



CFM130S SERIES 130 WATT AC-DC POWER SUPPLY WITH PFC

Features

- Universal Input Range 80~264Vac
- High Efficiency up to 94%
- 2"x 3" Open Frame Compact Size
- Class I & Class II (NOTE8)
- 100W with Natural Convection
- 130W with Fan-Cooled
- No Load Input Power Consumption<150mW
- Approved Safety IEC/EN/UL 62368-1
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Active PFC Function



| MODEL NUMBER | OUTPUT VOLTAGE | OUTPUT CURRENT | | RIPPLE& NOISE NOTE2 | VOLTAGE ACCURACY NOTE1 | LINE REGULATION NOTE3 | LOAD REGULATION NOTE4 | %EFF. (Typ) NOTE5 |
|--------------|----------------|--------------------|------------------|---------------------|------------------------|-----------------------|-----------------------|-------------------|
| | | NATURAL CONVECTION | FAN COOLED NOTE7 | | | | | |
| CFM130S120 | 12 V | 8.34 A | 10.8 A | 120 mV | ±2% | ±0.5% | ±1% | 93% |
| CFM130S180 | 18 V | 5.56 A | 7.2 A | 180 mV | ±2% | ±0.5% | ±1% | 93% |
| CFM130S190 | 19 V | 5.26 A | 6.8 A | 190 mV | ±2% | ±0.5% | ±1% | 93% |
| CFM130S240 | 24 V | 4.2 A | 5.4 A | 240 mV | ±2% | ±0.5% | ±1% | 93% |
| CFM130S360 | 36 V | 2.8 A | 3.6 A | 360 mV | ±2% | ±0.5% | ±1% | 94% |
| CFM130S480 | 48 V | 2.1 A | 2.7 A | 480 mV | ±2% | ±0.5% | ±1% | 94% |

Note:

1. Voltage accuracy is set at full load.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
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 75% full load at 25°C.
6. Standard input and output connectors (CN1 and CN2) wafer with TAIWAN KING PIN TERMINAL PVHI series and mate with JST housing VHR series or equivalent.
7. Requires 10CFM.
8. Conductive: Class I & Class II meets Class B Radiation: Class I meet Class B, Class II meet Class A.

PART NUMBER

| Series | Number of Outputs | Nominal Output Voltage | Type |
|--------|-------------------|--|--|
| CFM130 | X | XXX | -X (Option) |
| CFM130 | S : Single | 120 : 12V 180 : 18V 190 : 19V 240 : 24V 360 : 36V 480 : 48V | Blank : Wafer B : Base Cooling C : Cover |

Part Number Example:

CFM130S120-B: Open Frame, 130W, Single 12Vdc Output, Base Cooling



CFM130S 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 | 80 | | 264 | V _{ac} |
| Operating Temperature | See Derating Curve | All | -30 | | 70 | °C |
| Storage Temperature | | All | -40 | | 85 | °C |
| 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} =100Vac | All | | | 1.8 | A |
| Inrush Current | V _{in} =240V _{ac} , Cold start @25°C | All | | | 100 | A |
| Leakage Current | | All | | | 100 | uA |
| Under Voltage Protection | | All | 55 | 62 | 70 | V |

OUTPUT CHARACTERISTICS

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|--------------------------------|--|------------|-------|------|-------|-----------------|
| Output Voltage Set Point | V _{in} =80V _{ac} ~264V _{ac} , I _o =Full load, Ambient temperature=25°C | CFM130S120 | 11.76 | 12 | 12.24 | V _{dc} |
| | | CFM130S180 | 17.64 | 18 | 18.36 | |
| | | CFM130S190 | 18.62 | 19 | 19.38 | |
| | | CFM130S240 | 23.52 | 24 | 24.48 | |
| | | CFM130S360 | 35.28 | 36 | 36.72 | |
| | | CFM130S480 | 47.04 | 48 | 48.96 | |
| Operating Output Current Range | V _{in} =80V _{ac} ~264V _{ac} , See Derating Curve | CFM130S120 | | | 10.8 | A |
| | | CFM130S180 | | | 7.2 | |
| | | CFM130S190 | | | 6.8 | |
| | | CFM130S240 | | | 5.4 | |
| | | CFM130S360 | | | 3.6 | |
| | | CFM130S480 | | | 2.7 | |
| Holdup Time | V _{in} =115V _{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 | % |
| Over Voltage Protection | Auto recovery | CFM130S120 | | 13.5 | | V _{dc} |
| | | CFM130S180 | | 20.5 | | |
| | | CFM130S190 | | 23 | | |
| | | CFM130S240 | | 30 | | |
| | | CFM130S360 | | 42 | | |
| | | CFM130S480 | | 54 | | |
| Over Current Protection | Auto recovery | All | 115 | 130 | 145 | % |
| Short Circuit Protection | Auto recovery | All | | | | |



