

**PART NUMBER:** VF-S320-XXA-CFS

**DESCRIPTION:** Switching Power Supply

**features**

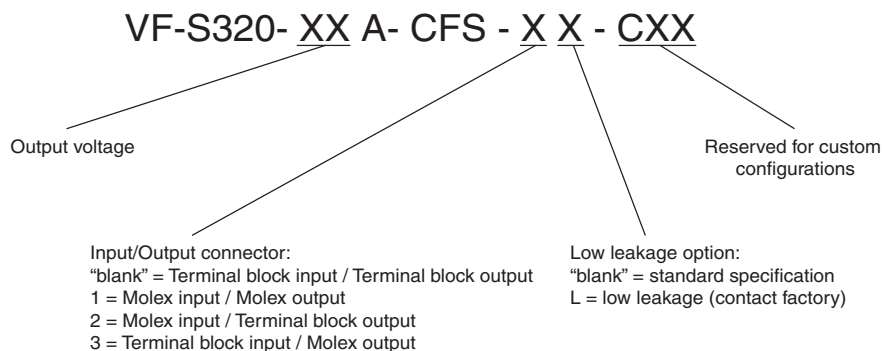
- power factor correction
- power good signal
- short circuit protection
- over load protection
- over voltage protection
- over temperature protection
- providing Peak Power 700W within 500uS duty
- approved to UL, CUL, TUV, CE with CB scheme
- high power density: 8.9 watts/inch<sup>3</sup>



Model	output <sup>1, 2, 3</sup>	preset voltage	output current		ripple & noise <sup>4, 5</sup>	
			minimum	22 CFM	regulation <sup>4</sup>	(Vpp)
VF-S320-05A-CFS	2 - 5.5 V	5 V	0 A	50 A	±1%	50 m
VF-S320-09A-CFS	6 - 10 V	9 V	0 A	32 A	±1%	±1%
VF-S320-12A-CFS	12 - 13.5 V	12 V	0 A	26.37 A	±1%	±1%
VF-S320-15A-CFS	13.6 - 15 V	15 V	0 A	23.53 A	±1%	±1%
VF-S320-18A-CFS	16 - 20 V	18 V	0 A	20 A	±1%	±1%
VF-S320-24A-CFS	21 - 26 V	24 V	0 A	15.24 A	±1%	±1%
VF-S320-28A-CFS	27 - 34 V	28 V	0 A	11.85 A	±1%	±1%
VF-S320-36A-CFS	35 - 42 V	36 V	0 A	9.14 A	±1%	±1%
VF-S320-48A-CFS	43 - 50 V	48 V	0 A	7.44 A	±1%	±1%
VF-S320-54A-CFS	51 - 60 V	54 V	0 A	6.27 A	±1%	±1%

**notes:**

- 1 Customer must specify output voltage on PO.
- 2 Output is fully isolated.
- 3 Output voltage is measured at output power connector.
- 4 1% minimum load is required to maintain the ripple and regulation.
- 5 Ripple and noise is measured from 10 KHz to 20 MHz at output terminals with a 0.1 µF ceramic capacitor and a 22 µF electrolytic capacitor in parallel.

**CUSTOM CONFIG KEY**


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## INPUT

parameter	conditions/description	min	nom	max	units
input frequency		47		63	Hz
input voltage	90-132 / 180-264 auto-selectable	90		264	VAC
input current	At 100-120 VAC			8	A
	At 200-240 VAC			4	A
inrush current	Peak measured at 230 VAC at full load, cold start			70	A
inrush current	Peak measured at 115 VAC at full load, cold start			35	A
power factor	Passive power factor correction meets EN61000-3-2 class A				

## OUTPUT

parameter	conditions/description	min	nom	max	units
transient response	Output voltage returns to within 1% in less than 2.5 mS for a 50% load change. Peak transient does not exceed 5%.				
overshoot	Turn-on and turn-off overshoot shall not exceed 5% over nominal voltage.				
efficiency	Measured at 230 V and full load				
	3.3 model:	70%			
	5 V model:	75%			
	12 V model:	80%			
	All other models:	83%			
turn on delay	At 120 VAC			1	second
hold up time	At 120 VAC and 80% of rated maximum load		20		mS
adjustability	Adjustable with built-in trim pot.		+/- 5%		
LED display	When green (LED1) is on the power supply is operating normally.				
power good	Designated as PG on the CN1. This signal goes high 100-500 mS after the output reaches regulation. It goes low at least 1 mS before loss of regulation.				
fan drive	12 VDC/300mA for external fan				

