



## CFM260S SERIES 260 WATT OPEN FRAME AC-DC MODULES

### Features

- Universal Input Range 85~264Vac
- 220W with Natural Convection
- 260W with Fan-Cooled
- 2"x 4" Compact Size @CFM260SXXX
- No Load Input Power Consumption<0.2W
- High Efficiency up to 93.5% Typical
- 12V Fan Output
- Continuous Short Circuit Protection
- Over Temperature Protection
- Operating Altitude 5000m
- Meets EN55032 (Class B)
- IEC/EN/UL 62368-1 Approval
- Meets IEC/EN 60335-1
- Meets Class I



| MODEL<br>NUMBER    | OUTPUT<br>VOLTAGE | OUTPUT CURRENT<br>NOTE1 |             |        |        | VOLTAGE<br>ACCURACY<br>NOTE2 | RIPPLE&<br>NOISE<br>NOTE3 | VOLTAGE<br>ADJ. RANGE | LINE<br>REGULATION<br>NOTE4 | LOAD<br>REGULATION<br>NOTE5 | %EFF.<br>(Typ) |
|--------------------|-------------------|-------------------------|-------------|--------|--------|------------------------------|---------------------------|-----------------------|-----------------------------|-----------------------------|----------------|
|                    |                   | With Fan                | Without Fan |        |        |                              |                           |                       |                             |                             |                |
|                    |                   |                         | Cover       | Base   | Open   |                              |                           |                       |                             |                             |                |
| CFM260S120         | 12 V              | 21.67A                  | 18.34A      | 15.84A | 11.67A | ±1%                          | 1%                        | 11.4~12.6 V           | ±0.5%                       | ±1%                         | 92%            |
| CFM260S240         | 24 V              | 10.83A                  | 9.17A       | 7.92A  | 5.83A  | ±1%                          | 1%                        | 22.8~25.2 V           | ±0.5%                       | ±1%                         | 93.5%          |
| CFM260S360         | 36 V              | 7.22A                   | 6.11A       | 5.28A  | 3.89A  | ±1%                          | 1%                        | 34.2~37.8 V           | ±0.5%                       | ±1%                         | 93%            |
| CFM260S480         | 48 V              | 5.42A                   | 4.58A       | 3.96A  | 2.92A  | ±1%                          | 1%                        | 45.6~50.4 V           | ±0.5%                       | ±1%                         | 93.5%          |
| Fan Output Voltage |                   |                         |             |        |        |                              |                           |                       |                             |                             |                |
| All                | +12V              | 0.3A (NOTE 6)           |             |        |        | ---                          | ---                       | ---                   | ---                         | ---                         | ---            |

Note:

1. Forced Air Convection with Fan. (Open Frame with 19CFM, Base & Case with 10 CFM)
2. Voltage Accuracy is Set at 60% Rated Load.
3. Add a 0.1uF Ceramic Capacitor and a 10uF E.L. Capacitor to Output for Ripple & Noise Measuring @20MHz BW
4. Line Regulation is Measured from High Line to Low Line with Rated Load.
5. Load Regulation is Measured from Full to 10% Rated.
6. Fan Output can only Operate Normal when the main Output is above 1A.

### PART NUMBER

| Series | Number of Outputs | Nominal Output Voltage | Type             |
|--------|-------------------|------------------------|------------------|
| CFM260 | O                 | XXX                    | Y (Option)       |
| CFM260 | S: Single         | 120: 12VDC             | None: Open Frame |
|        |                   | 240: 24VDC             | B: With Base     |
|        |                   | 360: 36VDC             | C: With Cover    |
|        |                   | 480: 48VDC             |                  |

Part Number Example:

