



FEATURES

- 350W compact high density
- Active load current share
- Universal AC input with Power Factor Correction
- Ruggedized U-channel construction
- RoHS compliant
- Includes ORing diode for N+1 parallel operation
- International regulatory approvals

DESCRIPTION

The CF350-A12C switching power supply utilizes advanced component and circuit technologies to deliver one of the industry's smallest 350 Watt switchers. Built to meet 1U height considerations, the U-Frame package measures only 6.80 x 3.86 x 1.40". The CF350-A12C offers universal AC input (85-265VAC) with active power factor correction (PFC) and compliance to worldwide safety and EMC standards.

SELECTION GUIDE

| Model Number | Power Output | Main Output | Standby Output |
|--------------|--------------|-------------|----------------|
| CF350-A12C | 350W | 12V | 5V |

INPUT CHARACTERISTICS

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-------------------------------|----------------------------|------|------|------|-------|
| Input Voltage Operating Range | | 85 | | 264 | Vac |
| Input Frequency | | 47 | | 63 | Hz |
| Turn-on Input Voltage | Ramp up | | 83 | | Vac |
| Turn-off Input Voltage | Ramp down | | 67 | | Vac |
| Maximum Rated Input Current | 100Vac | | | 2.8 | Arms |
| Inrush Current | Cold start at 25°C, 220Vac | | | 60 | Apk |
| Power Factor | 230Vac, full load | | 96 | | % |
| | 115Vac, full load | | 99 | | |

OUTPUT VOLTAGE CHARACTERISTICS

| Output Voltage | Parameter | Conditions | Min. | Typ. | Max. | Units |
|----------------|-------------------------------------|---|------|------|------|--------|
| 12V | Voltage Set Point Accuracy | ±0.1% tolerance | | 12 | | Vdc |
| | Line Regulation | For Vin (min) to Vin (max) | | ±0.4 | | % |
| | Load Regulation | For load changes from zero to full load | | | ±1 | % |
| | Ripple Voltage & Noise ¹ | 20MHz Bandwidth | | | 130 | mV p-p |
| | Output Current | | 0 | | 29 | A |
| | Peak Current | | | 31 | | |
| 5Vsb | Voltage Set Point Accuracy | | | 5 | | Vdc |
| | Line Regulation | For Vin (min) to Vin (max) | | ±0.4 | | % |
| | Load Regulation | | | ±2 | | % |
| | Output Current | | 0 | | 5 | mA |
| | Peak Current | | | 5 | | mA |
| | Ripple Voltage & Noise ¹ | 20MHz Bandwidth | | | 110 | mV p-p |

OUTPUT CHARACTERISTICS

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|--------------------------|---|------|------|------|-------|
| Remote Sense | 12V output: Compensates for voltage drops of up to 0.5V between the power supply to the load. Outputs are internally sensed at output connector if remote sense lines are opened. | | | | |
| Efficiency | 230Vac, full load | | 87 | | % |
| | 115Vac, full load | | 83 | | |
| Start-up Delay | Output voltage at 90% | | | 2.0 | s |
| Rise Time | | | 30 | | ms |
| Transient Load Response | For load change of 25% to 75%, at slew rate of 1A/μs, recovery time less than 2ms | | | ±5 | % |
| Current Sharing Accuracy | Single wire current share in a N+1 parallel redundant configuration with OR-ing diodes included in the PSU | | | ±10 | % |
| Hot Swap | Available | | | | |
| Hold-up Time | 110Vac, full load | | 16 | | ms |
| Overshoot and Undershoot | Voltage change at turn-on and turn-off | | | 1 | % |

¹ Ripple and noise are measured with 10 μF, in parallel with 0.1 μF ceramic capacitors.



GENERAL CHARACTERISTICS

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------------------------|--|------|------|------|-------|
| Storage Temperature Range | Non-condensing | -25 | | 85 | °C |
| Operating Temperature Range | Derating linearly to 70°C with 50% derating | -5 | | 50 | |
| Temperature Coefficient | ±0.02%/°C | 0 | | 70 | |
| Cooling | 150W free convection cooling (base plate cooling). 350W forced air cooling (250 LFM min.) | | | | |
| Operating Humidity | Non-condensing | 5 | | 95 | % |
| Storage Humidity | Non-condensing | 5 | | 90 | |
| Altitude | Operating 10,000 ft. Non-operating 40,000 ft. | | | | |
| Vibration | Three orthogonal axes at 1octave/min, 5 min dwell at four major resonances at 0.75G peak, 5Hz to 500Hz | | | | |
| MTBF | Calculated per Bellcore 332, issue 6 specification at Ta=30°C | 300 | | | Khrs |
| Safety Approvals | UL 60950, CSA C22.2-234, Level 3, EN-60950, Class 1, SELV CE-Mark | | | | |
| Input Fuse | Power Supply has internal line fuse: IEC type 6.3A 250Vac SLO BLOW | | | | |
| Switching Frequency | | 85 | | 90 | kHz |
| Weight | 720g max (27oz) | | | | |