## PROTECTION CIRCUIT

parameter	conditions/description
input fuse	Built-in ac fuse. A blown fuse usually indicates permanent damage to the power supply serviceable by factory only.
overload	Current limiting starts at 110-140% of the rated output current in foldback mode and recovers automatically.
short circuit	Short circuit can be continuous. Recovers automatically upon removal of short.
output over-voltage	Output is protected against overvoltage. Unit shuts down and latches when voltage at output terminals exceeds 130%. AC input needs to be reset to restart the power supply.
over temp.	Power supply shuts down when temperature is in excess of 85 °C. Auto recovery.

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## GENERAL AND SAFETY

parameter	conditions/description	min	nom	max	units
operating temp.	Derates linearly from 100% load at 50 °C to 50% load at 70 °C.	0		50	°C
storage temp.		-20		85	°C
optional storage temp.		-40		85	°C
operating humid.	Non-condensing	5%		90%	RH
storage humid.	Non-condensing	5%		95%	RH
EMI	Pass FCC Part 15, CISPR 22 class B, Conducted				
safety	UL60950-1, CSA C22.2 No. 60950-1-03, TUV EN60950-1 and CB, CE Mark (LVD) EN61000-3-2, & IEC61000-4 Series regulations and CB				
leakage current	at 264 VAC			1.5	mA
vibration	Acceleration $\pm 7.35$ M/(SxS), on X, Y and Z Axis	5		50	Hz
isolation voltage (HI-POT)	Applied for 3 seconds Primary to secondary: Primary to transformer core: Primary to earth ground:	3000			VAC VAC VAC
grounding test	Allowable resistance measured when 25 A current is applied from the ground pin of the three prong plug to the farthest earthed connection point.			0.1	$\Omega$
warranty	Standard warranty length			2	years
MTBF	According to MIL-HDBK-217 at 30 °C	100,000			hours
burn-in	Full load, at $45 \pm 5$ °C, 230 VAC.			1	hours
cooling	Built-in DC fan speed control.				

note: Customer must specify extended temperature on PO.

## MECHANICAL

parameter	conditions/description	min	nom	max	units
weight				750	grams
enclosure	7(L) x 4(W) x 1.6(H)				inches

## LOGIC SIGNAL CONNECTOR - (CN1)

parameter	conditions/description
CN1	JST B2B-XH-4 or equivalent (CHYAO SHIUNN JS-1001-04) <b>Suggested mating connector:</b> JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04)

## FAN DRIVER CONNECTOR - (FAN2)

parameter	conditions/description
FAN2	<b>Suggested mating connector:</b> JST XHP-2 (2 pins 0.98 pitch) or equivalent (CHYAO SHIUNN JS-2001-02)