CFM130S Series

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|-------------------------|---|------------|------|------|------|-------|
| 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 | CFM130S120 | | | 120 | mV |
| | | CFM130S180 | | | 180 | |
| | | CFM130S190 | | | 190 | |
| | | CFM130S240 | | | 240 | |
| | | CFM130S360 | | | 360 | |
| | | CFM130S480 | | | 480 | |
| Load Capacitance | 1. Input voltage is 115V _{ac} and 230V _{ac} . 2. Output is max. full load 3. Ambient temperature=25°C | CFM130S120 | | | 8400 | uF |
| | | CFM130S180 | | | 5600 | |
| | | CFM130S190 | | | 5200 | |
| | | CFM130S240 | | | 4200 | |
| | | CFM130S360 | | | 2720 | |
| | | CFM130S480 | | | 2040 | |
| Efficiency | 1. Input voltage is 230V _{ac} 2. Output is 75% full load 3. Ambient temperature=25°C | CFM130S120 | | 93 | | % |
| | | CFM130S180 | | 93 | | |
| | | CFM130S190 | | 93 | | |
| | | CFM130S240 | | 93 | | |
| | | CFM130S360 | | 94 | | |
| | | CFM130S480 | | 94 | | |

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 | | | 1500 | V _{ac} |
| Output to Earth (Ground) | 1 minute (without dielectric breakdown) | All | | | 500 | V _{ac} |
| Isolation Resistance | Input to output | All | 100 | | | MΩ |

FEATURE CHARACTERISTICS

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|---------------------|----------------------|--------|------|------|------|-------|
| Switching Frequency | | All | | 105 | | kHz |

GENERAL SPECIFICATIONS

| PARAMETER | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|-----------------------|---|-----------|--|------|------|---------|
| MTBF | I _o =100%; T _a =25°C per MIL-HDBK-217F | All | 400 | | | 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 hr (each axis),. total 3 hrs. | All | | 4 | | g |
| Weight | | CFM130S | | 135 | | grams |
| | | CFM130S-B | | 170 | | |
| | | CFM130S-C | | 218 | | |
| Dimensions | Open Frame (Wafer) | All | 3.000x2.000x1.201 Inches (76.20x50.80x30.50 mm) | | | |
| | B (Base Cooling) | | 3.598x2.000x1.299 Inches (91.40x50.80x33.00mm) | | | |
| | C (Cover) | | 3.598x2.520x1.358 Inches (91.40x64.00x34.50mm) | | | |
| Safety | Class I, Class II, IEC/EN/UL62368-1 | | | | | Ed. 2.0 |
| EMC Emission | EN 55032: 2015+A11: 2020, 47 CFR FCC Part 15 Subpart B, EN 61204-3: 2000, EN 6100-6-3: 2007+A1: 2011+AC: 2012, EN 6100-6-4: 2007+A1: 2011 | | | | | Class B |
| Conducted Disturbance | EN 55032, 47 CFR FCC Part 15 (Class I & Class II meets Class B) | | | | | Class B |
| Radiated Disturbance | EN 55032, 47 CFR FCC Part 15 (Class I Meet Class B; Class II Meet Class A) | | | | | Class B |



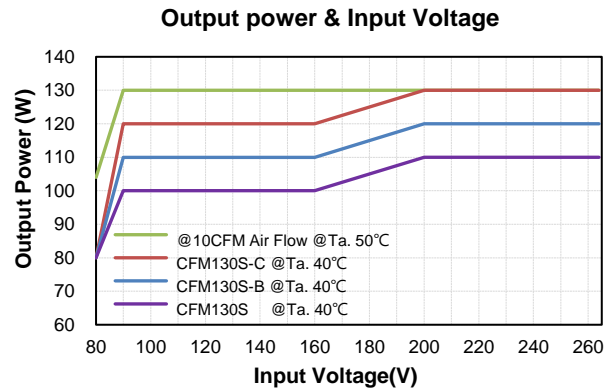
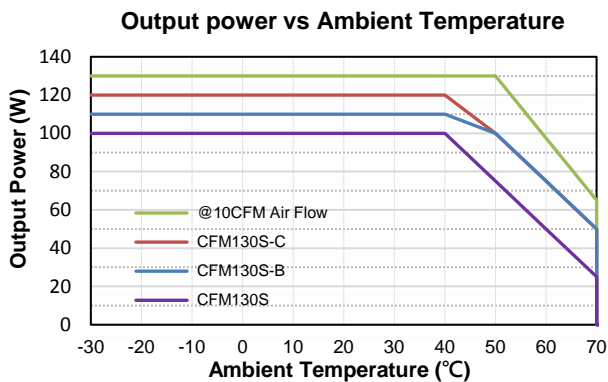
CFM130S Series

