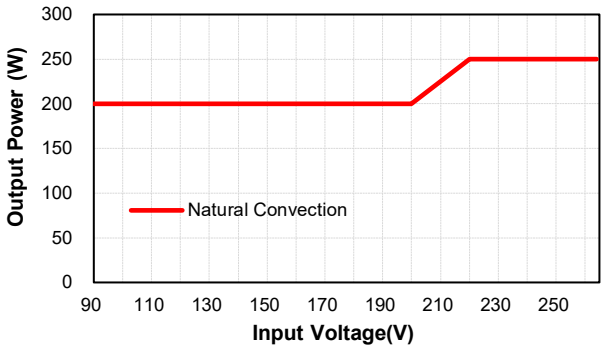
## CHARACTERISTIC CURVE

### Power Derating Curve

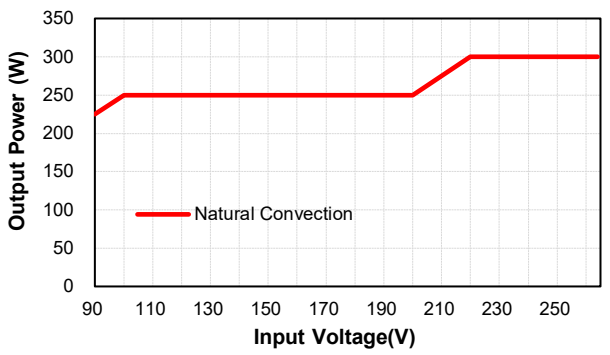


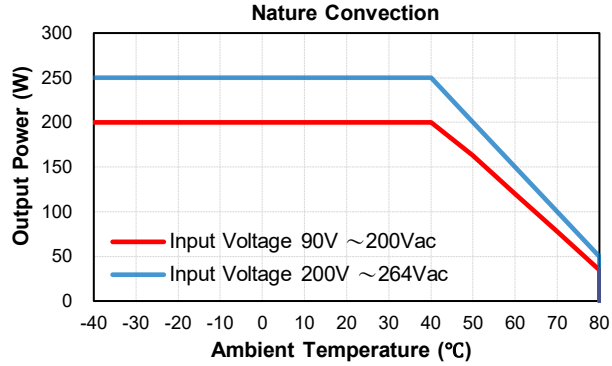
CFM300SXXX Series



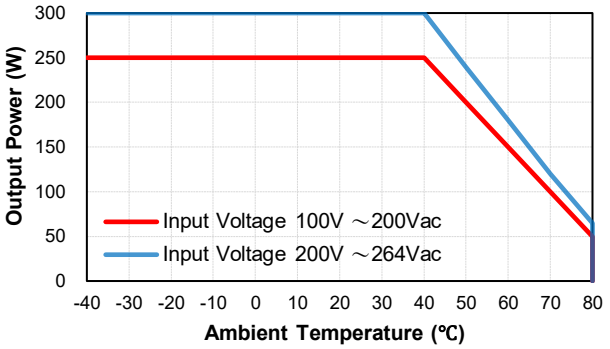

CFM300SXXXC Series




CFM300SXXX Series
Nature Convection

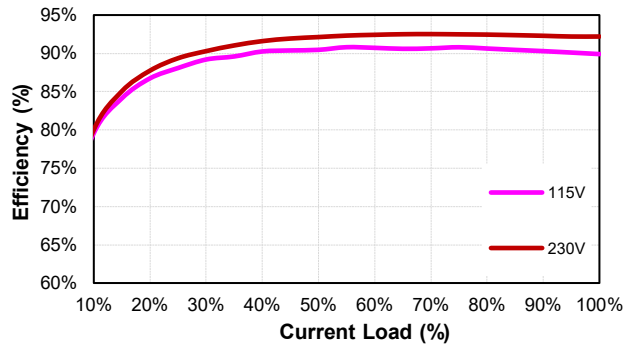