**CFM260S120:** Open Frame, 260W, Single 12Vdc Output

**CFM260S120B:** With Base, 260W, Single 12Vdc Output

**CFM260S120C:** With Case, 260W, Single 12Vdc Output



# CFM260S 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    | 85   |      | 264          | $V_{ac}$<br>$V_{dc}$ |
| Operating Temperature | See Derating Curve                    | All    | -30  |      | 80           | °C                   |
| Storage Temperature   |                                       | All    | -40  |      | 85           | °C                   |
| Operating Altitude    | IEC/EN/UL 62368-1<br>Meets EN 60335-1 | All    |      |      | 5000<br>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    |      |      | 3.5  | A        |
| Leakage Current         |                                          | All    |      |      | 3.5  | mA       |
| Inrush Current          | $V_{in}=240V_{ac}$ , Cold Start at 25°C. | All    |      |      | 150  | 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., Ambient Temperature=25°C.                                                                                        | CFM260S120<br>CFM260S240<br>CFM260S360<br>CFM260S480 | 11.88<br>23.76<br>35.64<br>47.52 | 12<br>24<br>36<br>48         | 12.12<br>24.24<br>36.36<br>48.48 | $V_{dc}$ |
| Operating Output Current Range | See Derating Curve                                                                                                                                            | CFM260S120<br>CFM260S240<br>CFM260S360<br>CFM260S480 |                                  |                              | 21.67<br>10.83<br>7.22<br>5.42   | A        |
| Holdup Time                    | $V_{in}=115V_{ac}$                                                                                                                                            | All                                                  |                                  | 16                           |                                  | 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                             | %        |
| Over Voltage Protection        | Clamp Output Voltage                                                                                                                                          | CFM260S120<br>CFM260S240<br>CFM260S360<br>CFM260S480 |                                  |                              | 16<br>35<br>50<br>63             | $V_{dc}$ |
| 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 | CFM260S120<br>CFM260S240<br>CFM260S360<br>CFM260S480 |                                  |                              | 120<br>240<br>360<br>480         | mV       |
| Load Capacitance               | 1. Ambient Temperature=25°C<br>2. Input Voltage is 115VAC and 230VAC<br>3. Output is max. Load                                                                | CFM260S120<br>CFM260S240<br>CFM260S360<br>CFM260S480 |                                  |                              | 22000<br>10880<br>7220<br>3960   | uF       |
| Efficiency                     | 1. Output is Rated Load<br>2. Ambient Temperature=25°C<br>3. Input Voltage is 230VAC                                                                          | CFM260S120<br>CFM260S240<br>CFM260S360<br>CFM260S480 |                                  | 92.0<br>93.5<br>93.0<br>93.5 |                                  | %        |



# CFM260S Series

## ISOLATION CHARACTERISTICS

| PARAMETER            | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units           |
|----------------------|----------------------|--------|------|------|------|-----------------|
| Input to Output      | 1 minute             | All    |      |      | 3000 | V <sub>ac</sub> |
| 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