PROTECTION CHARACTERISTICS

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|------------------|---|------|------|------|-------|
| Over Temperature | Shutdown due to excessive internal temperature 95 ± 5°C automatic recovery. | | | | |
| Over Voltage | Outputs shut down at 125% of nominal (Latched Shut-Down) AC input must recycle to re-start. | | | | |
| Over Current | 12V output: 110 to 130% of I _{max} , constant current limit; automatic recovery. Long-term fail condition shall not cause damage to PSU. | | | | |

ISOLATION CHARACTERISTICS

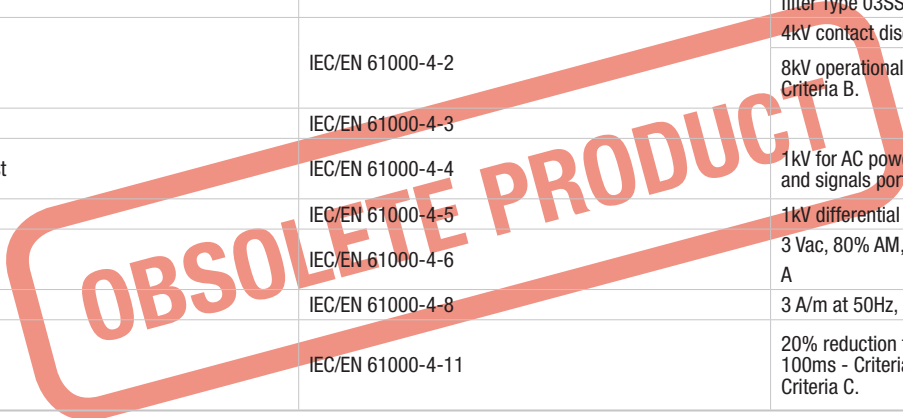
| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|--|------|------|------|-------|
| Insulation Safety Rating / Test Voltage | Input to Output - Reinforced | 3000 | | | Vrms |
| | Input to Chassis - Basic | 1500 | | | Vrms |
| Isolation | Output to Chassis | 100 | | | Vdc |
| Material Flammability | UL 94V-0 | | | | |
| Grounding | Output RTN's not connected to chassis gnd. 12V RTN and 5V RTN shorted. | | | | |

CONTROL SIGNALS

| Status | Description |
|--------------------|--|
| Inhibit | Active low, all output shut down. |
| Power OK (DC Fail) | Open collector active low when any of the outputs drop below 10% of its nominal value. |

EMISSIONS AND IMMUNITY

| Characteristic | Description | Criteria |
|----------------------------------|--------------------------|---|
| Harmonics | IEC/EN 61000-3-2 | |
| Voltage Fluctuation and Flicker | IEC/EN 61000-3-3 | |
| Emission Conducted | FCC / EN55022 (CISPR 22) | CLASS B, 6 dB Margin – with an external line filter Type 03SS-P-Q By High Lan or equivalent |
| ESD | IEC/EN 61000-4-2 | 4kV contact discharge, Performance Criteria B 8kV operational air discharge, Performance Criteria B. |
| Electromagnetic Field | IEC/EN 61000-4-3 | |
| Electrical Fast Transients/Burst | IEC/EN 61000-4-4 | 1kV for AC power port, 0.5kV for DC power I/O and signals port, Performance Criteria B |
| Surge | IEC/EN 61000-4-5 | 1kV differential mode and 2kV common mode |
| RF Conducted Immunity | IEC/EN 61000-4-6 | 3 Vac, 80% AM, 0.08-1kHz, Performance Criteria A |
| Magnetic Immunity | IEC/EN 61000-4-8 | 3 A/m at 50Hz, Performance Criteria A |
| Voltage dips, interruptions | IEC/EN 61000-4-11 | 20% reduction for 10ms - Criteria B, 60% for 100ms - Criteria C, 90% reduction for 5000ms - Criteria C. |



