



### 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-A48C 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-A48C 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-A48C	350W	48V	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		
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
48V	Voltage Set Point Accuracy	Factory pre-set at $\pm 100\text{mV}$		48		Vdc
	Line Regulation	For $V_{in}$ (min) to $V_{in}$ (max)		$\pm 0.4$		%
	Load Regulation	For load changes from zero to full load			$\pm 1$	%
	Ripple Voltage & Noise <sup>1</sup>	20MHz Bandwidth			250	mV p-p
	Output Current		0		7.2	A
	Peak Current			8		
5Vsb	Voltage Set Point Accuracy			5		Vdc
	Line Regulation	For $V_{in}$ (min) to $V_{in}$ (max)		$\pm 0.4$		%
	Load Regulation			$\pm 2$		%
	Output Current		0		5	mA
	Peak Current			5		mA
	Ripple Voltage & Noise <sup>1</sup>	20MHz Bandwidth			100	mV p-p

### OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Remote Sense	48V 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/ $\mu\text{s}$ , recovery time less than 2ms			$\pm 5$	%
Current Sharing Accuracy	Single wire current share in a N+1 parallel redundant configuration with OR-ing diodes included in the PSU			$\pm 10$	%
Hot Swap	Available				
Hold-up Time	110Vac, full load		16		ms
Overshoot and Undershoot	Voltage change at turn-on and turn-off			1	%

<sup>1</sup> Ripple and noise are measured with 10  $\mu\text{F}$ , in parallel with 0.1  $\mu\text{F}$  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 orthoganol 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: Replaceable subminiature type 6.3A 250Vac Normal 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	48V output: 110 to 130% of I <sub>max</sub> , constant current limit; automatic recovery. Long-term fail condistion 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. 48V RTN and 5V RTN shorted.				

CONTROL SIGNALS	
Status	Description
Inhibit	Active high, 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

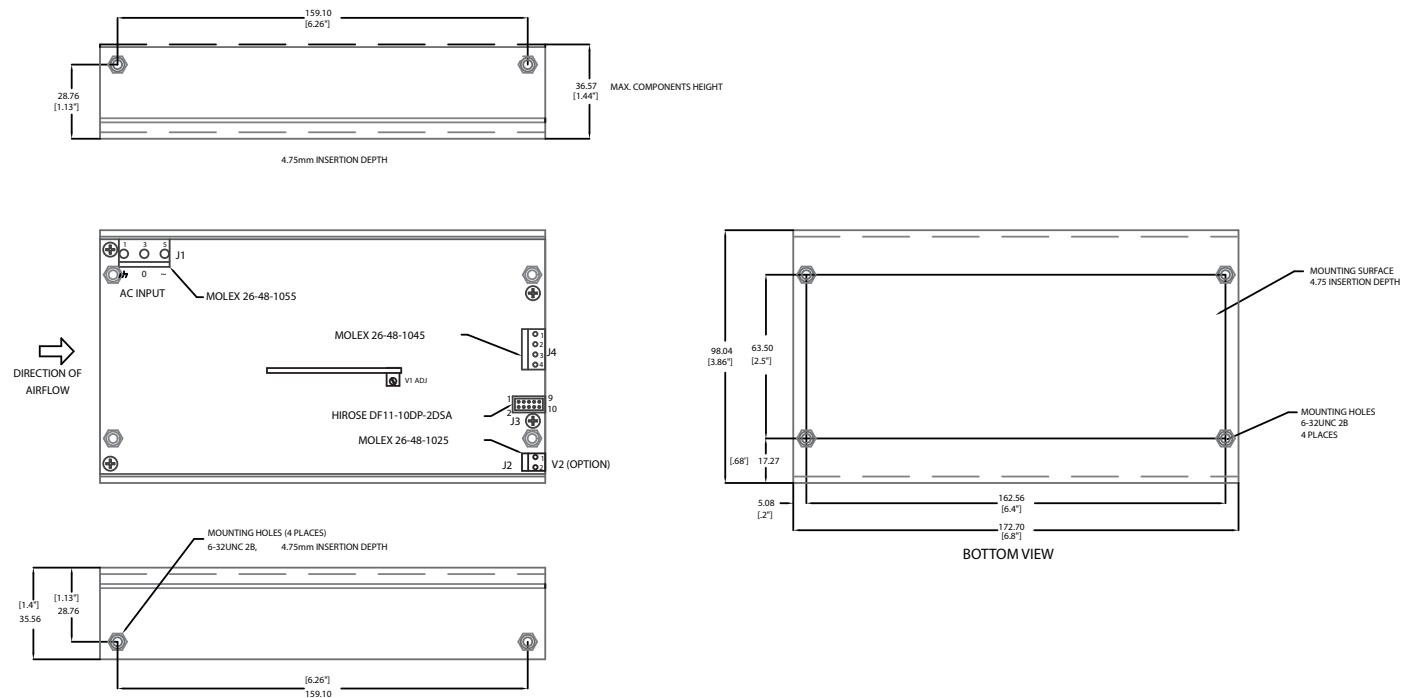
PIN	J1 : Molex 26-48-1055
1	Chassis
3	Neutral
5	Phase

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

PIN	J3 : HIROSE DF11-10DP-2DSA
1	48V Ishare
2	48V +RS
3	48V -RS
4	DC Fail active low
5	Return
6	+5V standby
7	None
8	Inhibit
9	DC Fail active high
10	None

PIN	J4 : Molex 26-48-1045
1	48V RTN
2	48V RTN
3	48V
4	48V

**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)
J4	Molex 09-50-3041 (1x)	Molex 08-52-0113 (4x)