

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

**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>

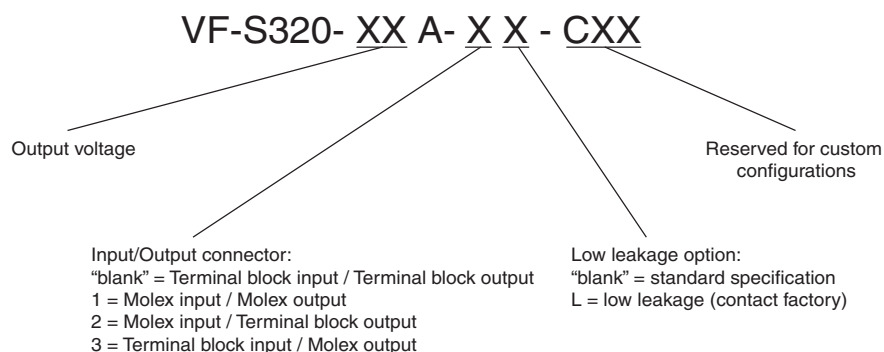


MODEL	output <sup>1,2</sup>	preset voltage	output current convection <sup>5</sup>	22 CFM <sup>5</sup>	regulation <sup>3</sup>	ripple & noise <sup>3,4</sup> (Vpp)
VF-S320-05A	2 - 5.5 V	5 V	27.28 A	45 A	±1%	50 mV
VF-S320-09A	6 - 10 V	9 V	16.37 A	29.1 A	±1%	±1%
VF-S320-12A	12 - 13.5 V	12 V	15 A	26.67 A	±1%	±1%
VF-S320-15A	13.6 - 15 V	15 V	12 A	21.33 A	±1%	±1%
VF-S320-18A	16 - 20 V	18 V	10 A	17.78 A	±1%	±1%
VF-S320-24A	21 - 26 V	24 V	7.5 A	13.33 A	±1%	±1%
VF-S320-28A	27 - 34 V	28 V	6.43 A	11.43 A	±1%	±1%
VF-S320-36A	35 - 42 V	36 V	5 A	8.89 A	±1%	±1%
VF-S320-48A	43 - 50 V	48 V	3.75 A	6.67 A	±1%	±1%
VF-S320-54A	51 - 60 V	54 V	3.33 A	5.93 A	±1%	±1%

**notes:**

- 1 Output is fully isolated.
- 2 Output voltage is measured at output power connector.
- 3 1% minimum load is required to maintain the ripple and regulation.
- 4 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.
- 5 Maximum power is 320 W with 22 CFM airflow. 5 and 9 V units maximum current is listed. Maximum power is 180 W with convection.

**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	V ac
Input current	At 100-120 V ac			8	A
	At 200-240 V ac			4	A
inrush current	Peak measured at 230 V ac at full load, cold start			70	A
inrush current	Peak measured at 115 V ac 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 V ac			1	Wsecond
hold up time	At 120 V ac and 80% of rated maximim 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 TTL high 100-500 ms after the output reaches regulation. It goes low at least 1 mS before loss of regulation.				
fan drive	12 V dc/4G00mA 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 SAFTEY

parameter	conditions/description	min	nom	max	units
operating temp.	0 to 70°C ambient, de-rating at 2.5% per degree from 50°C to 70°C.	0		50	°C
storage temp.		-20		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, CE Mark (LVD) EN61000-3-(2,3) & IEC61000-4 Series regulations and CB				
leakage current	at 240 V ac			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 at 10 mA Primary to secondary: Primary to transformer core: Primary to earth chassis:	3,000			V ac V ac V ac
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 V ac			1	hours
cooling	Built-in DC fan speed control.				

## MECHANICAL

parameter	conditions/description	min	nom	max	units
weight				600	grams
enclosure	6(L) x 4(W) x 1.5(H)				inches

## LOGIC SIGNAL CONNECTOR - (CN1)

parameter	conditions/description
CN1	JST B2B-XH-4 or equivalent (CHYAO SHIUNN JS-1001-03) <b>Suggested mating connector:</b> JST XHP-3 or equivalent (CHYAO SHIUNN JS-2001-03)

## 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)

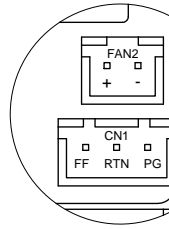
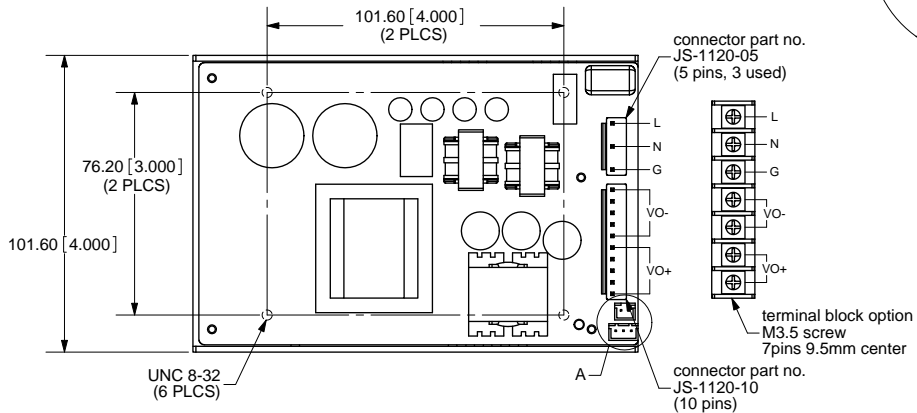
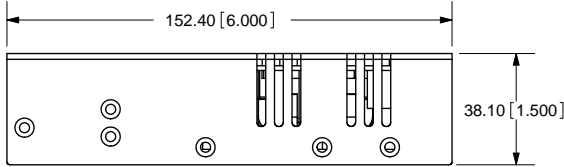
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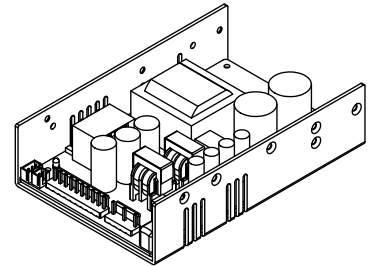
### INPUT / OUTPUT CONNECTOR - (CN2)

parameter	conditions/description
option 1	<p><b>AC INPUT</b> JST VH series (5 pin with pins 2 and 4 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>
option 2	<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>

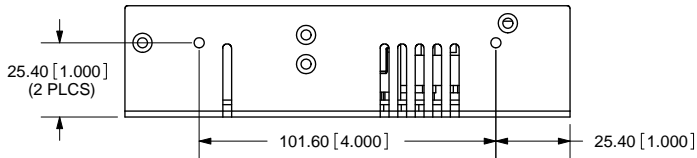
REV.	DESCRIPTION	DATE
A	NEW DRAWING	6/26/2008



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 Series

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