OUTPUT CONNECTOR AND SIGNAL SPECIFICATION

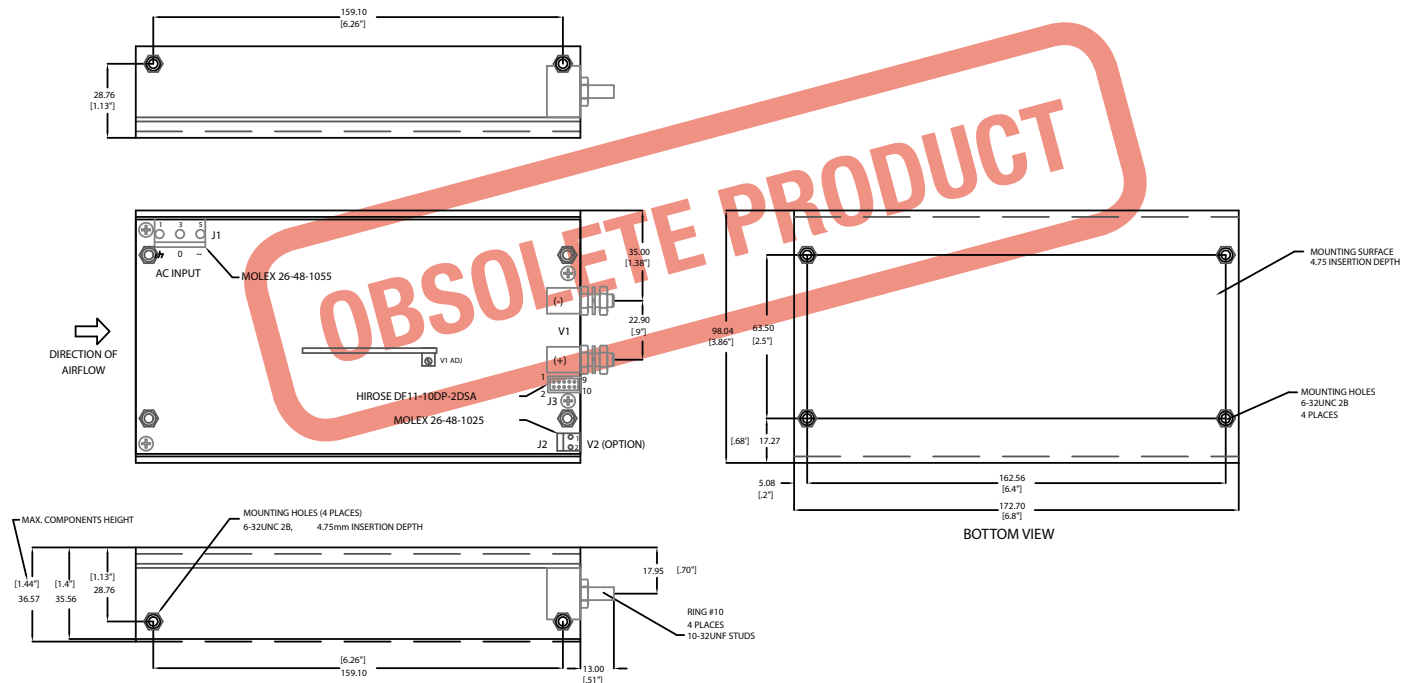
| PIN | J1 : Molex 26-48-1055 |
|-----|-----------------------|
| 1 | Chassis |
| 3 | Neutral |
| 5 | Phase |

| PIN | J2 : Molex 26-48-1025 |
|-----|-----------------------|
| 1 | Vsb RTN |
| 2 | Vsb |

| PIN | V1 |
|-----|------------|
| V1+ | +DC output |
| V1- | -DC output |

| PIN | J3 : HIROSE DF11-10DP-2DSA |
|-----|----------------------------|
| 1 | 12V Ishare |
| 2 | 12V +RS |
| 3 | 12V -RS |
| 4 | DC Fail active low |
| 5 | Return |
| 6 | +5V standby |
| 7 | None |
| 8 | Inhibit |
| 9 | DC Fail active high |
| 10 | None |

MECHANICAL DIMENSIONS



Dimensions: 173mm x 98mm x 36.6mm (6.8" x 3.85" x 1.44")

MATING CONNECTORS

| Connector | Housing | Crimp terminal |
|-----------|--------------------------|--------------------------|
| J1 | Molex 09-50-3051 (1x) | Molex 08-52-0113 (3x) |
| J2 | Molex 09-50-3021 (1x) | Molex 08-52-0113 (3x) |
| J3 | Hirose DF11-10DS-2C (1x) | Hirose DF11-2428SC (10x) |
| V1 | #10 power ring lug (2x) | |