GENERAL SPECIFICATIONS

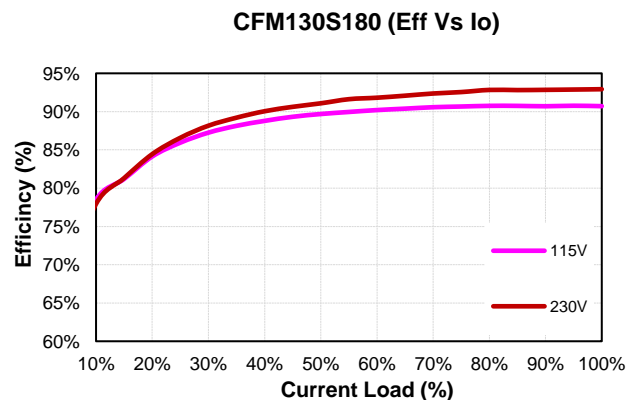
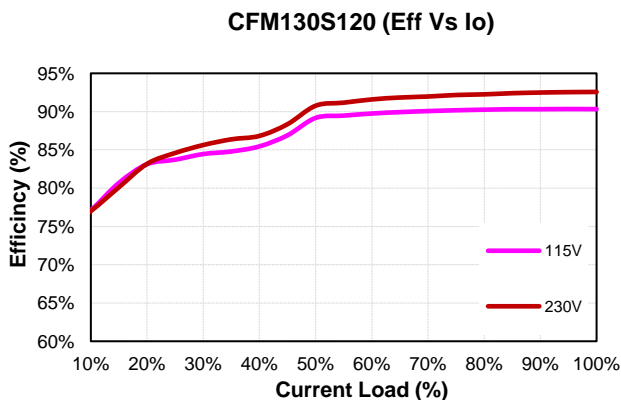
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|--|---|-------------|
| Harmonic Current Emissions | EN IEC 61000-3-2: 2019 | Class A, D |
| Voltage Fluctuations & Flicker | EN 61000-3-3:2013+A1: 2019 | Class A |
| EMC Immunity | EN 55035: 2017+A11: 2020, EN 61000-6-1: 2019, EN 61000-6-2: 2019, EN 61204-3: 2000 | |
| 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) | IEC61000-4-4:2012, $\pm 1\text{kV}$, $\pm 2\text{kV}$ | Criterion A |
| Surge | IEC61000-4-5:2014, L-N: $\pm 0.5\text{kV}$, $\pm 1\text{kV}$, L-E(Ground): $\pm 0.5\text{kV}$, $\pm 1\text{kV}$, $\pm 2\text{kV}$ | 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 >95% Reduction | Criterion A |
| Voltage Interruptions | IEC 61000-4-11: 2020, >95% Reduction | Criterion B |
| Application Note Link | CFM130S Series App Notes | |