CFM300SXXXC Series
Nature Convection

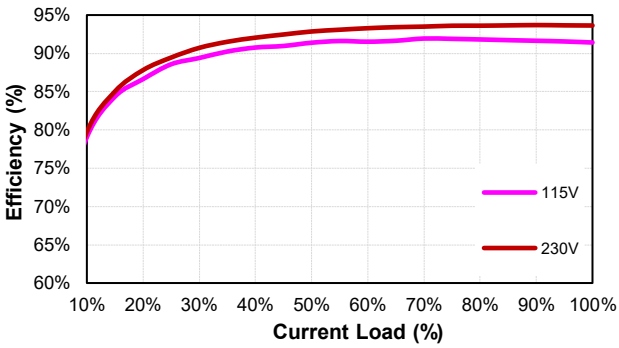



## Performance Data

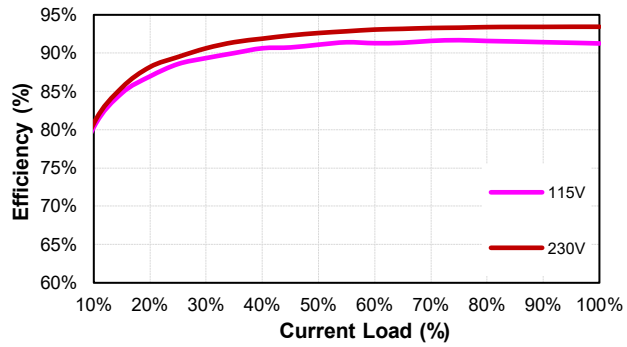
CFM300S120 (Eff Vs Io)



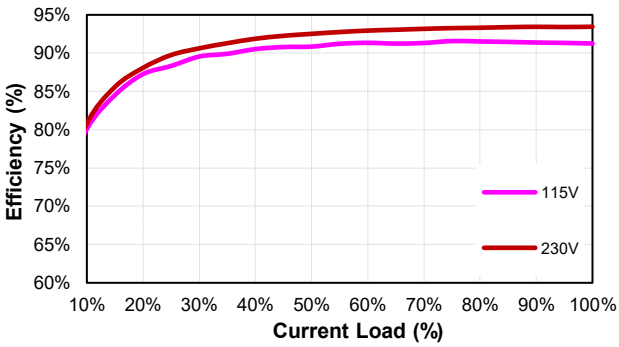

CFM300S240 (Eff Vs Io)



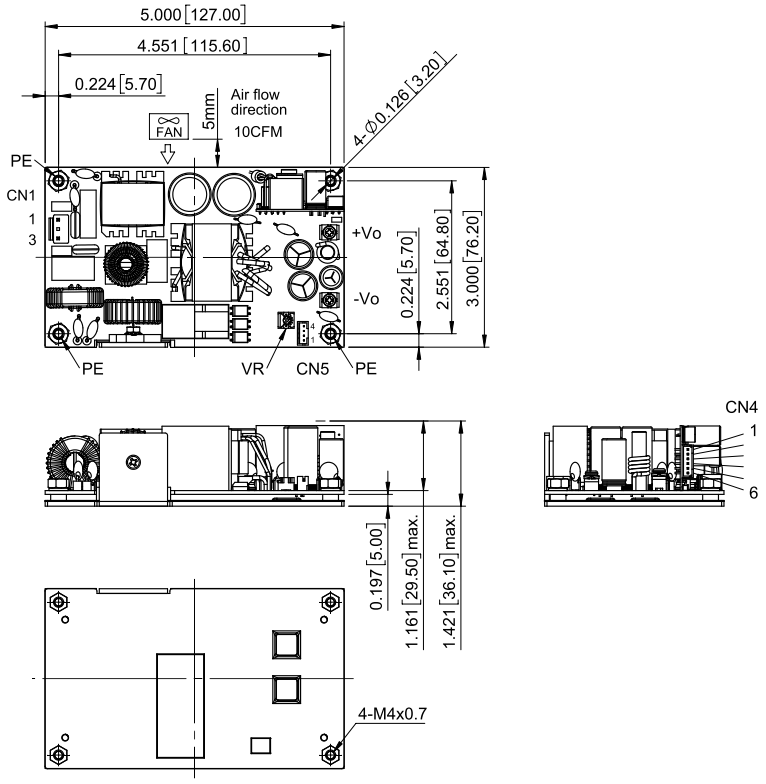

CFM300S360 (Eff Vs Io)




CFM300S480 (Eff Vs Io)