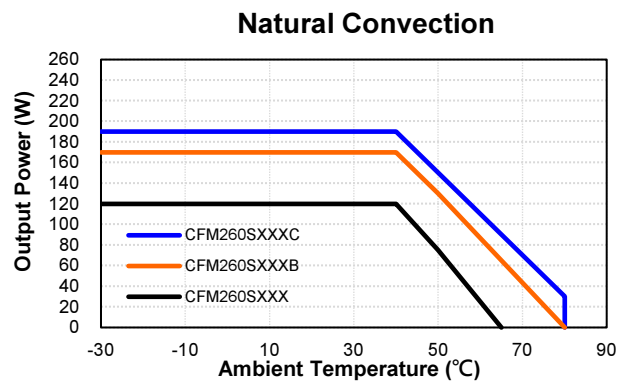
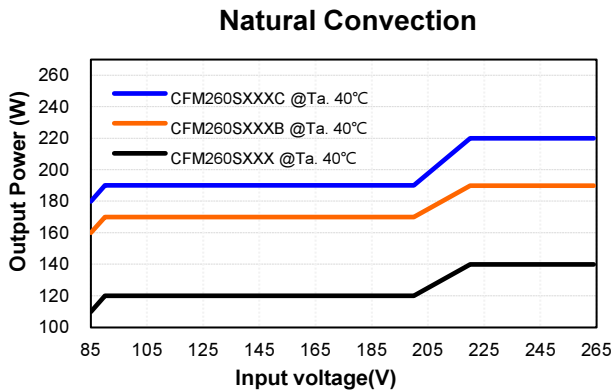
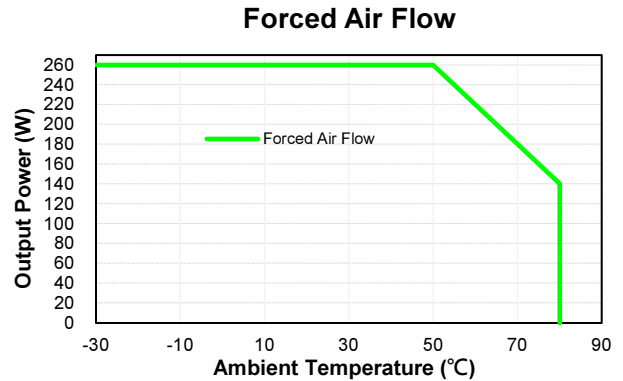
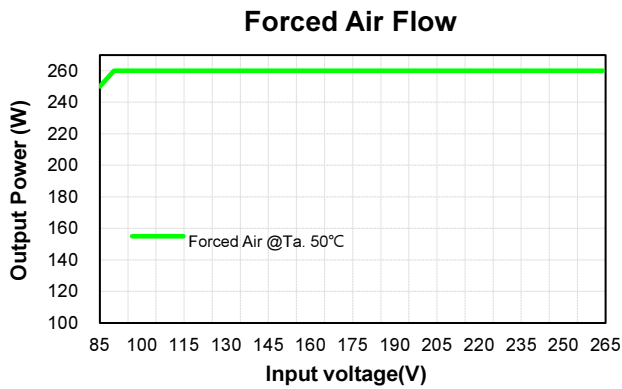
| PARAMETER                                        | NOTES and CONDITIONS                                                                                                                              | Device | Min.                                            | Typ.              | Max. | Units       |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------|-------------------|------|-------------|
| MTBF                                             | I <sub>0</sub> =100%; T <sub>a</sub> =25℃ per MIL-HDBK-217F                                                                                       | All    | 270                                             |                   |      | K hours     |
| Humidity                                         | Non-condensing                                                                                                                                    | All    |                                                 |                   | 93   | % RH        |
| Shock                                            | Meets MIL-STD-810F Table 516.5,Table 516.5-I 10ms, each axis 3 times(±X、±Y、±Z axis)                                                               | All    |                                                 | 75                |      | g           |
| Vibration                                        | Meets MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X、Y、Z axis, 1 hour (each axis),. Total 3 hrs.                                                     | All    |                                                 | 4                 |      | g           |
| Weight                                           | Open Frame Versions<br>Baseplate Versions<br>Covered versions                                                                                     | All    |                                                 | 245<br>280<br>332 |      | grams       |
| Dimensions                                       | Open Frame                                                                                                                                        | All    | 4.000x2.000x1.441 Inches (101.60x50.8x36.60mm)  |                   |      |             |
|                                                  | B (with Base)                                                                                                                                     | All    | 4.598x2.000x1.520 Inches (116.80x50.8x38.60mm)  |                   |      |             |
|                                                  | C (with Cover)                                                                                                                                    | All    | 4.598x2.520x1.594 Inches (116.80x64.00x40.50mm) |                   |      |             |
| Safety                                           | Class I, IEC/EN/UL62368-1                                                                                                                         |        |                                                 |                   |      |             |
| EMC Emission                                     | EN55032 Class B, 47 CFR FCC Part 15 Subpart B, Oct.2014<br>EN61000-3-2:2014, EN61000-3-3:2013, EN61000-6-3:2012, EN61000-6-4:2011, EN61204-3:2000 |        |                                                 |                   |      | Class B     |
| Conducted Disturbance                            | EN55032, EN61204-3:2000, EN61000-6-3:2012, EN61000-6-4:2011, Class B, 47 CFR FCC Part 15 Subpart B                                                |        |                                                 |                   |      | Class B     |
| Radiated Disturbance                             | EN55032, EN61204-3:2000, EN61000-6-3:2012, EN61000-6-4:2011, Class B, 47 CFR FCC Part 15 Subpart B                                                |        |                                                 |                   |      | Class B     |
| Harmonic Current Emissions                       | EN61000-3-2:2014                                                                                                                                  |        |                                                 |                   |      |             |
| Voltage Fluctuations & Flicker                   | EN61000-3-3:2013                                                                                                                                  |        |                                                 |                   |      |             |
| EMC Immunity                                     | EN55035, EN61204-3:2000, EN61000-6-1:2019, EN61000-6-2:2019                                                                                       |        |                                                 |                   |      |             |
| Electrostatic Discharge (ESD)                    | IEC 61000-4-2:2008, Air Discharge: ±8kV, Contact Discharge: ±4kV                                                                                  |        |                                                 |                   |      | Criterion A |
| Radio-Frequency, Continuous Radiated Disturbance | IEC 61000-4-3:2010                                                                                                                                |        |                                                 |                   |      | Criterion A |
| Electrical Fast Transient (EFT)                  | IEC61000-4-4:2012, ±1kV, ±2kV                                                                                                                     |        |                                                 |                   |      | Criterion A |
| Surge                                            | IEC61000-4-5:2014, L-N: ±0.5kV, ±1kV, L-E(Ground): ±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 61000-4-11:2004, Dip: 30% Reduction, Dip >95% Reduction                                                                                       |        |                                                 |                   |      | Criterion A |
| Voltage Interruptions                            | IEC 61000-4-11:2004, >95% Reduction                                                                                                               |        |                                                 |                   |      | Criterion B |
| Application Note Link                            | <a href="#">CFM260S Series App Notes</a>                                                                                                          |        |                                                 |                   |      |             |