CHARACTERISTIC CURVE

Power Derating Curve



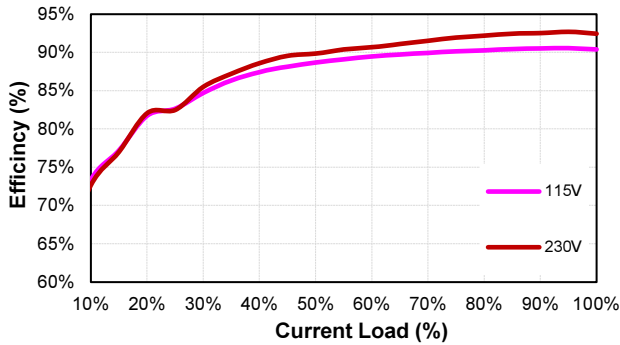
Performance Data



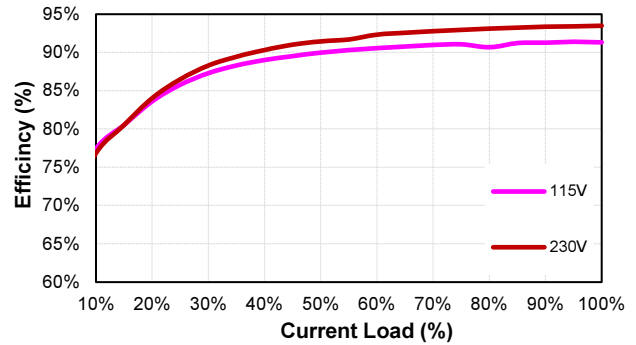


CFM130S Series

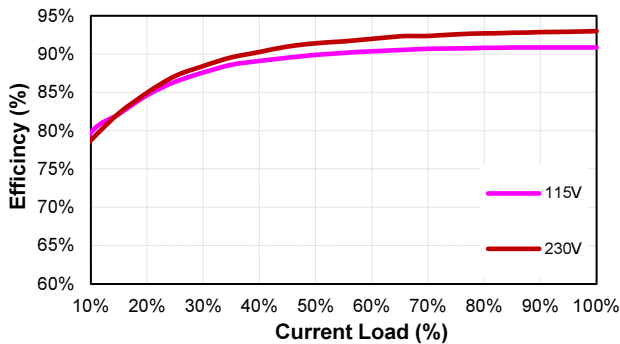
CFM130S190 (Eff Vs Io)



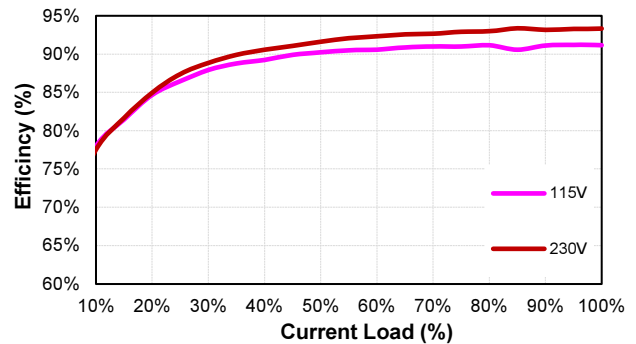
CFM130S240 (Eff Vs Io)



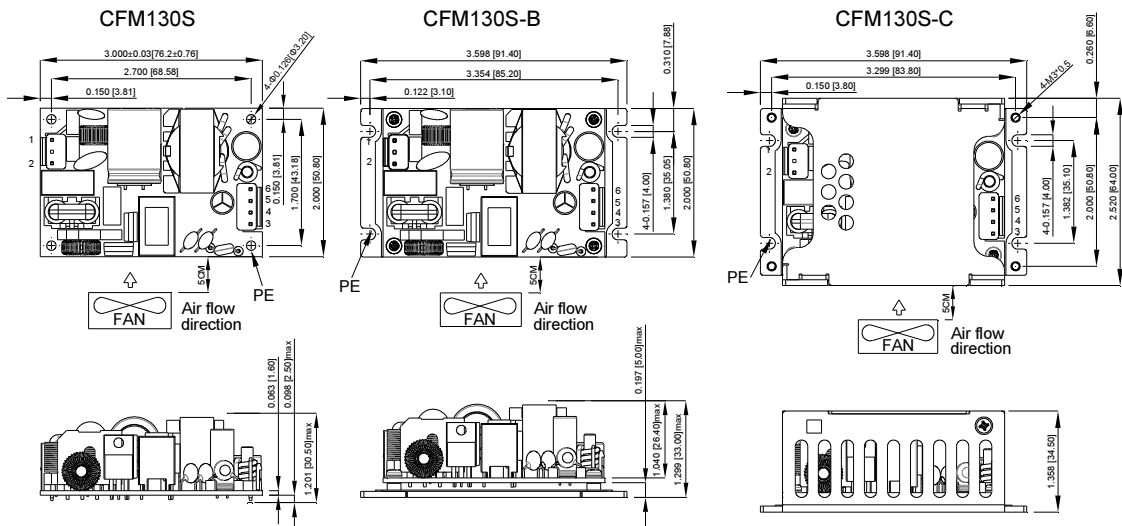
CFM130S360 (Eff Vs Io)



CFM130S480 (Eff Vs Io)



MECHANICAL SPECIFICATION



| PIN CONNECTION | |
|----------------|----------|
| Pin | Function |
| 1 | ACL |
| 2 | ACN |
| 3 | -Vout |
| 4 | -Vout |
| 5 | +Vout |
| 6 | +Vout |

All Dimensions In Inches[mm]
Tolerance Inches: x.xxx= ± 0.02
Millimeters: x.xx = ± 0.5

CINCON Electronics Co. Ltd.
Add: 14F, No. 306, Sec.4, Hsin Yi Rd., Taipei, Taiwan
Tel: 886-2-27086210
Fax: 886-2-27029852
E-mail: sales@cincon.com.tw
Web: www.cincon.com