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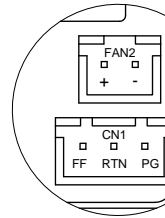
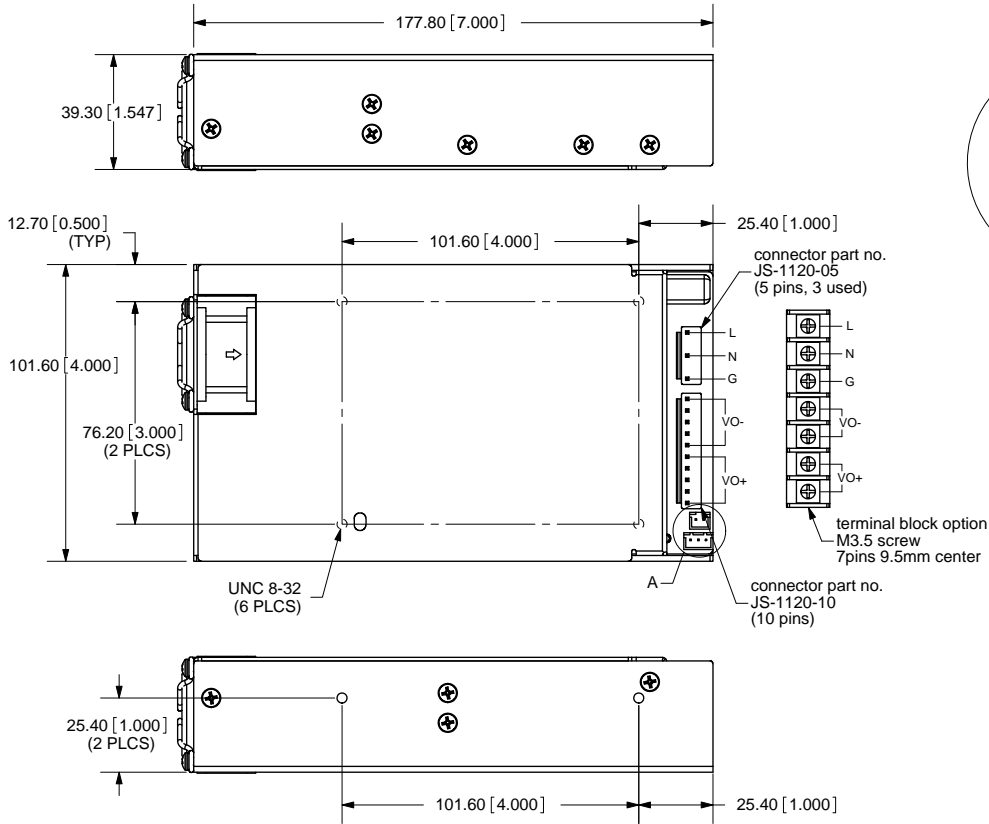
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## INPUT / OUTPUT CONNECTOR - (CN2)

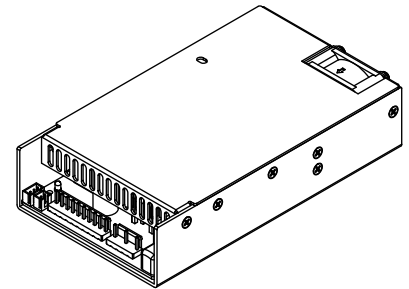
parameter	conditions/description
<b>option 1</b>	<p><b>AC INPUT</b> JST VH series (5 pin with pins 2 and 5 removed) or equivalent (Chyao Shiunn JS-1120-05) <b>Suggested mating plug:</b> JST VHR-5N (5 pin) or equivalent (Chyao Shiunn JS-1121-05) contact: JST SVH series or similar</p> <p><b>DC OUTPUT</b> JST VH series (10 pin) or equivalent (Chyao Shiunn JS-1120-10) <b>Suggested mating plug:</b> JST VHR-10N (10 pin) or equivalent (Chyao Shiunn JS-1121-10) contact: JST SVH series or similar</p>
<b>option 2</b>	<p>Howder Terminal block Part No. HB-95-7P (7 pin, M3.5 Screw) 9.5mm spacing <b>Suggested mating connector:</b> Molex 19198-0045 or similar</p>

**note:** Input / output connector needs to be specified on the PO.

REV.	DESCRIPTION	DATE
A	NEW DRAWING	6/26/2008



DETAIL A  
SCALE 2 : 1



SCALE: 1:3

TOLERANCE:  
±0.3mm UNLESS OTHERWISE  
SPECIFIED



NOTE: MOUNTING HOLE MAX DEPTH 4.00mm

PC FILE NAME:  
VF-S320-XXA-CFS Series

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20050 SW 112th Ave.  
Tualatin, OR 97062  
Phone: 503-612-2300  
800-275-4899  
Fax: 503-612-2383  
Website: www.cui.com

TITLE: SWITCHING POWER SUPPLY		REV: A
PART NO. VF-S320-XXA-CFS Series	UNITS: MM [INCHES]	
DRAWN BY: ZRJ	APPROVED BY:	SCALE: 1:2