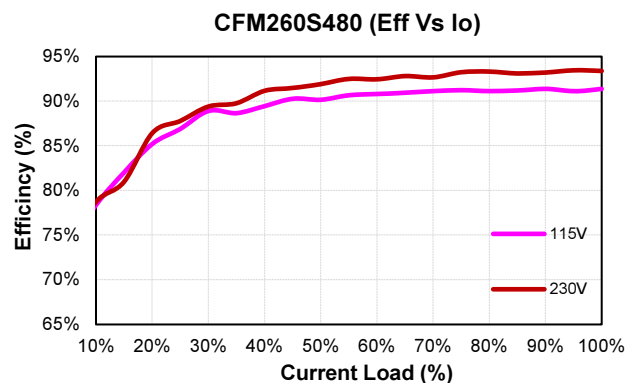
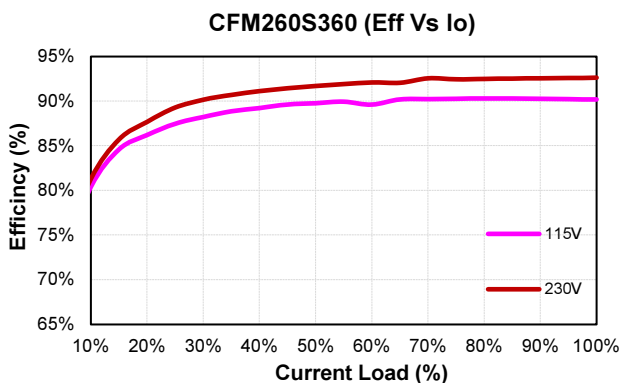
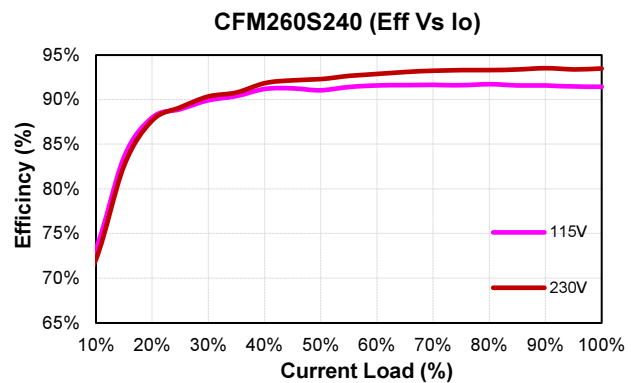
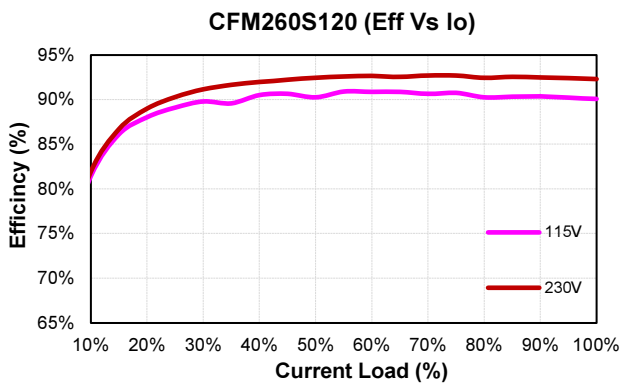
# CFM260S Series