## MECHANICAL SPECIFICATION




# CFM300SXXX

All Dimensions in Inches[mm]
Tolerance Inches: x.xxx=±0.020
Millimeters: 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(CN4):JST S6B-PH-K-S(LF)(SN) or equivalent

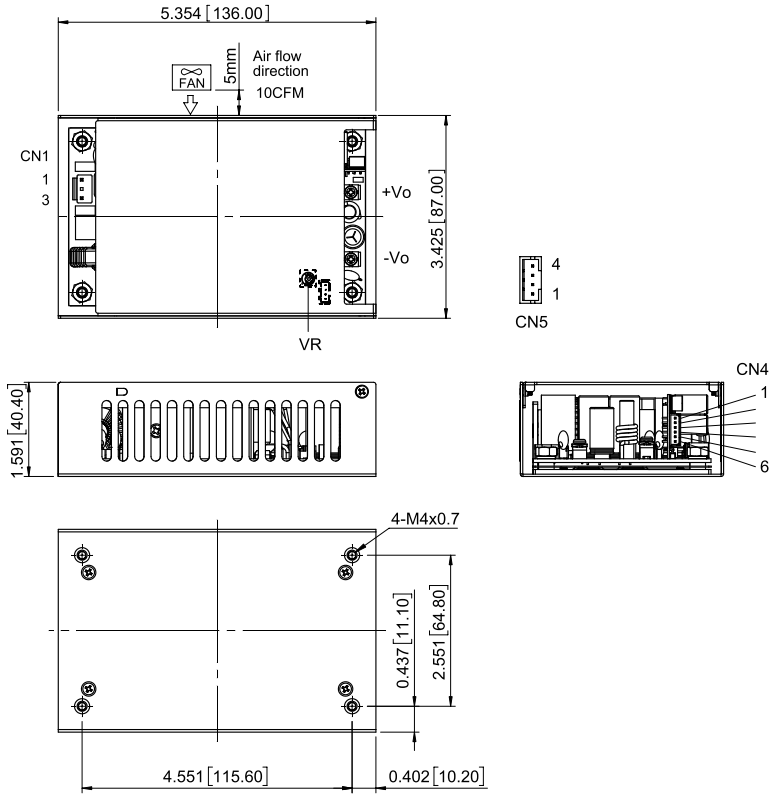
| Pin | Function | Mating Housing | Terminal |
|---|---|---|---|
| 1 | FAN Output- | JST PHR-6 or equivalent | JST SPH-002T-P0.5L or equivalent |
| 2 | FAN Output+ | | |
| 3 | GND | | |
| 4 | +5VSB | | |
| 5 | GND | | |
| 6 | PS-ON | | |

DC Output Connector(CN5):TKP P110I-04 or equivalent

| Pin | Function | Mating Housing | Terminal |
|---|---|---|---|
| 1 | GND | JST PHR-4 or equivalent | JST SPH-002T-P0.5L or equivalent |
| 2 | PG | | |
| 3 | -Sense | | |
| 4 | +Sense | | |

DC Output Connector:KANG YANG PCB-17AB-1 or equivalent

| Function | The screw locked torque |
|---|---|
| +Vo | M3 3kgf-cm |
| -Vo | |




# CFM300SXXXC

All Dimensions in Inches[mm]
Tolerance Inches: x.xxx=±0.020
Millimeters: 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(CN4):JST S6B-PH-K-S(LF)(SN) or equivalent

| Pin | Function | Mating Housing | Terminal |
|---|---|---|---|
| 1 | FAN Output- | JST PHR-6 or equivalent | JST SPH-002T-P0.5L or equivalent |
| 2 | FAN Output+ | | |
| 3 | GND | | |
| 4 | +5VSB | | |
| 5 | GND | | |
| 6 | PS-ON | | |

DC Output Connector(CN5):TKP P110I-04 or equivalent

| Pin | Function | Mating Housing | Terminal |
|---|---|---|---|
| 1 | GND | JST PHR-4 or equivalent | JST SPH-002T-P0.5L or equivalent |
| 2 | PG | | |
| 3 | -Sense | | |
| 4 | +Sense | | |

DC Output Connector:KANG YANG PCB-17AB-1 or equivalent

| Function | The screw locked torque |
|---|---|
| +Vo | M3 3kgf-cm |
| -Vo | |

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