## CHARACTERISTIC CURVE

### Power Derating Curve



### Performance Data

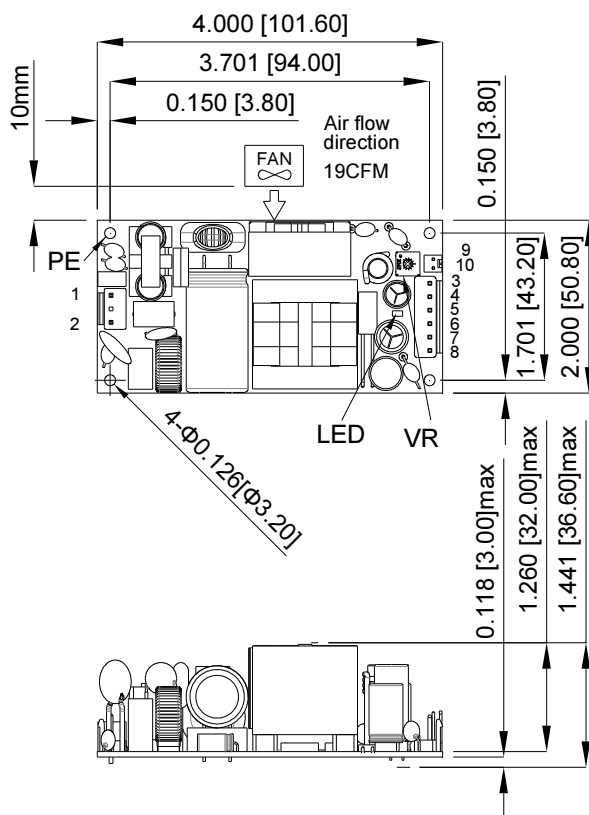




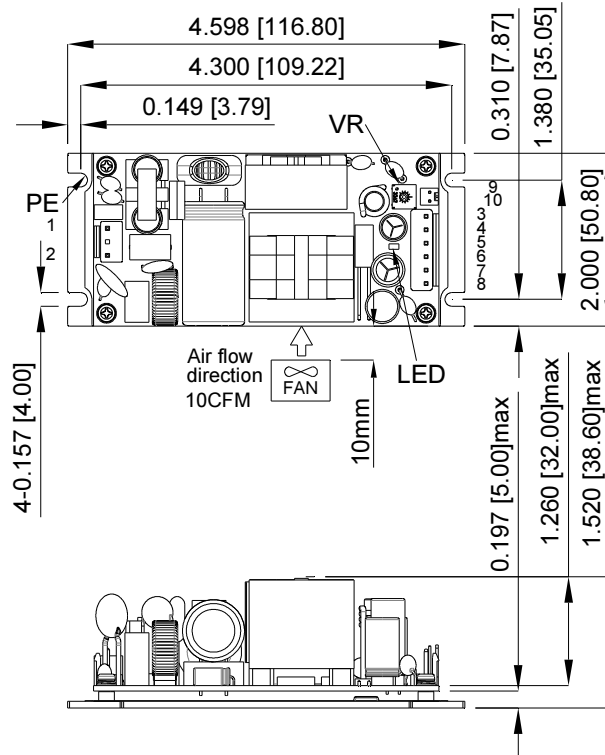
# CFM260S Series

## MECHANICAL SPECIFICATION

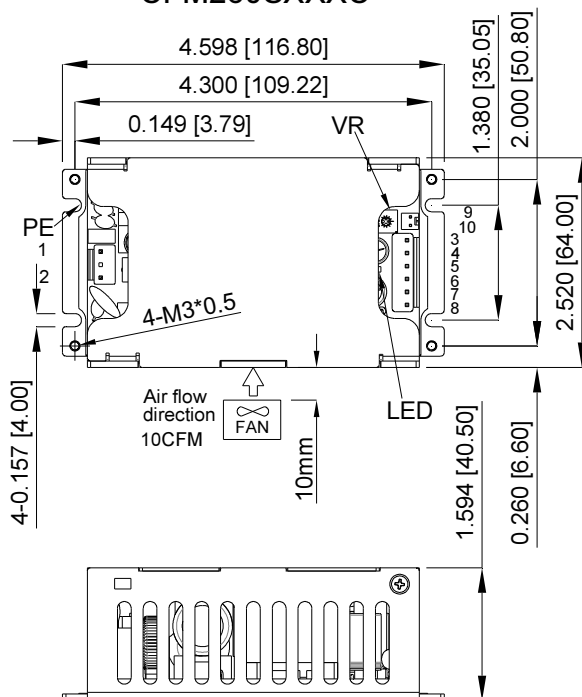
CFM260SXXX



CFM260SXXXB



CFM260SXXXC



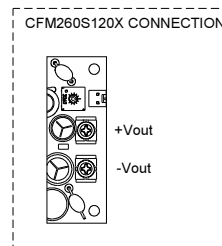
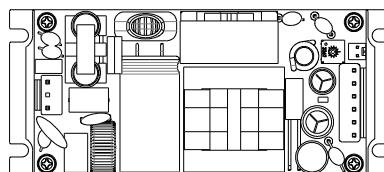
### PIN CONNECTION

| Pin | Function | Pin | Function | Pin | Function    |
|-----|----------|-----|----------|-----|-------------|
| 1   | ACL      | 5   | +Vout    | 9   | +Fan Output |
| 2   | ACN      | 6   | -Vout    | 10  | -Fan Output |
| 3   | +Vout    | 7   | -Vout    |     |             |
| 4   | +Vout    | 8   | -Vout    |     |             |

All Dimensions In Inches[mm]

Tolerance Inches:x.xxx= ± 0.02

Millimeters: x.xx = ± 0.5



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